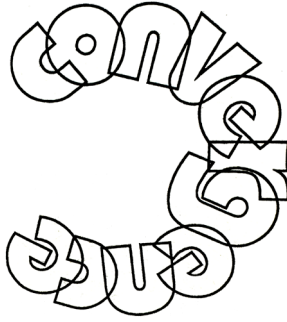


CONVERGENCE

A MULTIDISCIPLINARY JOURNAL OF THE COLLEGE OF ARTS AND SCIENCES

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**A MULTIDISCIPLINARY JOURNAL
OF THE COLLEGE OF ARTS AND SCIENCES**

VOLUME 10 NUMBER 1 | MARCH 2025

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FOREWORD

It is with great joy and pride that I write this foreword for the latest issue of our Convergence Journal. After four years since our last publication, we celebrate the revival of this platform that serves as a vital space for our young faculty, beginners, and graduate students to share their research, insights, and innovations. This issue, with 13 submissions, marks not just a milestone for our college but also a testament to our collective dedication to academic growth and excellence.

Convergence has always been more than just a journal—it is a reflection of our commitment to Silliman University’s mission, vision, and goals. It embodies the University’s call for research, publication, and the integration of values such as faith, competence, and integrity in all that we do. Through this platform, we aim to foster a culture of curiosity, critical inquiry, and collaborative engagement across disciplines, encouraging not only the publication of ideas but also the building of bridges between fields and scholars.

This journal is a testament to what can be achieved when we come together as a community of learners and researchers. It is my hope that this issue will inspire more of our colleagues and students to take part in the research process and embrace multidisciplinary approaches to knowledge creation and dissemination. Together, we can continue to respond to the ever-evolving challenges of our times with creativity, collaboration, and academic rigor.

To all the contributors, editors, and supporters who made this publication possible—thank you for your dedication and effort. May this issue of Convergence ignite the spark of inquiry and inspire greater contributions in the years to come.

Congratulations, and here’s to continued growth and meaningful engagement in research and publication!

Cheers,

Sgd. Mae Brigitt Bernadel L. Villordon RMT, MPH, PhD

Dean, College of Arts and Sciences/Interim Vice President for Academic Affairs



EDITOR'S NOTES

Early morning light is peeking through the Acacia leaves outside and yet I am still wrestling with my article even on the stage of revision. I am certain my experience is not unique. My fellow scholars in this installment of the Convergence have had the same wrestles. There is something rewarding in the act of wrestle. To wrestle means to labor, to struggle, to conclude. It was Jacob whose wrestle with God was emblematic of desired blessing. Can we liken ourselves then to Jacob who wrestled with God and came out new and blessed? To wrestle then takes on a metaphorical, even a biblical sense for it means we take the gods of knowledge, whether it is the natural and social sciences, and humanities by the shoulders and force them to listen to us, to accept our invitations to conversations.

Indeed, the act of formulating a stance and articulating such in writing is to wrestle with ideas, to find our way through conflicting opinions. When we will have rested, we are blessed not with perfect knowledge but a sense of understanding of a thought, a phenomenon, albeit tentative, for we do not have the last say in the conversation.

This collection is simultaneously an individual, for the author, and collective wrestle, for the College of Arts and Sciences, that invites readers to a conversation.

Thirteen articles, this installment offers- eleven of which are in the research section and two in the notes section. Alcantara's research though conducted several years ago, offers a glimpse into Silliman University students living in the campus dormitories, particularly the first persons they turn to for advice regarding problems and whether the 'talk' they have had with these primary confidants are helpful. The study reveals that dormitory residents of Silliman University turn to their parents first for advice, which could be a culturally grounded and specific finding. The research by Jomao-as traces the historiographic emergence of the native "Filipino" in Rizal's *Noli*. Jomao-as contends that the stories in the *Noli* may have been circulated among the Filipinos and part of what James C. Scott calls the 'hidden transcripts' of the natives and as such, a form of resistance. Lambolotos' work bridges the gap

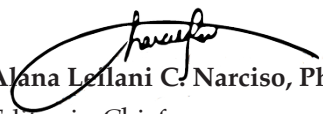
between theory and praxis, and the academic and the grassroots. Using Paolo Freire's *conscientization* approach to critical pedagogy, Lamboloto proposes a contextualized pedagogy that awakens a collective concern for environmental issues that will eventually mobilize learners to action. Lewis, our graduate student in Philosophy, problematizes the Us/Them phenomenon which has neurobiological basis. This innate othering may be resolved by two philosophical approaches—ethic-based rationality found in Plato's work in *The Republic* and Confucian ideas. It is philosophy, as Lewis claims, "so often ignored and sidelined, which may prove to be of value yet." Mangibin's article explores Karol Wojtyla's philosophy of the human person as "revolv[ing] on his concept of intersubjectivity." Wojtyla is the name of Pope John Paul II who held the pontificate from 1978 to 2005. While the human person is unique and incommunicable, he finds wholeness in intersubjectivity. Narciso joins in on the conversation of reinstituting the 'text' back to literary studies by reassessing New Criticism, arguably the most popular formalist approach. Narciso traces the historical roots of this theoretical thought and praxis, its salient points as theory and methodology, and the attacks against it in relation to the ideas of text, culture, society, reader, and author. The end in mind is to invite readers to make their subsequent reassessment of New Criticism. The last article in the humanities and social sciences section is Revagorda's heartfelt argument for faith via Soren Kierkegaard's existentialist thought on reason. Revagorda argues that Kierkegaard's *Fear and Trembling* as illustrated in Abraham's faith struggle when called upon to sacrifice his son, may be the path to not only a reasoned faith but a passionate commitment to God that will eventually transcend mere human rationality.

The Sciences research in this collection starts with Cubelo, Bulfa, and Diaz's project that takes us to the grassroots and examines agricultural knowledge management in local extension offices across three municipalities in Masbate, Philippines via interviews with agricultural officers and technicians. The findings of the study suggest for more local knowledge creation activities, structured knowledge sharing among agricultural officers, documentation of best agricultural practices by farmers, as well as investing in technology for better access to knowledge sources. Another research addition to this collection

comes from our senior geology students. Guevara and Inocian realize the need for a simplified geologic map of Negros Island for geology students. Hence, this updated compilation of previous work by others. Partosa's analysis of selected emerging pollutants, i.e. trace pharmaceuticals, in the wastewater of Dumaguete City is an attempt to address the need for more researches on trace pharmaceuticals among developing countries. The study discovered that traces of non-steroidal antiinflammatory drugs (NSAIDs)- diclofenac, ibuprofen, and naproxen are present in the collected water samples. This study "recommends considering advanced treatment technologies that efficiently remove emerging contaminants from wastewater." Finally, Yrad's project looks into one possible application of DNAfunctionalized gold nanoparticle (AuNP) to biosensing. The study achieves its objective to functionalize dextrin-capped AuNP with DNA oligonucleotide to produce an AuNP-DNA conjugate intended for lateral flow biosensor. Such functionalization "was affected by the stability, concentration, and sizes of the dextrin capped AuNPs."

The two articles in the Notes section come from Bolodo and Suasin. Bolodo's article is playful exploration of modular arithmetic and how it works; it may even be the mathematical answer to several magic tricks. While Suasin reviews the edited collection *Linguistic Landscapes in South-East Asia: The Politics of Language and Public Signage* edited by Seyed Hadi Mirvahedi. Suasin notes how this book, "grouped into three significant aspects of [linguistic landscapes] showcased the dynamics of language, policies, and people." For Suasin, the collection is "an appreciable attempt to collate linguistic landscape studies in the under-researched areas in the East and Southeast Asia."

We hope readers near and far will accept this invitation and engage in the conversations this collection is proposing.



Alana Leilani C. Narciso, PhD
Editor-in-Chief



Problem Talk Among College Student Residents of Silliman University Dormitories

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Department of Psychology

ABSTRACT

This study aims to know the first person the college student dormitory residents at Silliman University turn to or talk to when they have problems and whether the talk is helpful. The respondents of this study are student residents of SU regular and cooperative dormitories who came from the different colleges and schools of the University, from different year levels. The study revealed that most respondents first talked to their parents when they had problems or to their friends, including roommates and boyfriends/girlfriends. On the other hand, the study also revealed that most of the respondents had not talked to or consulted a teacher or counselor about their problems. With this, the following recommendations are made. The Personality Enhancement Program (PEP) classes of the university may be facilitated not by Guidance Counselors but by equally well-trained, competent individuals on a part-time or Graduate Teaching Fellowship (GTP) position. PEP classes duplicate regular classroom instruction, and students may perceive Guidance Counselors like regular teachers, as people of authority. Moreover, the Peer Advocacy Facilitators Program must be strengthened, acknowledging that students talk about their problems and other personal concerns with peers and friends. Consultation and Referral services must be intensified by working closely with parents, faculty, staff, guidance counselors, dormitory managers/advisers, and other professionals, including the campus chaplain, to facilitate interdisciplinary assistance; and that individual inventory and psychological evaluation be maximized as bases for carefully selected non-academic activities and meaningful holistic programs.

Keywords: Problem talk, college dormitory residents, parents, peers

INTRODUCTION

Adolescence is a particularly crucial period. Along with rapid physical growth and changes, new psychological challenges occur (Engler, 2012). Corey (2009) also explained that adolescence is a time for testing limits, for

breaking dependent ties, and establishing a new identity. Major conflicts center on clarification of self-identity, life goals and life meanings. Failure to achieve a sense of identity results in role confusion.

Social fears are common among adolescents, such as feeling rejected, being ignored, feeling disapproved of, looking foolish, losing control, speaking in public, being watched while working (Van Ornum & Morduck, 1994). McDowell and Hostetler (1996) also revealed that physical and emotional tumult of the teen years have always presented multiple problems and challenges. But today's youth struggle with many issues that most of their parents and grandparents would find difficult to bear. Because their social role is unclear, adolescents are inclined to shyness, sensitivity, and aggression to mask their insecurity.

Moreover, Schickedanz et al. (2001) explained that, some problems seem to stem from teenagers' increasing independence, their curiosity and interest in new experiences, their inclination to take risks, and their tendency not to foresee the consequences of their actions. This is why, to ensure that teens and adults navigate these transitions successfully, it is important for both to understand what is happening to the teen physically, cognitively, and socially; how these transitions affect teens; what adults can do; and what support resources are available (Ruffin, 2009).

According to Barnes (2021), teenagers in crisis need someone to turn to. But most do not find it easy to approach people who can help because they are afraid of being judged, being told what to do, or getting in trouble. Because of their unstable sense of self, they fear unpleasant or peculiar people. They particularly fear those in authority (Van Ornum & Morduck, 1994).

In the Philippine setting, Bautista (2002) revealed that teenagers don't go into therapy by themselves. They don't feel like going to counselors because they associate it with parent-teacher conferences that take place when they have problems in school. Those who know of some psychotherapists hesitate to do so for fear of what their parents will say if they learn that they aired the family's dirty laundry to a stranger; moreover, like a typical Filipino, many of them believe that only crazy people go to therapy.

Barnes (2021) asserted that many teens also think their parents can't possibly understand what's happening in their lives. That is why, when teenagers encounter problems, they usually turn first to their peers for advice. With this in mind, this study would like to know the first person the college student dormitory residents at Silliman University turn to or talk to when they have problems and how the talk has become helpful.

THEORETICAL PERSPECTIVES

Erik Erikson greatly enriched our understanding of adolescence and adult years. The primary duality during adolescence is ego identity versus role confusion. The process of forming ego identity requires how one sees oneself with how significant others appear to expect one to be. Erikson further suggested that adolescence is a particularly crucial period. Along with rapid physical growth and changes, new psychological challenges occur. Previous continuities are called into question as young people begin to reconnect the roles and skills that they have developed into a more mature sense of identity. This integration is more than the sum total of previous accomplishments. But the greatest danger at this stage is role confusion, the inability to perceive oneself as a productive member of one's society. The adolescent who cannot find a meaningful adult role runs the risk of identity crisis, a transitory failure to establish a stable identity (Engler, 2012).

Moreover, according to Craig and Baucum (2002), for adolescents, peers serve as audience, critic, and emotional support for ideas, innovations, and behavior. They asserted further that, between 12 and 17, adolescents are increasingly likely to agree with statements like "I feel free to talk with my friends about anything" and "I know how my friend feels about things without his or her telling me." Most adolescents report that they have one or two "best friends" as well as several "good friends." And as friendships become more intimate, teenagers tend to turn to close friends instead of their parents for advice on many matters. However, they continue to seek advice from their parents on such matters as education, finances and career plans.

SIGNIFICANCE OF THE STUDY

This study provides valuable inputs to enhance the existing student services and programs already implemented by the Office of Student Services through the Guidance and Student Housing and Residence Divisions.

According to the Silliman University Student Manual for SY 2008-2009, the University, through the Office of Student Services, exercises general supervision over all student activities outside the instructional and academic areas to ensure that students undergo a holistic college experience that facilitates the attainment of his/her full potential. Thus, this study contributes to the guidance program in assisting the students in understanding, making informed decisions, and achieving wholesome adjustments. The result of this study will provide information to develop, improve, and upgrade the existing guidance services, namely:

- Personality Enhancement Program (PEP). PEP is a unified college program designed for all first-year students. Various activities are conducted which help students adapt more easily to college life and their new environment, and
- Silliman University Peer Advocacy Facilitators Program. PAF is a program aimed at training and equipping student volunteers with competencies needed to effectively assist other students with their problems and other pressing personal concerns.

For the University Administration, teachers, parents, school counselors, dormitory advisers and managers, psychologists, helping professionals, and the general readers, the result of this study will increase understanding on how college students cope and face life's issues and be able to give immediate intervention when help is needed, and perhaps help students change their thinking and attain positive attitude towards consulting or talking to teachers and/or school counselors about their problems.

METHODS

Research Environment

This study was conducted at Silliman University Cooperative and Regular Dormitories, namely: Azucena Cottage, Channon Hall, Doltz Hall, Ipil Cottage, Larena Hall, Molave Cottage, Narra Cottage, Sampaguita Cottage and Woodward Hall.

Research Respondents

This study considers all student residents of SU regular and cooperative dormitories as respondents (population: 645, as per document from Silliman University Student Housing and Residence Division). They have been chosen as respondents since they came from the different colleges and schools of the University, from the different year levels. Their responses will contribute varied perspectives on the issue.

Research Instruments

The study made use of a two-item questionnaire to elicit the respondents' thoughts, opinions and attitudes through written answers to the following questions:

1. Who do you talk to first when you have problems? Are talks with this person helpful? How?
2. Have you talked to or consulted a counselor or teacher about your problems? Was the talk helpful? How?

Research Procedures

A letter of permission was given to the Dean of Student Services, through the head of the Student Housing and Residence Division. The letter contained the description of the study and its purpose. When the permission was granted,

administration of the questionnaire in the University dormitories followed immediately. The respondents were given the option not to participate or even withdraw their participation during the actual implementation of the study.

Treatment of Results

The data collected was tabulated in frequencies and percentages according to the responses of the entire respondent population.

Summary of Results

The respondents of the study included all student residents at Silliman University in the 2nd semester, SY 2012-2013. Out of the six hundred forty-five (645) who are officially residing in the dormitories, only 260 filled out questionnaires were returned. A number of these respondents may have opted not to participate in the study or were busy with school work. A number of student residents, as well, have already gone home for the semestral break.

More than half (67%) of the respondents were males and the majority (48%) came from the first-year class. The highest number of students came from the College of Business Administration, followed by the College of Arts and Sciences and Institute of Clinical Laboratory Science, respectively.

The highest composition of respondents belonged to the age of 17 (33%), followed by age 18 (26%). The youngest was 13 years of age (.4%), and the oldest was 36 years old (.4%).

The study made use of a two-item questionnaire to elicit the respondents' thoughts, opinions and attitudes by answering in writing. The questionnaires were administered on March 20-22, 2013:

Fifty percent (50%) indicated that they first talk to their parents when they have problems, and forty four percent (44%) first talk to their friends, including roommates and boyfriends/girlfriends. 70% percent of these respondents indicated that their talks with their parents and friends were helpful.

Here were some responses on how the aforementioned talks were helpful:

- “Yes, it was helpful because my mother knows more about how to face and solve the problems that I am facing.”
- “My mother always gives the best advice.”
- “My roommates, in a way may not solve the problem but it makes the problem lighter.”
- “Even though my mother is far away, we communicate on the phone. Her advices and words were always helpful.”
- “I talk to my big sister (at the dormitory) with my problems. I am not open to my family. She is the person who knew about my deepest secrets. I share everything to her.”
- “Usually, it’s my sister that I talk to first. Sometimes, if I’m brave enough, I tell my father. But if the situation is too uncomfortable to be shared to my family, I tell my best friend.”
- “I’ll talk to my room mates. Yes, the talks I have with them are helpful because somehow they relieve me of the stress I feel.”
- “My dormitory adviser and dorm mates because they provide consolation and love.”
- Majority (75%) of the respondents have not talked to or consulted a teacher or counselor about their problems.

Some qualitative responses on why a talk or consultation with a counselor or teacher about their problems is considered or not considered helpful are indicated below:

- “No, I don’t feel comfortable talking with a counselor or teacher. I feel that there is a distance between us.”
- “No, because I prefer to keep my problems to myself rather than sharing it to people who are not really close to me.”
- “No, I’m not really comfortable sharing personal stuff with people I barely know. I know they can help me, but it would be awkward to open up to someone who knows only my name. I’d rather prefer to open up to someone I know very well.”

- Yes, but not that much. They give me little information to solve my problem, others they tend to ignore and not that helpful.”
- “I have never tried to talk to any counselor or teacher about my problems because my dorm mates are more than ready to listen to my problems.”
- “Yes, but the talk was so formal. I prefer to talk to my friends.”
- “No, because I’m afraid to tell them about my problems.”
- “Nope, not really fond of counseling.”
- “No, I don’t want to.”
- “Yes, but it was never helpful.”
- “No. Personally, I handle my problems secretly and just make use of other coping mechanisms such as DOTA.”
- “No, because our guidance counselor is not in her office most of the time.”

DISCUSSION

The study revealed that most respondents indicated that they first talked to their parents when they had problems or to their friends, including roommates and boyfriends/ girlfriends. This does not confirm the contention of Barnes (2021), that teens think their parents can’t possibly understand what’s happening in their lives, and Craig and Baucum (2002) that, teenagers tend to turn to close friends instead of their parents for advice on many matters. However, possibly, students may be seeking advice from their parents, specifically on such matters as education, finances and career plans.

However, this study confirms the contention of Barnes (2021), that when teenagers encounter problems, they usually turn first to their peers for advice, and most respondents indicated that the talks with their parents and friends were helpful; it also affirms Craig and Baucum (2002) who claimed that that as friendships become more intimate, teenagers tend to turn to close friends for advice on many matters.

The qualitative data indicated some positive responses on how talking to their parents and friends, including boyfriends/ girlfriends and roommates,

were helpful. Particularly talking to mothers and how helpful it was because mothers give best advices on how to face and solve the problems; and how friends make the problem lighter; the persons who knew about their deepest secrets, relieved them with their stress, and providing them consolation and love. Thus, confirmed the contention of Craig and Baucum (2002) that at ages between 12 and 17, adolescents are increasingly likely to agree with statements like “I feel free to talk with my friends about anything” and “I know how my friend feels about things without his or her telling me.”

On the other hand, the study also revealed that majority of the respondents have not talked to or consulted a teacher or counselor about their problems. This confirms the contention of Van Ornum and Morduck (1994) that because of their unstable sense of self, they fear unpleasant or peculiar people. They particularly fear those in authority. It also confirms the contention of Baustista (2002) that, teenagers don't feel like going to counselors because they associate them with parent-teacher conferences that take place when they have problems in school. Those who know of some psychotherapists or perhaps know about the existence of a school counselor hesitate to do so; moreover, typical of a Filipino, many of them believe that only crazy people go to therapy or counseling.

The qualitative data on the respondents' thoughts, attitudes and opinions on talking to or consulting a teacher or counselor, revealed that, they don't feel comfortable talking with a counselor or teacher; they feel that there is a distance between them; others were afraid to tell them about their problems and were not comfortable sharing their personal stuff with people they barely know. Others have tried talking to a counselor but the talk was too formal and impersonal; they seemed to have given little information to solve their problems, they tend to ignore and be unhelpful. The respondents further revealed that they would prefer to talk to friends or roommates about their problems because they are more ready to listen; it was also revealed that the guidance counselor was not in the office most of the time.

RECOMMENDATION

With these results, the study is recommending that the Office of Student Services through the Guidance and Testing Division and Student Housing and Residence Division to further enhance the existing programs, not only for Student Residents but for the entire student population:

- That PEP classes may be facilitated not by Guidance Counselors but by equally well-trained, competent individuals on a part-time or Graduate Teaching Fellowship (GTP) position. PEP classes duplicate regular classroom instruction, and students may perceive Guidance Counselors like regular teachers whom Ornum and Morduck (1994) described particularly as persons to fear and as persons of authority; also, as asserted by Bautista (2002) teenagers don't feel like going to counselors because they associate them with problems in school;
- that Peer Advocacy Facilitators Program be strengthened; acknowledging that students talk about their problems and other personal concerns with peers and friends. This program enlists a corps of student-volunteers, including Dormitory Big Brods and Big Sis, who are willing to help their peers, and are trained and equipped with basic listening and peer support skills. PAF volunteers will link students in need or in crisis to their respective guidance counselors for appropriate intervention;
- that Consultation and Referral services be intensified by working closely with parents, faculty, staff, guidance counselors, dormitory managers/advisers and other professionals, including the campus chaplain, to facilitate the interdisciplinary assistance needed by students, particularly on issues affecting their mental health and well-being;
- that all available pertinent information about students, such as individual inventory and psychological evaluation results be maximized as bases for carefully selected non-academic activities and meaningful holistic programs in order to facilitate the attainment of the students' full potential; and

- that more similar researches be conducted and a systematic evaluation be done to provide valuable information needed to develop, improve, upgrade and make relevant guidance activities as well as other University student services.

CONCLUSION

The study on problem talk among college student residents of Silliman University dormitories highlights the significant role of parents and peers as primary sources of emotional support and guidance. While most students seek advice from their parents and close friends, very few approach teachers or counselors due to discomfort, fear, or a perceived lack of connection. The findings reinforce existing theories on adolescent development, emphasizing the importance of peer relationships and the hesitancy of students to seek formal counseling.

To address these concerns, the study recommends enhancing peer support programs and improving access to counseling services. Strengthening student support initiatives can help create a more open and accessible environment for students dealing with personal challenges, ultimately fostering their well-being and holistic development.

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Noli Me Tangere and Identity Construction: A Historiographic Paper on the Emergence of the Native “Filipino”

Regan P. Jomao-as
Department of History-Political Science

ABSTRACT

This paper attempts to trace the emergence of the native “Filipino” based primarily on the literary work of Jose Rizal, *Noli Me Tangere*. Among others, it tries to look at the contribution of his novel in the creation of what Benedict Anderson calls an “imagined community.” Moreover, this study seeks to show how Rizal’s novel represented a kind of hidden resistance that was brought out into the public sphere, which contributed to the fall of Spanish colonial rule in the Philippines. More than that, however, Rizal’s novel was evidently also a form of resistance against the Spanish colonizers, particularly the Spanish priests who became the dominant symbol of Spanish rule in the Philippines. The stories found in the *Noli* may actually have been for a long-time part of what James C. Scott calls the “hidden transcripts” of the natives. The notion of identity that is used in this paper is borrowed from Stuart Hall’s postmodern definition of national identity that the subject has no fixed, essential or permanent identity. National identities are not things we are born with, but are part of a process of formation and transformation.

Keywords: *Noli Me Tangere*, Identity, Philippine Revolution, Infrapolitics

INTRODUCTION

What we refer to today as the Philippines and Filipinos are Spanish constructions. In the article of Alfred P. Co, “Doing Philosophy in the Philippines: Fifty Years Ago and Fifty Years From Now” (2004) the author asserts that contrary to what many would like to claim, there was no “Philippines” before Spanish colonization. He argues that what existed then was a group of islands in the South China Sea inhabited by different tribes and a number of sultanates headed by tribal chieftains. There was no single

ruler who exercised sovereign authority over the entire archipelago that is now referred to as the Philippines. On the contrary, there were several villages or communities ruled by tribal chiefs, each practicing "its own animistic religion, tribal customs religious rites, individual myths and legends, but that was all" (p. 4) The Philippines, Co claims, never existed as a country as did China, Japan, Siam or Khmer. These countries were already established cultures when the Western colonizers came to the East. While it was easy to recognize a Chinese, Korean, Japanese or Siamese culture and identity, Co contends that there were no such visible attributes that can be called Filipino when the Spaniards arrived in the archipelago (pp. 3-4).

Further, Co (2004) claims that while the natives had the rudiments of life, like tools for the production of food and weapons for battle, they did not possess "a written language that could unify them nor did they have a collective psyche or consciousness." Because of the absence of a developed language, Co argues that the natives also may have lacked a developed worldview which he says is a basic feature for a developed culture and a collective identity. The native inhabitants of the Islands clearly had no sense of being one community, not even an imagined one (p. 4)

Before the outbreak of the Philippine Revolution in 1896, the term "Filipino" referred to a Spaniard born in the Philippines, the *creole* or *insular*. Contrary to our presumed image of an "original" Filipino who had a dark complexion, short stature, and black curly hair, he actually was the exact opposite. The original "Filipino" was a Spaniard. Only that he was born in the Philippines.¹ Apparently, the word Filipino came to include the natives only after more than three hundred years of Spanish rule in the Philippines (Agoncillo, 1990, p. 115). Prior to that, the native inhabitants were referred to by the Spanish colonizers as *indios* (indians), denoting their being subordinates. The Spaniards viewed the natives through what Edward W. Said(1979) calls the lens of *Orientalism*, a lens which distorts the real image of the people of the East (p. 2). Said argues that *Orientalism* creates an image of a typical or universal oriental who is biologically inferior and is culturally backward, different, and unchanging. He claims that the Middle East and Asia are viewed with prejudice and racism; that they are backward and unaware

of their own history and culture. To fill this void, Said argues that the West has created a culture, history, and future promise for them. The discourse and image of *Orientalism* is associated with notions of power and superiority, which was initially constructed to justify a colonizing mission on the part of the West and perpetuated through a wide variety of discourses and policies (pp. 1-4). The Spaniards in the Philippines created the image of the native as the inferior or subordinate “other” to project their superiority and produce their own image as colonizers.

***Noli Me Tangere* and the Imagined Filipino Nation**

This paper attempts to trace the emergence of the native “Filipino” nation based primarily on the literary works of Jose Rizal, *Noli Me Tangere*. It tries to look at the contribution of his novel in the creation of what Benedict Anderson (1991) calls an “imagined community” (p. 6). In *Imagined Communities: Reflections on the Origins and Spread of Nationalism*, Anderson argues that national communities are imagined in the sense that “the members of even the smallest nation will never know most of their fellow-members, meet them or even hear them, yet in their minds each lives the image of their communion” (p. 6). Further, Anderson states that an important development that facilitated the emergence of an imagined community is the birth of print capitalism. Anderson demonstrates the role of print language in imagining community, particularly with the development of the novel set in a society to which the reader may or may not belong, but can recognize (pp. 36-37). Moreover, this paper seeks to show how Rizal’s novel represented a kind of hidden resistance that was brought out into the public sphere which contributed to the fall of Spanish colonial rule in the Philippines and the eventual birth of the native “Filipino.”²

The notion of identity that is used in this paper is borrowed from Stuart Hall’s postmodern definition of national identity (1993). According to Hall, there are three different concepts of identity: (1) as an Enlightenment subject—that the human person is endowed with capacities of reason, consciousness and action, and always remain identical with itself from birth and throughout

his existence; (2) as a sociological subject—that identity is formed in the interaction between self and society; and (3) as a postmodern subject—that the subject has no fixed, essential or permanent identity which is formed and transformed continuously (pp. 597-98). Hall argues that national identities are not things we are born with, but are formed and transformed within and in relation to representation. He claims that a national culture is a kind of *discourse*—a way of constructing meanings which influences and organizes both our actions and our conception of ourselves. Further, he explains that national cultures construct identities by producing meanings about “the nation” with which we can identify. These are contained in stories we are told, memories which connect the present with its past, and images which are constructed of it. Citing Anderson, Hall asserts that national identity is in fact an “imagined community” (pp. 612-13) Arguably, the “Filipino” identity was not something that the native was born with. Rather, it was formed through time aided by the emergence of a set of discourse, including those written by Rizal, which expressed the resistance of the natives.³

In *Imagined Communities*, Anderson (1991) cites the novel written by Jose Rizal in 1887 to explain his concept of how a nation can be imagined.⁴ Anderson tries to prove the abrupt discontinuity of the natives’ unconsciousness to their awareness of being a community by comparing Rizal’s *Noli Me Tangere* (*Do Not Touch Me*) with *Florante at Laura* (1838), a literary work written earlier by another Filipino, Francisco Baltazar.⁵ Anderson suggests that Rizal may not have “the faintest idea of his readers’ individual identities” but “he (Rizal) writes to them with an ironical intimacy, as though their relationships with each other are not in the smallest degree problematic” (pp. 27-28). Whereas in Balagtas’ poem, Anderson observes that it never occurred to the poet to “situate his protagonists in society, or to discuss them with his audience” (p. 29). Rizal is regarded to be the “Father of Filipino nationalism” and his works, aside from those of Graciano Lopez-Jaena and Marcelo H. Del Pilar, would also be among the first to openly criticize the Spaniards, particularly the Spanish Priests.

Noli Me Tangere as Hidden Transcripts

Although the Spanish priests in the Philippines prohibited the importation, reproduction, and distribution of Rizal's novel, they were not able to stop the stories narrated in the *Noli* from spreading. Even though the novel was written in Spanish, the natives did not have to read it to know what the novel was all about. The fact is they already knew the stories even before Rizal wrote his works. The people knew how abusive the Spanish priests were but no one dared speak about it in the open for the friars were just too powerful.⁶ Most likely the only safe space for them to talk about these issues was in the company of other natives like themselves. It was in their own private spaces that they dared express their own opinions about the priests. The stories found in the *Noli* may actually have been for a long-time part of what James C. Scott calls the "hidden transcripts" of the natives (1990). According to Scott, hidden transcripts are discourses held outside of the public eye, away from the observation of the other class. In *Domination and the Arts of Resistance: Hidden Transcripts*, Scott argues that these off-the-record discussions (especially among the subordinates) eventually could lead to some type of resistance to the dominant ideology (pp. xii-xiii). Just like in the story narrated by Scott about a character in George Elliot's *Adam Bede*, the tenants who shared a situation of subordination took pleasure in the squire of their landlord being publicly humbled by another tenant, Mrs. Poyser. According to Scott, it was the tenants' common class positions and social links that provided a powerful resolving lens that brought together their collective hidden transcript into focus (pp. 6-9). The reaction of the tenants in Elliot's *Adam Bede* helps explain what happened when Rizal's first novel came out. The *Noli Me Tangere* became quite sensational. People wanted to know more about the stories in the *Noli* not so much because they were something new. Rather, it was because they were able to relate those stories with their own experiences and saw the book as a tool for voicing out their own grievances, which they had been hiding for so long. They saw themselves in the oppressed characters of the novel.

Noli Me Tangere as Infrapolitics

The *Noli* may have contributed to the creation of an imagined community but it was evidently also a form of resistance to Spanish domination in the Philippines; it was one of the discourses produced by the few courageous educated natives that was needed to incite nationalist sentiments. Although the *Noli Me Tangere* revolved around the tragic love story of two unfortunate characters, Maria Clara and Crisostomo, it really depicted the diseases that was destroying Philippine society. Rizal viewed the problems of his country through the eyes of a physician referring to it as a social cancer that must be torn out (Vinh Phu, 2015, p. 12).

This novel clearly can be considered as an expression of resistance against the Spanish colonizers, particularly the Spanish priests who became the real and dominant symbol of Spanish rule in the Philippines. In the novel, Rizal openly attacks the friars claiming that they are the major obstacles to the progress of the colony. He depicts these Spanish priests as abusive, immoral, corrupt, and close-minded. The work of Rizal may also be considered what Scott calls *infrapolitics* (1990). According to Scott, in *infrapolitics* "all political action takes forms that are designed to obscure their intentions or to take cover behind an apparent meaning" (p. 199). It works to insert revolutionary ideas into the public transcript without an open confrontation with the ruling class (pp. 13-14).⁷ It may be argued that while at face value the novel is nothing more than writing in fiction, it depicted the real plight of the *indios* under Spanish rule. It, likewise, portrayed the friars as villains and to a certain extent (although Rizal may not have intended it) preached a message of rebellion against the colonial masters. The *Noli*, indeed, was a platform employed by Rizal to confront the Spaniards.

The novels of Rizal proved to be a turning point in Philippine history.⁸ It could not be denied that they played a crucial role in the awakening of the Filipinos from colonial subordination. It made them see their common grievances against the colonizers. The treatment they received from their colonial masters made them realize that they belonged to a different group (not necessarily a different race); a different community even if it was just

imagined. Their being looked down as inferior beings motivated them, especially those who were exposed in Europe to the Western ideas of liberty and equality, to fight for their supposedly “universal” rights and prove to the world that they were their equal. To emphasize the point that the native was entirely a different being, the Spaniards also forbade the *indio* from using their language. In the *Noli*, one finds a scene where the Spanish priest ridiculed a native school teacher of the town of San Diego for greeting him in Spanish:

Padre Damaso, who was the parish priest, had me (the native teacher) called by the *sacristan mayor*. Because I knew his character and feared to make him wait I went up immediately, greeted him and said ‘good morning’ in Spanish. In response to my greeting he extended his hand for me to kiss, then withdrew it and without answering my greeting, he broke out in a roar of laughter and made fun of me... The priest stood up and told me seriously in Tagalog: Don’t use borrowed clothing with me. Be content to speak in your own language and don’t spoil Spanish—it is not for the likes of you. (pp. 105-06).

An *indio*, even if he can speak the colonizer’s language, will always remain an *indio*; a monkey, even if you dress it up, will always be a monkey. The Spaniards never taught the masses their language. And by disallowing the natives to speak *Castillan*, the Spaniards were also denying them an opportunity to become “Filipinos.” However, in the light of Scott’s arguments regarding hidden transcripts, this may be viewed as an effort by the dominant group to protect their private space and keep their own hidden transcripts safe from being understood by the subordinate group. But by doing so, the Spaniards only reinforced the creation of the native as the “other,” thus, giving them a clear definition of their being subordinates.⁹ As argued by Clifford Broman (2015), a crucial factor in the development of racial identity is racial discrimination since it reinforces “the racial label applied to an individual and to groups, and the boundaries between groups, and to also increase the tendency to racially identify with the group” (pp. 833-34).

Rizal's *infrapoliticking* eventually led to an open revolution—a pure form of publicly declared resistance. His novels had clearly influenced a group of non-elitist natives who organized an underground armed movement aimed to topple Spanish rule in the Philippines. Its organizer and leader, Andres Bonifacio, was known to have read both of Rizal's novels and other writings. Bonifacio had been most likely influenced by Rizal and his works that he in fact had used the name "Rizal" as the password for the highest ranking members of the underground organization. Consequently, it was the Philippine Revolution (from its outbreak until the fall of Spain in the Islands) that provided the impetus for the birth of the "Filipino" that would now attempt to embrace the *indios* (Agoncillo, 1990 , p. 153).¹⁰ In their effort to win the sympathies of the natives against the Americans, the Spanish colonial government for the first time publicly considered their native subjects "Filipinos" by implication and no longer just *indios*. The indigenous natives comprised the lowest and largest segment of the colonial social hierarchy and were not "regarded as Filipinos until 1898 when Governor General Basilio Augustin tried in desperation to court their loyalty against the invading Americans" (Apilado, 1999, p. 18; Corpuz, 1998 , p. 16).¹¹ The native, thus, became a "Filipino" in the eyes of the Spaniards through the latter's attempt to appease the subaltern by trying to accommodate him into the society that the colonial masters constructed.¹² The label, however, was only good in name for the attitude of the colonizers towards the colonized did not change (Guerrero, 1987, p. 496). Nonetheless, it would mark the beginning of the natives being referred to as Filipinos.¹³

***Noli Me Tangere* as the Politics of the People**

The organization of a revolutionary group by the masses can also be viewed as part of what Ranajit Guha (1988) calls the "politics of the people." In his essay "On some Aspects of the Historiography of Colonial India," Guha talks about an autonomous domain wherein subordinate groups operate separately from the elites. Guha argues that in subaltern politics, mobilization for political intervention depended mainly on "horizontal affiliations such as the traditional organization of kinship and territoriality or on class associations" (pp. 4-5).

Likewise, in another work by Guha, *Elementary Aspects of Peasant Insurgency in Colonial India* (1999), the author reflects on the peasant insurgency in India which he uses to analyze and understand better the subalterns or marginalized and their actions. He demonstrates that the peasants had agency in the making of their own destiny as they rose up and confronted their oppressors particularly the land lords, money lenders, and government officials. According to Guha, by acknowledging the peasant as the maker of his own rebellion we in effect acknowledge the presence of a “consciousness” in him which he calls “insurgency”—the “consciousness which inform the activity of the rural masses” (p. 4). The peasants, therefore, were not primitive rebels or pre-political people as claimed before by Eric Hobsbawm but were aware of their actions and intentions.¹⁴

Moreover, in the article of Dipesh Chakrabarty, “Subaltern Studies and Postcolonial Historiography,” the author explains that a vital feature of subaltern mobilizations was a notion of resistance to elite domination (2000). This underground society established by the natives in the Philippines was organized mainly by the non-elites. In fact, when the revolution finally broke out four years after the founding of the society, most members of the native but educated elites, including Jose Rizal himself, condemned the uprising and many even pledged allegiance to Spain (Zaide & Zaide, 2014, pp. 257-58).

CONCLUSION

Indeed, the birth of the identity of the present day “Filipino” can be traced to Rizal’s imagining of a national community. One of his visions was the creation of a united nation of Filipinos; to unite the Philippines into a “compact and homogenous” body (Guerrero, 1987, p. 496). This was the first objective of the short-lived society – *La Liga Filipina* (The Philippine League)—he established on July 3, 1892 soon after his arrival from Hongkong. It is, however, also essential to consider the agency of the natives who had the courage to bring into public the hidden transcripts shared by the masses. It was their public expression that eventually brought about the identity of a “Filipino” to include the native. But this identity which Spain had helped create would be transformed and is

still continuing to be transformed. After the fall of Spain, the Americans took over as the new colonial masters. Among their vision was the creation of a "Filipino" based on their own image.¹⁵ Through the American missionaries and the public schools that they established, they would eventually create what they call "little brown Americans".¹⁶

Perhaps an important indicator of the effectiveness of the Americans in influencing the consciousness, culture and identity of Filipinos can be seen in the millions of Filipinos who have migrated to the United States beginning in the 20th century as well as English being made as the second official language of the Philippines. This flow of ideas and people from one part of the world to another has caused what Arjun Appadurai (1996) calls the "deterritorialization" of identities in a world which will be increasingly culturally hybrid by a growth of diasporic public spheres (pp. 18; 52-3). The Filipino identity, and many other national identities for that matter, cannot escape the effects of globalization and the influence of the internet which has put any location in the world at the tip of one's fingers. Indeed, the question of identity in the postmodern era cannot be detached from the process of globalization (Olivier, 2007, p. 39). As pointed out by Salman Rushdie, it would be almost impossible to keep a singular identity especially in today's world that is connected by the world wide web. Hybridity of identity and culture, is something we need to accept and probably even celebrate as it brings about something freshly different that can enrich our culture (Brown, 2011). When we speak, therefore, about identity (as well as culture) at this point in time, we can only be aware that it is a part of a continuing process of formation and transformation.

NOTES

- 1 During the Spanish period, there were two "types" of Spaniards in the Philippines: those born in Spain or the Iberian Peninsula (*peninsulares*) and those born in insular Spain or the Philippine Islands (*insulares*). The latter were considered to be of a lower status than the former but had a lot more privileges than the natives. The *insulares* also differed from the *mestizos* who were a mixture of native and Spanish descent.
- 2 Although Partha Chatterjee admits that Anderson's work has been quite influential in generating new ways of understanding nationalism and the nation, Chatterjee has one central objection to the arguments of Anderson. Chatterjee contends that if non-Western societies have to select their imagined community from certain "modular" forms already made available by the West as offered by Anderson, it would seem that the former will forever be

consumers of Western modernity. Even their “imagination must remain forever colonized in Partha Chatterjee, “Whose Imagined Community?” in *Mapping the Nation*, ed. by Gopal Balakrishnan, (London: Verso, 1996): 218.

- 3 There were other literary works written by other native intellectuals that also criticized the Spanish priests in the Philippines. But, as asserted by Anderson, it was Rizal's work that imagined the natives as belonging to one nation (Anderson, 27-18) aside from being among the earliest to bring out his attacks in the public sphere.
- 4 This gives us a different insight on the importance of Rizal's novels in the study of Philippine history.
- 5 The poem *Florante at Laura* (*Florante and Laura*), written by Baltazar was personal in nature, the events Baltazar narrated were meant to parallel his own situation. Baltazar wrote the poem when he was in prison, imprisoned as a consequence of his rivalry with a wealthy man for the love of a girl. Balagtas, as he is otherwise known, published *Florante at Laura* upon his release in 1838.
- 6 During the Spanish period, the Spanish missionary priests were the true authority figures in the local level and their superiors in Manila the masters of the colony. The Roman Catholic clergy became the real representatives of the Spanish crown and supervised the affairs of the Philippine colony. This was because of the theocratic nature of the Spanish monarchy.
- 7 Public transcripts are discourses/actions that are openly avowed to the other party in the power relationship. It finds expression in certain rules or etiquette which regulates public contact between the two groups.
- 8 Rizal published his second novel *El Filibusterismo*, the sequel of his first, in Ghent Belgium in 1891. This novel talks about the possibility of an outbreak of a revolution should Spain continue to play deaf to the cries of the people.
- 9 A novel by the Indonesian (Javanese) writer Pramoedya Ananta Toer, *This Earth of Mankind* (1990), also talks about the importance of language as an indicator of a person's social caste. Toer's novel talks about a young Indonesian man's fight against the Dutch colonial structure in Indonesia. Like in the Philippines, the natives in Indonesia under the Dutch were forbidden to use their colonizers' language. In effect, according to Toer, it did not only install Dutch as the supreme caste language of Java, but reinforced caste distinctions in native languages themselves, especially Javanese.
- 10 According to Agoncillo, sometime in October 1889 a group of native intellectuals in Paris signed a document addressed “To Our Dear Mother Country, Spain” and called themselves “Filipinos” (Agoncillo, 102). These native elites may have considered themselves as “Filipinos” yet the title of the document clearly suggests that the term is still strongly attached to colonial Spain and not the native Philippines. What they referred to as “Filipino” is still very much Spanish.
- 11 Mariano C. Apilado, *Revolutionary Spirituality: A Study of the Protestant Role in the American Colonial Rule in the Philippines, 1898-1928*, (Quezon City, Philippines: New Day Publishers, 1999), p. 18.; This can also be seen in Gov. General Basilio Augustine's organization of a “volunteer” militia composed of natives. According to Onofre D. Corpuz in “The Filipino Revolution in Our Collective Memory,” “The volunteers were to be issued firearms..., and the volunteer officers were to have assimilated ranks in the Spanish Army”
- 12 When this policy of attraction did not work, the Spaniards resorted to a reign of terror to force the populace into submission and weaken their will to fight.
- 13 It could be argued that the natives of the Philippine colony were among the first to express their nationalism in Asia. This supports the claim of Anderson that it was the “Creole states” (new world colonies) which were among the earliest to develop conceptions of nation-ness, way before the notion of nationalism blossomed in Europe. Anderson provides several possible explanations for this which includes stricter Spanish control and the increase of power in the administrative units in the new South American republics that created much conflict. The

republics resented the tighter regulations and boundaries that were imposed by Spain: for example, Madrid imposed new taxes, enforced metropolitan commercial monopolies, and obliged trade ships between the two hemispheres of the new world to first go through the ports of Spain (Anderson, 50).

- 14 Relating Guha's arguments to the numerous resistance movements that broke out in the Philippines in the 18th and 19th centuries against Spanish rule and how many Filipino historians have written about them, one can observe that most of the literature (in particular the textbooks used in high school and even college) dealing with the subject does not reflect this "consciousness" as described by Guha present among the participants of these revolts. Instead, they focus mainly on the causes and outcome of these early uprisings. The participants are not given any agency except for their supposed leaders who belong usually to the elite members of the native community such as the former village chief and his family or the babayan (native priest). Clearly this is an example of what proponents of subaltern studies have complained regarding historiography on resistance which is dominated by elitist viewpoints and does not focus on the followers which include the peasants or subaltern.
- 15 See Stanley Karnow. (1989). *In Our Image*. New York: Random House.
- 16 See Leon Wolff. (1961). *Little Brown Brother: How the United States Purchased and Pacified the Philippine Islands at the Century's Turn*. New York: Doubleday.

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Environmental Pedagogy and Conscientization: A Freirean Approach

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ABSTRACT

This work appropriates Paulo Freire's theory of *conscientization* and dialogical discourse approach in finding an inclusive method of pedagogy through which environmental issues could be best communicated and taught to audiences beyond the classroom setting. In this paper, I will show how Freire's critical pedagogy could contribute to the development of one's consciousness both in the theoretical and practical aspects of social transformation on the stage of environmental issues. In so doing, it is hoped that an emerging collective concern towards environmental solicitude could be awakened and mobilized to pursue and sustain environmental reforms in the grassroots; thus, paving the path for significant changes on how major components of the causes of climate change could be best shared and discussed. In this paper, I argue that environmental pedagogy is inherently political, that is, the social agent should be actively involved in the process of transformation. In order to do this, a model of pedagogy should be appropriated to provide a structure of knowledge transmission that could help expose the learner to critically awakening reality that springs from environmental issues.

Keywords: Paulo Freire, critical pedagogy, environmental philosophy, conscientization, social transformation, environmental pedagogy

INTRODUCTION

One of the persistent issues in environmental discourses from international to local environmental movements, i.e., NGOs and even GOs is the continuity and consistency of environmental campaigns and advocacies. A major factor that contributes to this attitude is the failure of individuals to assess the risks and impacts of environmental degradation in their communities (Kotcher, et al., 2021). For instance, the initiation of a

movement against the use of single-use-plastics is no doubt the jumping board of a transformative advocacy but to consistently sustain the enforcement and practice of such advocacy is a much greater challenge. A Filipino term often attributed to this attitude is *ningas-kugon* an idiomatic expression that points to the fleeting enthusiasm of people to work towards a goal yet fails to sustain and commit to its completion. Beyond social behavioral factors, the consistency and continuity of environmental advocacies also undoubtedly remains to be a difficult task despite government involvement in policy making and implementation as well regulations in commercial use of single-use-plastics. Needless to say, environmental discourses and pedagogy transcend the discussions on the regulation of single-use-plastics in commercial establishments, yet the common problem among these issues, i.e., waste segregation, global warming, water and air pollution and the like, is how to communicate it in such a way that the individual does not simply understand the ramifications of inaction but opts to participate and commit in environmental advocacies – both in private and public. Another common problem as Livermore and Revesz (2014) pinpoints is the leniency of the law enforcement in executing policies which inevitably result into the failure of ingenious environmental initiatives and projects to make lasting impact to save the environment. Intuitively, there appears to be a two-fold approach in addressing environmental issues, that is, a proactive interference of the government in implementing environmental laws and, the indispensable role of the academia and environmental advocates in educating members of the community to cultivate a genuine care for the environment. The quest, therefore, is to make certain the sustainability of efforts geared towards environmental preservation. It is for this reason why this work attempts to not only explore environmental solutions, but also find methods and models through which environmental concerns could be well-understood and communicated to the masses. Though there still remains a gargantuan task to cultivate critical consciousness within academia concerning environmental issues, the approach and method towards knowledge transmission should not be restricted to lectures and case studies especially that the approach towards community-based pedagogy needs to be relatable

and localized to the audiences. This work, therefore, will be structured in the following order: first, I will discuss pre-existing strategies that are used to communicate environmental issues; second, I will appropriate critical pedagogy in establishing a sustainable and localized conceptual grammar in communicating environmental concerns. Again, as could be later seen, the sustainability of environmental initiatives could only flourish and be established through the awakening of the individual's consciousness, in this case, environmental *conscientization* (Chandia & Walley, 2018) to the realities of climate change and the deterioration of our natural resources. In order to do so, I will explore Paulo Freire's critical pedagogy in hopes to provide a pedagogical method through which environmental discourses could be understood both in the practical and theoretical aspects most especially by the grassroots.

METHODOLOGY

This work will utilize a hermeneutic and descriptive approach in presenting Paulo Freire's critical pedagogy and historical-analytic approach in dissecting the pedagogical problematic in the knowledge transmission of environmental issues to the community. In appropriating Freire's pedagogical model in the environmental discourse, this work will employ critical-analytic approach which aims to investigate the potential political implications of environmental issues and therefore, situate the individual as an agent of social change. In doing this, this work will capture key points from Freire's *Education for Critical Consciousness* and *Pedagogy of the Oppressed* and other related literature on critical pedagogy and environmental pedagogy.

DISCUSSION

Given the urgency of this discourse, the attempt to structure pedagogical models in teaching environmental issues is not new. One of the early instructional models for environmental education was formulated by William Stapp (1978). He contends that the challenge of environmental pedagogy is

not only the awareness of environmental issues, but the change of attitude of the individual concerning environmental crises. In order to accomplish such feat, environmental pedagogy should not only address the ‘symptoms’ of environmental issues, but the big factors that cause crisis in the environment. These include, for instance, the big three influences which, for Stapp are, 1) individual behavioral patterns, i.e., consumerism, individual choices, and behavioral actions, 2) corporate behavioral patterns, i.e., passing on social costs and unaccountable to society, 3) governmental behavioral patterns, i.e., low environmental priorities and lack of sound environmental legislation. Therefore, the challenge of environmental pedagogy and the approach to address it is naturally comprehensive. As can be seen, these three main factors or reasons of environmental issues resonate with the actual issues that the environment and human societies confront, that is, “environmental pollution, population (overpopulation), urbanization (housing, transportation, growth), land-use planning, unwise use of natural resources, energy consumption and waste, waste disposal, and food supply.” Therefore, a critical approach towards environmental pedagogy inevitably touches on issues seemingly beyond the limits of contexts and themes present in the listener. This is to show the overarching impact of environmental abuse not only towards the locality, but also to other parts of the world and other walks of life. In this manner, the usual goal of “awareness” and “participation” would not cut through the problematic of environmental crisis. In this manner, Stapp postulates a comprehensive objective that an environmental pedagogy should target - awareness, knowledge, attitudes, skills, and participation. First, the goal is for the students to be exposed to the realities of environmental crisis which necessitates substantial information concerning the causes of environmental issues. In essence, the totality of the environment as a discourse has to be introduced to the learner not only in the level of cognition, but more importantly, in the level of experience and awareness. Once a critical awareness is cultivated, a passionate attitude towards environmental issues follows, that is, the “concern and motivation” for the learner to participate in the movement. Yet this is not sufficient, as ultimately, the learner has to prepare or at least, identify the skills she needs to contribute to the movement.

This is to say that one has to learn to utilize skills in communicating and setting into activity environmental plans and projects. At this point, the most important goal of environmental pedagogy is achieved – participation. As I will discuss later, the goal of education in Freire’s model of pedagogy is not to simply inform the individual but cater to the development of the individual’s critical consciousness and cultivate a culture of participation and activity in contrast to silence and timidity. This approach, for Freire (1970) is necessarily the politicization of the discourse. This means that education and its contents, in this case, environmental crisis, ought to be political in order for it to hold a public limelight beyond the premises of the classroom.

Now, Freire’s socio-political analysis would necessarily make this discourse political. In fact, anything that is taught in the classroom, in Freire’s model is political, precisely because of the impact the pedagogical content will make towards the learner eventually trickles down into the social circumstances. For Freire (1970), the individual unconsciously or consciously belong to political environments in which socio-political perspectives are shaped and similarly, responses to environmental initiatives are determined. For instance, the initiatives to “*Reduce, Reuse and Recycle*” have, indeed over the years, have become a cliché campaign through which environmental concerns are often communicated (Rinkesh, 2019). In fact, through this aphoristic campaign and of course, the enactment of the *Ecological Solid Waste Management Act of 2000*, much public sympathy was garnered to resist environmental negligence which resulted in the rise of both government and non-government organizations such as *World Wide Fund for Nature, Waves for Water, Save Philippine Seas, Earth Island Institute, Greenpeace Philippines, Haribon Foundation, Rare, Mother Earth Foundation, Philippines Biodiversity Conservation Foundation, and Marine Wildlife Watch of the Philippines* to name a few at least in the Philippines and some that were even established way before the enactment of the law (Tangco, 2024). Notably, most of these organizations are sub-chapters of international organizations which attempt to preserve and rehabilitate natural resources and help educate communities through research-based and scientific findings in the aspects of global warming, climate change, pollution, and deforestation. These findings are often locally addressed

through practical and feasible reforms such as waste segregation, recycling, reduction of greenhouse gases through the utilization of renewable energy and also the ban of plastics in certain cities and municipalities. The weight of environmental concern is not to be taken lightly. However, this subject as a discourse has often been misused to promote and push for individualistic or partisan political interest which, in fact, remains an unfortunate reality especially in the Philippine socio-political landscape. If not used political ends, environmental discourses is usually ignored in the national level – forcing advocates to initiate movements among local communities (Brisson, 2004). In fact, the resistance to environment-centered projects is coming from the institutional level. Perhaps the impact of neoliberalism could be blamed as it tends to neglect in a massive scale environmental concern for economic development (Liverman & Vilas, 2006). It is critical to mention that what this paper meant by “politicization,” in Freire’s pedagogical model, is simply the necessity of the discourse to take shape in public sphere – engaged by the body politic.

As I have earlier mentioned, the politicization of environmental concern is the utmost priority not in the sense of using political figures and influence to dictate the direction of legislation, but politicization through means of education (Berthoff, 1985). To wit, one prevalent issue in the Philippine political landscape in relation to environmental reforms is that policies and local legislations tend to fall into the pit of leniency in its implementation and in most cases, abandoned under different administrative control (Akella & Cannon, 2004). In this way, efforts to pursue environmental issues are “politically driven” which endangers not only our natural resources, but the potent idea of environmental reforms and the precious time in inconsistent environmental campaigns. In this way, environmental movements seem to lose its urgency while real threats of climate change and global warming pervasively affect the intensities of our typhoons, leaving our food source and natural resources in dire devastation. It is, for this reason, that the utmost hope of this work to revitalize the environmental discourse and its sustainability through the appropriation of Freire’s critical pedagogy.

On Conscientization

Central to Paulo Freire's critical pedagogy is the ambitious project to make the human person critically conscious of the reality around her, a process which Freire calls *conscientization* (Montero, 2014). In fact, this is the *telos* of education for Freire (1965), that is, to enable men and women to deal critically and creatively with reality and make them participate in the transformation of the world. It is through the exposure of the individual's consciousness to socio-political and even environmental issues that a critical action is instigated. In his seminal work, *Education for Critical Consciousness*, Freire speaks of the *democratization of culture* which hopes to render man as an active subject of transformation than a patient recipient of change. In fact, for Freire, the foundation of the project of *conscientization* is the recognition that the role of man in the world is to engage and create dialogical relations with it, that is to say, man is not only an observer of changes, but material to the development or deterioration of social order. In this way, as Freire argues, the changes in reality are not a given destiny, but necessarily a manifestation of unjust socio-political structures. It is for this reason why the politicization of the individual's consciousness is crucial in overturning elements of exploitation because socio-political and even environmental transformations are only possible through, first, the critical understanding of empirical and verifiable facts, and second, the critical action geared towards a genuine and uncompromising change. However, it is crucial to note that the attainment of critical consciousness requires the individual to analyze facts and figures in the concrete socio-political reality. As Freire would have us believe, the absence of content makes it impossible for conscientization to be achieved. In fact, this is what he calls naïve consciousness, that is, a blind awareness of reality, yet an individual under such consciousness could still claim to have a clear understanding of reality (pp.39-40). Hence, the goal is for the individual to supersede and advance through a naïve perception of reality or a "magic perception" of the world, which as Freire comments, depicts reality as controlled by a higher power which denotes the immateriality of human presence in the world. The transition that the individual will go

through in the process of conscientization, therefore, is the point through which myths of reality as they formally see it are “demythified,” social structures are subjected to careful analysis and critique, and realities of domination are exposed (Dawson & Avoseh, 2018). However, the process through which this ambitious goal is attained obliges the individual, as we will later see, to recognize certain truths in order to fully realize the urgency for conscientization. Now, the real quest is to understand the process through which critical consciousness could be achieved which, in crucial ways, will cater to the project of environmental conscientization which I will discuss in the later part of this work.

In his attempt to provide a pivotal pedagogical intervention, Freire (1965) proposes three critical answers which may, in fact, push forward the development of critical consciousness. For him, critical consciousness could emerge from “an active, dialogical, critical and criticism-stimulating method; in changing program content of education; and in the use of techniques like thematic ‘breakdown’ and ‘codification’ (, p. 121). In order to show specific processes through which Freire’s critical pedagogy is founded, let me briefly discuss the first method, that is, dialogue or what he calls “horizontal relationship between persons” (p. 91). To begin with, dialogue, for Freire, is a “relation of empathy between two poles who are engaged in a joint search”. Moreover, this is cultivated and nourished by “love, humility, hope, faith, and trust” which, for him, could direct a critical search for a general consensus of solutions to concrete social issues. In fact, Freire contends that “[d]ialogue is the only way, not only in the vital questions of the political order, but in all the expressions of our being...” (p.91). However, a genuine dialogue requires a deep commitment to faith in what man is capable of accomplishing, essentially, the possibilities of transformation. Otherwise, a dialogue is devoid of any power and meaning and is therefore, futile. In this way, through dialogue the individual’s naïve and magical understanding of reality is overcome and the point of departure for the critical understanding of reality could be made possible.

Further put, dialogue, as can be seen in Freire’s *magnum opus*, the *Pedagogy of the Oppressed* (1970), is characterized by its essence, that is, the word

itself. Here, he attempts to dissect the nature and dynamics of a word which he, then, maintains to have two dimensions, that is, reflection and action. He argues that the failure of each one to function accordingly will necessarily result in the detriment of the other. Thus, for Freire, the relationship of these two dimensions of dialogue engenders a rigid connection that necessarily constitutes a true word. On the one hand, he explains that a reflection or a word without the dimension of action turns into verbalism which he perceives as alienating, futile, and empty. On the other hand, an over-emphasis of action or activity in disregard of reflection is “converted into activism” which renders the project of conscientization and eventually, social transformation, unsustainable. Freire, therefore, argues that transformation is impossible in the disunity of these two dimensions. This is, again, because genuine dialogue relies on the truthfulness of the word radiating from the virtues of love, humility, hope, faith and trust (Lamboloto, 2024). Corollary to this, Freire insists that false words cannot transform the world and human existence will not flourish through them. In this case, the absence of one dimension immediately cancels the possibility of transformation. He maintains that to say a true word involves action or work, and the combination of these two constitute praxis (1970). It is for this reason why Freire regards the unity of action and reflection, that is, praxis as the *conditio sine quanon* in the transformation of the world (Mayo, 2020). In this case, I argue, environmental transformation could only be possible through *praxis*.

Having discussed Freire’s notion of dialogue (1970) in length, this paper has brought the groundwork for environmental conscientization to the fore. However, in providing a complete pedagogical procedure let me briefly venture into the critical and criticism-stimulating method which is deeply embedded in Freire’s classic problem-posing method extensively discussed in the *Pedagogy of the Oppressed*. Here, Freire opines that “present, existential, concrete situation(s)...” should be posed as a starting point in which the individual gradually enters a relatable and familiar circumstance with which her consciousness could almost immediately be attuned with the content of pedagogy (1970, p. 85). In other words, the program content should never be disinclined from the individual’s disposition, that is, her culture, situation

and circumstances which necessarily reflects the observational vicinity of their social experience. This is because, for Freire, the role of the educator is not to impose his own worldview as in the case of the banking method but encourage the individual to engage in a dialogical exchange of views concerning common realities. In this way, the culture of silence and *mutism* that Freire adamantly rejects is diverted from the one-dimensionality of pedagogy to a dynamic interchange of perspectives which is, again, only possible within the culture of love, humility, hope and trust. (Freire, 1970, p. 28; Cortez, 2013). Moreover, it is already implicit at this point that the educator ought to understand the “structural conditions” of the people’s linguistic capacities and therefore, thoughts and ideas that necessarily shape and determine their common reflections. Freire particularly pinpoints this problem because educators are not often understood because their linguistic techniques and jargons do not fit into the audience’s concrete situations, hence, alienating the individual from the supposed end goal of pedagogy. It is for this reason why Freire proposes an alternative, a viable way through which critical learning is attained, that is, the problem-posing method.

Now, the problem-posing method is simply a method of pedagogy that poses problems for both the student and the educator to analyze and discover (Mishra & Iyer, 2015). This is, in fact, an alternative to the banking method of education Freire so rigorously critiqued. In this pedagogical paradigm, the learner or the audience are not perceived as mere recipient of knowledge but a contributor to the enrichment of the body of knowledge and eventually, the transformation of the world. In fact, here, the educator is no longer the depositor of knowledge, but a sojourner in partnership with the student in the attempt to affirm and transform knowledge (Freire, 1970, p. 82). In this way, the one-dimensionality, again, between the teacher that is, the advocate and the audiences or the learners under the possibilities of alienating program content is resolved. However, it still begs the question how we ought to know the specificity of how problem-posing method or critical-criticism based pedagogy should be employed or appropriated in concrete pedagogical set-up that is particularly concerned with environmental issues. Thus, the next section will discuss the following techniques, to mention, *thematic*

investigation or “breakdown” and “codification” in an initial attempt to relate critical pedagogy to environmental conscientization.

On Thematic Investigation

Thematic investigation or what Freire (1970) calls thematic “breakdown” is directed towards the understanding of the individual’s *limit-situations* which are determined by epochal units such as “complex of ideas, concepts, hopes, doubts, values and challenges in dialectical interaction with their opposites....” (p. 91). Similarly, the individual’s limit-situations determine the way in which an individual’s actions or judgments are formed. While epochal units are represented in terms of “ideas, values, concepts, and hope as well as the obstacles which impede man’s full humanization, constitute the themes of that epoch” (Freire, 1965, p. 40). In other words, the thematic universe of the individual inclusively constitutes themes that dominate their epoch which either advances collective human interest or alienates the individual from their practice of freedom and also, the possibilities of emancipation and social transformation. In the same way, the historicity of the individual and the historical circumstance that the individual is subjected to renders a crucial role in the dynamics of the dialectic. This is because, as Freire reminds us, “...themes [could never] be found anywhere except in the men-world relationship” and the interaction of the themes actualizes the dynamism of the individual’s historicity (Freire, 1965). Put simply, the thematic universe of the individual constitutes historical realities and struggles through which the limit-situations of a collective group or a person could be determined or traced (Saul & Saul 2016). The human individual, as we can see, is a product of an epoch which engenders socio-political, cultural and historical struggles all embedded in the thematic universe.

The understanding of the thematic universe and the limit-situation of the individual enables us to view the possibility of liberation, that is, the anti-thesis of the fundamental theme which Freire (1970) identifies as domination and oppression. The ambitious goal of liberation, therefore, necessitates a rigid examination of the limit-situation of the individual which reflects the

theme dominant to an epoch. Hence, in this way, the reality of domination engenders particular experiences of disenfranchisement and exploitation which could be overturned by the realization of its opposite. This is why central to Freire's critical pedagogy is the urgency to redeem the human person's humanity through humanization as extensively discussed in the first chapter of the *Pedagogy of the Oppressed* (1970). While it is true that there are common themes, for example, in the case of domination, which seemed to encompass concrete socio-political and cultural landscapes most especially in the third world, there are also societies and groups with its own themes. In fact, even within particular circles there remains a diversified theme which, according to Freire, also includes "epochal subunits;" that is, there are certain elements that coexist, and one is a modern and relevant idea and the other, anachronistic (Freire, 1965, p. 94). To wit, scientific knowledge, for example, through objective and empirical investigation of reality are contemporarily regarded as the legitimate instrument to test the truth of things, however, in the recent past and evidently, even in some communities, myths and folklores and even superstitions are highly regarded as a valuable site for knowledge which, of course, attempts to explicate a certain phenomenon.

Moreover, as we can see, the human individual, regardless of the milieu and her historicity, succumbs to the encompassing fences of themes. In this case, however, the persons who are in the peripheries have a meager understanding of her limit-situations, that is, the way in which she has been conditioned and cultivated to become. This is exactly why individuals who lack a critical understanding of reality only apprehends reality in fragments or as it appears to them which, nevertheless, obscures their consciousness from a clearer and wider picture of totality. In this way, Freire (1965) contends that in order to "truly know it (the whole of reality), they would have to reverse their starting point: they would need to have total vision of the context in order subsequently to prepare and isolate its constituent elements..." (p. 94). Simply put, in order to perceive a clearer picture of reality, the individual has to step back and analyze the overview of the whole. This, for Freire, is made possible through the evaluation of crucial dimensions of the person's circumstances which could also, in fact, cater to a better understanding of

the nature and dynamics of key components that interact with each other comprising the totality of the whole.

With this in mind, the attainment of critical consciousness seems to be within reach. However, it is crucial to mention that reality, as man perceives it, is thick, dense and enveloping. This means that even generative themes within sub-units of an epoch is condensed and therefore, entails a careful scrutiny of the particulars and a rigid understanding of different dynamics of history, politics, economics, culture and language. The seeming impenetrability of reality under the scope of thematic investigation could, in fact, reduce the concrete perception of reality to its abstraction. This is to say that, thematic investigation would resort to the conceptual and theoretical inquiries devoid of concrete and existential circumstances which Freire (1970) believes to defeat the dialectical nature of praxis. Now, the quest, therefore, is the way through which reality could be best exemplified; the method which could provide a clear-cut analysis of reality. Hence, in departing from the tendencies of an abstract perception of the world, let me discuss Freire's notion of "coded existential situation" (1970) and the way through which it could be decoded in order to achieve coherence and clarity for thematic investigation of particulars in the totality of reality.

On Codification and Decoding

Now, in order to have a coherent investigation of "concrete coded existential situations" or simply coded realities, let us first discover how decoding or de-codification is done in order to fully show the elements that interact between themes. Coded existential situations simply refer to the concrete particularities and elements which collectively constitute what Freire (1970) maintains as the dense and impenetrable reality. These are also referred to most often as windows to the individual's understanding of the world (Peckham, 2003). One could make a comparison between coded existential situations and parables to have certain similarities. On the one hand, what Freire refers to as coded existential situations are images or scenarios that depict common phenomenon in everyday life, yet individual agents may

have various interpretations of the picture. Parables, on the one hand, as used in Scriptural text, i.e., the parable of the lost coin, lost sheep, or prodigal son, utilizes real life scenarios with a hidden idea beneath the surface of the story. Freire (1970) points out that because the individual carries an identity and historicity, the way in which images which represent ideas are seen and interpreted differently from the vantage of one social agent to another. In order to ground Freire's point further, one could imagine an image of the duck-rabbit illusion which one of the philosophers of language, Ludwig Wittgenstein (1953) used to portray the idea of aspect perception. If one views the image of the duck-rabbit on the left side, one could conclude that the picture is a sketch of a rabbit, but if one would view the image from the right side, one could see a rabbit. Yet, the image of a duck or a rabbit could only be rendered sensible if the observer has a memory-based perception of what a duck or a rabbit looks like. Otherwise, the picture as is would not register and indicate an *a posteriori* experience. In other words, coded existential situations in itself are subject to the historical and contextual interpretation of the social agent.

For Freire (1970), coded existential situations could be that of what could be seen in images, literature and even films wherein the individual as they observe the phenomenon are naturally inclined to relate to the circumstance as if they are directly participating in the coded situation. In other words, the coded realities depicted in the image registers in such way that it is first, a descriptive expression of reality and second, a collection of parts that implicitly captures a variety of epochal sub-units or themes relevant to the individual observer. Now, these images, in the process of decoding or a critical dissection of its components begin to "gain" meaning which, according to Freire, the individual tends to split or dissect the coded situation or unconsciously subject it to the scrutiny of parts that interacts with each other in the totality of the whole. Moreover, the decoder for Freire, "tends to take the step from the representation to the very concrete situation in which and with which he finds himself" (p. 96). In other words, as the individual apprehends the content of the coded existential situation, there is an inclination to relate to the themes present in the coded situation to the theme current to the individual. This is, in fact, how the human individual generates their own theme or expresses a

general thematic. Freire opines this so because “men exteriorize their view of the world” and he adds that, “and in the way they think and face the world – fatalistically, dynamically, or statically – their generative themes may be found” (p. 97). Simply put, the way in which people formulate their judgments, dispositions, limit-situations and even their perception of the world itself massively rely on their *thematics* (Apostolidis, 2019). For Freire, therefore, it is only through the critical understanding of “thematics” that reality could be best understood and thus, transformed. However, the question remains, that is, the process through which *thematics* and limit-situations could be critically understood in the context of environmental issues. In short, how do we utilize these pedagogical methods in thematic investigation of limit-situations that necessarily shape the individual’s perceptions and judgments concerning socio-political, cultural and even, environmental concerns?

Conscientization is as elusive as it is rigorous. It is also extremely necessary in the communication of environmental issues albeit a demanding project as it advocates the activation of the consciousness as the primary tool for environmental transformation. However, environmental discourses, as we know, could not be sustainable as well as its corresponding attempts to appropriate environmental solutions in practice if it weren’t for the internal driving force of the individual to commit to a certain cause. As Stapp (1978) contends earlier, the key to commitment is first for the individual to become aware not only in the level of cognition, but in the level of care and compassion. Freire (1970) believes to make this happen through *conscientization*. Hence, in order to ensure a sustainable method through which environmental *conscientization* could be communicated, understood and applied, let me discuss the specificity of critical pedagogy and its possible implications to the environmental discourse which, through the *praxis*, may eventually result into a meaningful transformation.

Environmental Conscientization

As I have discussed earlier, the “politicization” of environmental concerns plays a crucial role in the sustainability of environmental discourses and

thus, also the initiatives that materialize out of the necessity to respond to the most basic of environmental issues to the most complex. These issues of global warming and climate change brought about by deforestation, uncontrolled carbon emission, water and air pollution, and the like could be communicated well and still receive a little response from society. The urgency of environmental reforms, indeed, rests upon scientific findings but evidently, it does not guarantee an active response from most members of the community.

The central quest of this work is to make environmental discourses and initiatives sustainable and transformative. As Freire (1970) would have us believe, a critical understanding of reality is crucial in attaining a wider and more accurate perception of the world geared towards social transformation. This is to activate the consciousness to concrete social realities, in this case, in the aspect of environmental themes. As discussed earlier, Freire pinpoints the necessity to investigate the thematic universe and limit-situations which determine the limit-acts and thus, the consciousness of the individual in her commitment to the attainment of social transformation. In relative parlance, the approach and method of pedagogy should take into consideration the identities of the audience and their circumstances. This is precisely because the degree of their understanding and commitment hinges on the limits and parameters of their lived experiences.

Freire (1970) recognizes the initial function of dialogue and communication to spark a realization in the individual that she is situated in the world not only to observe the changes that transpires over time, but to intervene in the socio-political and historical development of reality. He claims that "men, as beings 'in a situation,' find themselves rooted in spatial-temporal conditions which mark them and which they also mark" (p.100). Freire argues that since they are situated and are affected by spatial-temporal conditions, "they will tend to reflect on their own 'situationality' to the extent that they are challenged by it to act upon it." The individual emerges from her submersion to the concrete social realities and their conflicts with a deeper awareness of the world. Freire renders this submersion as an authentic education as it does not only subject and expose the mind to knowledge, but to real world

circumstances which enable the individual to “intervene in reality as it is unveiled” (p.100) This, again, is a direct contrast of the banking method of education which seeks to impose and deposit contents while generative themes are unfounded, that is to say that, their theme has the tendency to be cultivated by silence and *mutism* (p.100). This is particularly crucial because the role of the educator or the investigator is to reveal and represent the investigation of their thematic universe not as a form of lecture, but a problem (p. 101). Simply put, in reference to the previous discussions, the investigator should seek to aid the individual in decoding various dimensions of their situations. In this manner, a critical understanding of reality is achieved through a careful dissection of particulars in the totality of social experience.

In relating environmental concerns to thematic investigation, we could see possible angles through which the sustainability of initiatives could be revamped. For Freire (1970), codification could aid the investigators in presenting themes relatable enough for the individual to recognize. However, it is crucial to present coded existential situations through images that are only familiar to the individual. For instance, in presenting environmental issues to a local community in the mountains, it would be alienating to show the impact of nuclear energy or factories while the apparent environmental issue in the area is deforestation. This is because the process of decoding unfamiliar images may distort their perception of reality as they fall into the pit of reductionism (p. 107). For Freire, it is important to consider first and foremost the “thematic nucleus” in the preparation of codifications to be “neither overly explicit nor overly enigmatic” (p. 97). That is to say, images or coded situations either through visual or auditive channels or a mix of both should be simple and reflective of concrete social realities through which the individual could relate to and efficiently comprehend. Again, the concern of this work is the challenge of presenting environmental issues outside academia. The challenge, I argue, in the context of academic discourse of environmental issues, is very flexible as instructors could make use of reading materials, scientific data, and the like to present facts. Yet these methods are alienating if presented to audiences outside the academic setting. Thus, the question environmental discourses need to answer is how could issues in climate change and global warming be

best presented and explained to audiences outside the academic setting. The demand for creativity is due. Yet the pedagogical model, as for Freire, needs to meet these criteria: it is suitable to the generative themes and limit-situations of the individual, and its codification could be decodified by the learner; that is, it is not alienating and relevant to the individual. The goal of codification, for Freire, is the directive assistance of the educator to lead the individual into a critical reflection of the world.

In this case, thematic investigation could be pushed further through the utilization of coded existential situations through audio and visual tools. These, most especially in the contemporary times, could be made more effective as technology constantly develops and methods of presentations and codifications get more complicated. However, again, it is crucial to consider the content in which the coded message is embedded as the decoding is only effective as the theme it engenders. For instance, environmental conscientization could only be as effective as the content the consciousness emerges from. The individual will not capture the weight of environmental deterioration if the consciousness fails to apprehend the themes dominant to an epoch. In most cases, the individual, indeed, embodies a generative theme of silence and *mutism* or simply, an apathetic attitude towards her limit-situations. The quest, at this point, is to find a way to direct the individual to a critical understanding of reality through coded existential situations without the unnecessary struggles of experiencing firsthand, for instance, a super typhoon or a drought. In other words, the challenge is to come up and formulate ways in which the individual could become aware and learn about climate change and global warming as a result of various factors, for instance, deforestation, air and water pollution, and the like. One creative approach was to use films and documentaries to present existential situations that present visually stimulating scenes which could initially expose the individual to concrete environmental realities (Topal, et al., 2020). The exposure, of course, becomes the jumping board of critical consciousness as information and data which are often deemed as alienating and irrelevant to the listener could be demonstrated in creative images and nuances. While this approach may not immediately convert the audience as environmental advocates, the

consciousness of such realities already pre-disposes the individual towards what Freire calls an “easter experience” where the subject begins to authentically commit oneself to the cause (Rugut & Osman, 2013, p.26.). Freire’s critical pedagogy, however, will not be complete without the aspect of dialogical dissection of reality. Indeed, audio-visual methods could initially stimulate curiosity, but the commitment to pursue transformative measures only arises from a dialogical dynamic among persons in the community, educators, and environmental advocates. Thus, following this logic, environmental solutions could be formulated not only from a vertical model, that is, from top-down, but horizontally among members of the community who experience directly the impact of environmental degradation.

CONCLUSION

This work does not offer a one-size-fits-all pedagogical model of environmental discourses. Yet, I believe that the structure of any environmental pedagogy should pursue not only the cognitive angle by imposing concrete information and scientific data, but more importantly, fostering a critical understanding of the themes and context where the learner’s identity and culture emanates from. Again, this is to be able to emphasize contents that the learner could understand and engage with as an immediate concern in her community. The vision of environmental pedagogy is to sustain the movement and the individual’s commitment to the cause. I believe, there is no better way to do this than to introduce environmental concerns as problems individuals could “problematize” and dialogically solve as members of a whole. In this way, we could hope to sustain environmental initiatives through the individual’s conscious return to concrete socio-political reality wherein she is situated. The realization of the critical consciousness and the submersion of its core into alarming and devastating realities of environmental collapse, its subsequent implications to a wide array of aspects, for Freire, begets a stronger chance for social transformation and an optimistic pursuit of environmental consciousness.

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Neuroscience, Psychology, Philosophy: The Ethics of the Us/Them Problem

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ABSTRACT

This paper wishes to examine an age-old problem—that of human psychology in which people form in-groups and out-groups. The conventional method to address this problem is through some contemporary studies in psychology and neuroscience, particularly the solutions offered by Robert Sapolsky, a leading researcher in biology and neurology at Stanford University. Sapolsky's practical solutions, while perhaps somewhat useful, are of a superficial sort and require deeper foundations. The intractable psychological tendency of humans (to frame relations in the Us/Them problematic fashion) needs a metaphysical/ontological understanding of what we are as humans and the sort of reality we live in if we are to find a true solution.

I submit that two deeper, ethical, approaches from philosophy may be offered in an attempt to 1) find a more fundamental solution and 2) demonstrate that, in these times of neuropsychology, it is philosophy, so often ignored and sidelined, which may prove to be of value yet. Adding a comprehensive and wider cultural perspective, I examine as possible solutions two ethical approaches that come from completely different philosophical traditions. One from Western Philosophy, specifically an ethic based on ancient Greek rationality found in Plato's *Republic*; and the other from the ancient Chinese Confucian philosophical school (儒家 *rujia*) as exemplified by Confucius (孔子 *kongzi*) and to a greater extent, the second sage, Mencius (孟子 *mengzi*). Although these two ethical theories are built on different assumptions and metaphysical conceptions, both, I contend, offer possible solutions to Sapolsky's difficulty. Which ethical theory, if either, is correct, is of course left an open question for the reader to ponder and/or debate. But it is my hope that it becomes apparent that philosophical theory has its use, and is in fact valuable, helping us to think clearly and critically about the ethical problems of man, their nature, and possible solutions.

Keywords: neuroscience, psychology, In-group/Out-group dynamics, Confucian ethics, Platonic ethics

INTRODUCTION: THE NEUROBIOLOGY OF US/THEM DISTINCTION

In his 2017 essay entitled “Why your brain hates other people,” Stanford professor of biology and neurology Robert Sapolsky writes: “[h]umans universally make Us/Them dichotomies along lines of race, ethnicity, gender, language group, religion, age socioeconomic status, and so on. And it’s not a pretty picture.” History provides hundreds of instances and examples of this human phenomenon. Furthermore, we see it all around us in the world today. Simply look at the American political situation: a nation divided between far Right MAGA Trump cult-like Republicans and the Democratic Party leftist leaning “progressives”, Red vs. Blue. Classic Us vs. Them. This is threatening the very fabric of US society today.

That this phenomenon has existed wherever humans have existed in groups or tribes or clans and has been long recognized as a problem in all cultures is testified to by attempts to heal or bridge the gap in our differences and the Us/Them-ing behavior by religious and philosophical sages since ancient times. Think of the Christian “Golden Rule” attributed to Jesus “Do unto others as you would have them do unto you” (Luke 6: 31). In ancient China we have Confucius (孔子 kongzi), China’s first teacher, saying, “Do not do to others as you would not wish done to yourself.” These moral precepts exist precisely because the problem Sapolsky points out is deeply hard-wired in our brains and take direct aim at this neurological fact and the often undesirable behavior that it produces. But these exhortations from cultural icons have been largely ineffective in altering this hard-wired programming. Sapolsky (2017a) is at pains to show us why we behave the way we do, and, he offers some solutions designed to lessen the impact of our incessant Us/Them-ing behavior. I would like to illustrate Sapolsky’s neuro-biological insights and offer some criticisms along the way. Finally, I will go beyond his socio-psychological and economic solutions and point the need for a philosophical approach to ethics. In doing so I shall look to ethical theories based upon fundamental human faculties in Plato (reason) and in Mencius (human sentiment) in the hopes of getting beyond neurobiology and illustrate both how and why ancient philosophers of the East and West may still address contemporary human issues.

Brain Chemistry and Neuro-biology

Sapolsky (2017a) believes that the core of Us/Them-ing behavior is emotional and automatic. All humans do this. It's fundamentally biological. He finds the same behavior in chimps.¹ But while our neurobiology accounts for a large part of this behavior, Sapolsky—who is not a biological reductionist, says that it does not account for it all. Behavior cannot be completely reduced to certain parts of the brain working in certain ways. Behavior is not reducible to this part of the brain or that hormone or childhood experience.. He says there are other factors that influence our behavior such as culture. Understanding the meaning of behavior is context dependent. Nevertheless, much of our behavior is caused by activities in the brain and Us/Them-ing behavior begins there.

Sapolsky (2017a) identifies key parts of the brain where our biases are formed on the basis of pure emotion which lead to judgments people make about other people's trustworthiness, worthiness, values, lifestyle, and cultural norms and practices. We form feelings and intuitions about the "Thems" or the "the Other" often described by people who say things like "I cannot put my finger on why, but it is just wrong when they do that." Later, we engage in post-hoc justifications or rationalizations to convince ourselves that we have indeed made rational judgments. A study of brain functions exposes the fact that our moral decisions and opinions of "the Other" have been an effect of basic biological operations within our brains prior to rational discernment.

To make his case, Sapolsky (2017a) focuses on the strength of this Us vs. Them phenomenon. He claims that there is a considerable amount of evidence that dividing the world into Us vs. Them is deeply hard-wired in our brains, with an ancient evolutionary legacy:

...we detect Us/Them differences with stunning speed. Stick someone in a "functional MRI"—a brain scanner that indicates activity in various brain regions under particular circumstances. Flash up pictures of faces for 50 milliseconds—a 20th of a second—barely at the level of detection. And remarkably, with

even such minimal exposure, the brain processes faces of Them differently than Us-es.

This has been studied extensively with the inflammatory Us/Them of race. Briefly flash up the face of someone of a different race (compared with a same-race face) and *there is a preferential activation of the amygdala*, a brain region associated with fear, anxiety, and aggression. Moreover, other-race faces cause less activation than do same-race faces in the *fusiform cortex*, a region specializing in facial recognition.... (and thereby).....we find less accuracy at remembering other-race faces.

In another study subjects were shown a film of hands being poked with a needle. An “isomorphic reflex” is activated which caused the hand of the observer to clench as though it itself had been poked, unless the color of the hand shown in the film was of another race. When a white observer sees a black hand poked with a needle the “isomorphic reflex” effect is greatly reduced and vice-versa (Sapolsky, 2017a).

Here we see a biological foundation to our racial discrimination. Consider the part of the brain called the *amygdala*. As mentioned above this part of the brain is about aggression, anxiety and fear. If the *amygdala* is stimulated unprovoked aggression results. If the *amygdala* is destroyed or rendered inoperable you are unable to elicit aggression. Fear is actually the primary emotion connected to the *amygdala*. It is here where fear conditioning occurs and phobias and so-called innate fears are learned or produced.

To understand what is going on in the brain we must understand how an external threat is perceived and processed. There is a complex interaction between the object perceived, the *amygdala* and the frontal cortex. The frontal cortex, unlike the *amygdala*, is a part of the brain which is the most recently evolved and performs the function of emotional regulation, gratification delay, impulse control and judgment. The frontal cortex sends inhibitory projections down to the *amygdala* and, in effect, says hold on, not so fast. It gives the advice “I wouldn’t do that.” It makes slow, considered and thoughtful suggestions to the effect that it enables an individual to “make the harder, perhaps morally, correct decision or action” in a deontological way.

It is what enables us to follow a Kantian Categorical Imperative when other impulses would have us do something more instinctive.

But it is here where we have a difficulty. Evolution has given the brain two pathways for decision making and action. One is fast and one is slow. Unfortunately, the slow path is the one which takes stimuli from the visual cortex to various parts of the brain such as the thalamus, through memories, learned lessons from experience, etc. to the frontal cortex where an analysis occurs before giving a judgment and passing that down to the *amygdala*. The second pathway is, in effect, a short-cut. Here a direct signal is sent from the stimuli receptors directly to the *amygdala* in an effort to react to danger as quickly as possible. This reaction occurs without the benefit of the judgmental faculty of the frontal cortex long before the considered message can arrive. A faster reaction is possible this way, thereby enabling us to avoid danger. There is, however, a downside. Errors occur. The well-known event in which police, with guns at the ready, fire upon an individual who is perceived to be holding a handgun, when in fact, it was merely a cell phone in their hand is a case in point. It is easy to see that the speed at which unregulated hard-wired biases could manifest themselves into actions before considered and rational control has a chance to be implemented (Sapolsky, 2017b, pp. 49; 54).

Enter the Insular Cortex. It is the insula which protects us from poisonous or rancid food by triggering a disgust reaction and a physical response, namely, gagging or vomiting. But this response can be triggered in humans in ways not seen in animals. Humans can initiate the insula by merely thinking about eating something disgusting, live spiders or cockroaches for example. We feel sick despite having no physical stimulus. Perhaps this is why some topics are forbidden to be discussed at the dinner table. People often say things like “please do not discuss this further while I am eating”. Or “listening to you talk about eating grasshoppers in Japan has caused me to lose my appetite.” The human insula, crucially, is able to take one step further. Consider morally disgusting behavior: merely thinking about morally disapproved of behavior activates the insula. It is the insula that mediates moral disgust. Norm violations can be appalling and the insula activates causing in us an unwell feeling. We say “I feel sick to my stomach” when hearing appalling moral crimes reported

on the news or in society. We are all familiar with the response “You people make me sick.” Or “Those people disgust me.” While there may be a positive side to this (it re-enforces our morally correct behavior) there is also a negative side. One person’s morally disgusting behavior is someone else’s perfectly normal loving lifestyle (consider gay marriage and LGBTQ+ sexual behaviors). The trouble is moral disgust is a moving target. It varies from group to group, culture to culture, and even in individuals within groups (Sapolsky, 2017b, pp. 27-39).

Allowing our biological, hard-wired wisdom of repugnance to dictate our judgments of right and wrong, good and bad, behavior is not a basis for moral judgments. Moral repugnance is culturally derived and therefore relative. Our moral disgust is context dependent. But the insula is central to us deciding that it is just because something is so different that it is hitting all sorts of visceral alarms telling us that something is wrong or bad and this message is sent directly to the *amygdala*. It by-passes the frontal cortex (Sapolsky, 2017b, p. 45). Is it any wonder we have a very strong tendency to divide the world into Us and Them, where Us are more correct, wise, moral, and worthy? The bias extends to rationalizing why our food is tastier, our music better, and our language more logical or poetic. The point here is that while the discrimination begins in a biological reflex necessary for survival (required speed of response to danger) and protection from disgust derived from differences, this rises in humans to the realm of culture, and therefore race, food, customs, religions and so on. Us/Them divides along higher aspects than mere physical differences.

The Case of Shylock

As so often in human affairs the genius of Shakespeare is instructive. Take the case of Shylock, the Jew, in the Merchant of Venice, a Jew living among Christians in Venice in the 16th century. We see the phenomenon of Us/Them at work when Bassanio (the Christian) invites Shylock to join the Christians for dinner.

Bassanio: If it please you to dine with us.

Shylock: Yes, to smell pork! To eat of the habitation which your

prophet the Nazarite conjured the devil into! I will buy with you, sell with you, talk with you, walk with you, and so following; but I will not eat with you, drink with you, nor pray with you.²

The Jew looks down on the culture and customs of the Christian food (pork) and the Christian religion. Here we see the Them-ing in action, not based on race but on cultural and religious practices and norms.

But later on, a very revealing and famous speech is made by Shylock, one many people have discussed in the context of antisemitism. It is taken to be a position of common humanity. A reaction against Us/Them-ing. But it warrants closer analysis in light of the neurology/biology of the *amygdala* and the *insula*.

Shylock: He hath disgraced me and hindered me half a million, laughed at my losses, mocked at my gains, scorned my nation, thwarted my bargains, cooled my friends, heated mine enemies—and what's his reason? I am a Jew. Hath not a Jew eyes? Hath not a Jew hands, organs, dimensions, senses, affections, passions? Fed with the same food, hurt with the same weapons, subject to the same diseases, healed by the same means, warmed and cooled by the same winter and summer as a Christian is? If you prick us, do we not bleed? *If you tickle us, do we not laugh?* If you poison us, do we not die?³

I have quoted Shakespeare at length for this purpose. Shylock's argument to stress how humans are all alike is famous. But we must notice how it appeals to material or biological aspects—*Amygdala* aspects. We all react the same to dangers. But crucially we must notice "If you tickle us, do we not laugh?" Shylock points to the physical response to a physical stimulus. In this we are all alike. Yet laughter comes also from comedy. Why is this not mentioned? Precisely because what produces humor in one group or culture most often is not funny in another culture. Comedy does not transfer well (unless it is comedy of the lowest form, slapstick, and slapstick is biological and physical). Shylock does not appeal to religion or any higher form of culture to establish the common shared humanity. It will not be effective. Recall the *insula*. Things that are different from one group's cultural norms may be disgusting to

another group's cultural sensibilities. This divides Us from Them. "I will not eat with you, drink with you, nor pray with you" Shylock had told Bassanio earlier. These are differences. The Christian eating pork disgusts the Jew. The religion of the Christian is offensive to the Jew. Moral feelings of right and wrong are culturally derived. He cannot appeal to these to establish common humanity for the *insula* effect is to establish moral repugnance with respect to these higher cultural products.

A Cause for Optimism

As we know Shylock does not have a good fate in *The Merchant of Venice*. Us/Them-ing prevails and Shylock remains a Them and suffers from it. Are these problems, then, intractable? Sapolsky (2017a) thinks not: "there is room for optimism" he claims. This optimism is grounded in the human fact that we all form several Us/Them divisions in our heads. "A Them in one case can be an Us in another, and it can only take an instant for that identity to flip. Thus, there is hope that, with science's help, clannishness and xenophobia can lessen..." He cites a few examples of athletes who change teams as well as sports-fans who may do the same under certain circumstances, but the striking example of the WWI Christmas truce seems most powerful. After five months of trench warfare in 1914 Christmas rolled around and the troops from France, England and Germany granted a 3-hour ceasefire in order that fallen soldiers could be collected off the battlefield and buried. Pretty soon soldiers from each side began helping the enemy collect the corpses of the other side. Soon they started assisting in the digging of graves. A further 3-hour extension of non-hostilities was declared and soldiers began sharing Christmas gifts with the enemy troops and writing down addresses so that they could reunite after the war ended. This developed into sharing Christmas dinner and games. The truce was extended and enemy troops began to play soccer/football without keeping score. As this continued, they made promises to shoot over the heads of the soldiers when hostilities inevitably resumed. What was going on here? A new Us had formed. The soldiers in the trenches from both armies became a new group. Who was the Them? It was the commanding officers and

generals who tried to get the soldiers to break the truce and fight once more. Remarkably, these commanding officers had to threaten their own soldiers with death in order to break the newly formed Us/Them grouping of soldiers vs. generals.

While Sapolsky (2017a) is right to point out this remarkable flipping, it must be asked, does this constitute an overcoming of the bias formed in our brain at a pre-frontal cortex level? Simply flipping to a new in-group also involves the formation of new out-groups. The fundamental behavioral pattern remains unchanged. In an effort to make dichotomies evaporate he offers four possible solutions. The first is intuitive. Let's strive for more contact with Thems. Societies where children play with children of other racial and religious groups over a prolonged period causes fundamental change. Segregation is the source of our problem; integration is the solution. More study of multicultural societies is likely to be needed to affirm this. Second, make the implicit explicit. In other words, show people their biases. Use perspective taking and imagine you are a Them and think of the grievances those Thems may rightfully have. This is nothing more than the old saying, try walking in someone else's shoes before forming an opinion of them. Third, Sapolsky asks us to replace essentialism with individuation. Teaching that race has no genetic basis can make people less accepting of inequalities. And finally, fourth, we are asked to flatten hierarchies. Steep hierarchies in society increase Us/Them differences. The most obvious case is economic inequities. The haves justify their status by denigrating the have-nots as lazy, or simple-minded. The poor view the rich as cold, unhappy, stressed out and burdened with responsibility. The solution is a socio-economic one. Perhaps a study of the economic policies of Denmark can be used as a model for lessening the Us/Them dichotomy.

Sapolsky sums up his solutions thus:

If we accept there will always be sides, it's challenging to always be on the side of angels. Distrust essentialism. Remember that supposed rationality is often just rationalization, playing catch-up with subterranean forces we never suspect. Focus on shared goals. Practice perspective taking. Individuate, individuate, individuate.

And recall how often, historically, the truly malignant Them hid themselves while making third parties the fall guy.

Although all this is clear and makes perfect sense, perhaps it is giving up too easily. The role of philosophy and ethics may be able to point the way out of this neurobiological net we find ourselves in. In the next two sections I will move on to consider two theories of ethics found in Plato and Mencius which attempt to find a basis upon which humans can exist free of bias and prejudices. Curiously we shall see that it is a certain natural preference for “one’s own” that both the Greek and the Chinese ethics recognize and try to overcome.

Plato: A Rational Ethics and Overcoming One’s Own

Can philosophy overcome the problem of a socio-biological determinism as described by Robert Sapolsky? Is it possible for a theory of justice to overcome the widespread tendency to favor one’s own in a world perpetually divided into Us vs. Them? Plato certainly recognizes that a love of one’s own (one’s body and its needs, one’s family, one’s city) is a natural thing.

That a love of one’s own was taken to be the natural position in Athens is illustrated by Socrates himself. It is in the Euthyphro where Plato’s admission that the naturalness and strength of this tendency to love one’s own over and above all else is on full display when it is revealed that Euthyphro intends to prosecute his own father for the killing of a slave.

Socrates: What is your case, Euthyphro? Are you the defendant or the prosecutor?

Euthyphro: The prosecutor.

Socrates: Whom do you prosecute?

Euthyphro: One whom I am thought crazy to prosecute.

Socrates: Are you pursuing someone who will easily escape you?

Euthyphro: Far from it, for he is quite old.

Socrates: Who is it?

Euthyphro: My father.

Socrates: My dear sir! Your own father?

Euthyphro: Certainly.

Socrates: What is the charge? What is the case about?

Euthyphro: Murder, Socrates.

Socrates: Good heavens!

Socrates' surprise shows how, in the Greek society of Athens, it is unnatural for a son to prosecute his father. The binds of filial piety ought not to be broken lightly.

(Plato, 1997, pp. 3-4)

A parallel example is seen at the same historical time but at the opposite end of the Eurasia land mass in the state of Lu in ancient China. Confucius (1998) advocates the natural ethic of a graded love, laying the foundation of his ethics upon a love of one's own first. This is made clear in the *Analects* 13.18

The Governor of She (葉公 Yegong) in conversation with Confucius said, "In our village is someone called 'True Person'. When his father took a sheep on the sly, he reported him to the authorities.

Confucius replied, "Those who are true in my village conduct themselves differently. A father covers for his son, and a son covers for his father. And being true lies in this. (p. 167)

This is the natural way. Confucius' ethical thought prevailed in China over the hundred competing schools largely because it rested upon what was most natural to man. His graded love was the path of least resistance. Plato, while well aware of the natural human tendency to love one's own first, sees true justice and a true knowledge of the good must be achieved by a more difficult route, by recognizing what is truly human, namely reason. He wants to give us a truth which is not merely Greek, but universal in all humans. To know this good can produce an ethic which is not context or culturally dependent and does not rest upon a preference for "one's own." While the

love of the family first above all else, is, Plato thinks, surely a natural thing, the consequence is that the clan or tribe (the Us/Them tendency) could never be overcome and thereby leaving us with prejudice, bias, and arbitrary ethical behavior.

It is reason which is needed in order to have knowledge of the good and of justice. The idea of a well-ordered tripartite soul under the control of reason runs through Plato's thought as witnessed in *The Symposium*, *The Republic*, *Phaedrus*, and *The Phaedo* to name the most obvious instances. Reason is the highest and most human aspect of man for Plato because it is reason that can reveal truths that are not relative and are true for all humans at all times. This is why education for Plato takes mathematics as its ideal and example. The truths of mathematics are the same for all peoples at all times. They transcend any prejudices of individuals, societies or cultures. The equation $4+4=8$ is as true for the Greeks, the Egyptians and the Chinese then as it is for us today. Reason points the way to knowledge that can transcend differences among us. So how does this fare with respect to the hard-wired biological tendency of humans at all times and places to divide humanity into ingroups and outgroups? I do not propose to run through the entire catalog of Plato's dialogues to show this. Rather I think a very small section of Book I of *The Republic* reveals how, by use of reason alone, in its search for justice, shows the necessity of breaking the us/them dynamic in the name of the pursuit of the good.

In the first few pages of *The Republic* Socrates engages the old and rich Cephalus in a discussion of justice which Cephalus quickly abandons, leaving his son and heir, Polemarchus, to continue to debate the nature of justice with Socrates. It is in this discussion that a very small, seemingly insignificant aspect of the argument has consequential consequences to the issue of the Us/Them-ing phenomenon and its associated arbitrary ethical behavior.

Polemarchus, after much wrangling with Socrates, gets mightily confused but maintains that "I don't know any more what I did mean, but I still believe that to benefit one's friends and harm one's enemies is justice." Here Socrates changes tact and turns to the question of what a friend is.

"Which do you call friends—those whom anyone thinks to be good, honest men, or those who really are, even if he thinks they are not, and the

same with enemies? It is natural to love those you think to be good, honest men, and to hate those you think bad."

In other words, Polemarchus takes the natural attitude of looking upon those we think to be good as our friends. And who are these? These are our kin and childhood friends and neighbors. These are our ingroup.

Socrates continues,

"Don't people make mistakes about this? Don't they think many to be honest men when they are not, and the opposite?"

"They do"

"Then to these are good men enemies, and the bad men friends?"

"Yes indeed."

"But nevertheless it is just, then, for these to help the bad ones and to hurt the good?"

"It seems so."

"Then see what will often happen, Polemarchus: when people have made mistakes in their men, it will be just both to hurt their friends—for they have bad ones, and also to benefit their enemies—for they have good ones." (p. 167)

The problem here is accepting men as friends merely because they seem to be good. Yet this is the natural stance. The natural way we determine our ingroup from the outgroup (enemies or dishonest people). Most of us are unable to judge the true character of those we identify as friends. In fact, friendship would be a rare thing if we had to both be good men and know for certain the other was a good man as well. That is not the way our hard-wired brains work as Sapolsky has shown us. However, Polemarchus is made to see that without this knowledge our love of one's own leads to the unacceptable consequence that we may harm our true friends and benefit our true enemies. Thus, an adjustment is required, and one which has the most consequential ramifications for an ethics.

"Well really, he said, "that is the result. But let us change a bit, for it looks as if we put the friend and enemy wrong."

"How Polemarchus?"

"That the one thought good and honest was the friend."

"How shall we change it now?"

"The one," said he, "who is both thought good and is good is the friend; but the one who is not good, but thought good, only seems a friend and is not; so also with the enemy."

"Very well, as it seems by this reasoning, the good one will be a friend, and the bad one an enemy."

"Yes."

"We said first it was just to do well to the friend and to do ill to the enemy: now we must add something to this 'just,' and say it is just to do well to the friend if he is good, and to injure the enemy if he is bad?"

"Certainly," he said. "That seems right to me now." (The Republic, *Great Dialogues on Plato*, 334C-335A)

Now observe closely what has occurred. If this small change is taken seriously, it has profound implications. We cannot accept friends on the basis of familiarity. Our ingroup may contain dishonest and unjust individuals. And to help these men would be helping the unjust. Men who loyally treat their friends well are constantly and thoughtlessly committing acts of injustice. Our hard-wiring leads us to make a primitive identification of the good with our own family and cultural group. This tendency to see the good in one's own family and friends is, as we have been shown by neuroscience, to be one of the most powerful urges of human nature. Socrates, using a purely rational argument, shows us that the distinction between who is truly good and one's own falls apart. When this happens, in order to have true justice and make proper ethical decisions, one must seek good men wherever they may be. To be consistent with the argument we must give up our prejudices towards our own and become cosmopolitan in the Kantian sense.

Socrates continues the argument asking if it is ever just to harm one's enemies and whether or not the just man even has enemies. But that is beyond the immediate point I wish to make here, namely, that Plato shows us that an ethic based purely on reason alone can be established and by its nature, if followed seriously, it refutes, by logical reasoning, the US/Them problem. We should not follow our instincts to form in-groups and out-groups. Rather we ought to follow reason to find the good wherever it exists. This is borne out in popular culture when, for instance, in movies and TV shows we often see a bad in-group member exposed when she has treated an outsider unjustly and is eventually reprimanded by reasonable fellow citizens or friends, or again, when a good out-group individual is recognized to be morally superior to members of the in-group and is either admitted into the in-group or at least treated with respect. It is the voice of reason that overrules our socio-biological tendencies in these cases.

Mencius: A Moral Universe

“万物皆备于我矣 All things are complete within us”⁴

Mencius, less well known than Confucius, has been called the second sage in China and is well known as such in the nations of East Asia most influenced by Confucianism. He flourished more than a century after Confucius and is a near contemporary of Plato (Mencius is born in 372 BC while Plato dies in 347 BC). Mencius (孟子 mengzi) follows Confucius and defends the Confucian school (儒家 rujia) against other competing schools of the time. But he also expanded Confucianism and tried to give it a more metaphysical foundation (2008)

According to Mencius the universe is essentially a moral universe and there is an element of mysticism (Mencius calls it 浩然之气 haoran zhiqi or “The Great Morale”) which plays a crucial role in the foundations of human nature. Plato's solution to the understanding of the good and just action involves no mysticism, but is, rather, based on a theory of human nature and a tripart theory of the soul in which reason is distinctive and leads us

to truth and goodness. Graded love of one's own self, family, and friends is rejected as we seek others who share knowledge of the good and we seek to impart goodness and knowledge into others by just actions. Mencius too, finds human nature to be distinctive from that of animals, but it is not reason which is his criterion. The origin of morality is not pure human reason, but human emotions. Mencius believes that morality is rooted in humans' natural sentiments. We are born with a moral sense. Furthermore, the moral principles of man are also metaphysical principles of the universe. The nature of man is an exemplification of these principles. Since all men have this human nature that mirrors the metaphysical reality (a moral universe), a true moral man, a sage, cannot divide humans into Us/Them categories, despite the natural tendency to start from the normal human tendency to do so.

Mencius says there are four beginnings, (四端 *si duan*, or sprouts) found in human nature which, if cultivated, become the four "constant virtues" (四德 *si de*). These virtues, all emphasized in Confucianism, if not hindered by external conditions, develop naturally from within, just as a plant grows by itself from the seed, or a flower from the bud. Again, it is these four beginnings which differentiate man from beast, not reason as Plato argued. These "sprouts" should be developed because it is only through their existence that man is truly a man.⁵ Mencius enumerates the four constant virtues in the Mengzi (The Works of Mencius) Book 2A:6 (公孙丑上, 第六章).

1. The feeling of commiseration (恻隐 *ce yin*) is the beginning of human-heartedness/benevolence (仁 *ren*).
2. The feeling of shame and dislike (羞恶 *xiu'e*) is the beginning of righteousness (义 *yi*).
3. The feeling of modesty and yielding (辞让 *ci rang*) is the beginning of propriety (礼 *li*).
4. The feeling of approving and disapproving (是非 *shi fei*) is the beginning of wisdom (智 *zhi*). (Book 2A, Chapter 6)

Mencius offers a few arguments to support his theory that human nature is good and has its beginning in these human sentiments. The first argument is

the famous story of a child falling into a well showing that all men cannot bear to see the suffering of another and have the feeling of commiseration.

When I say that all men have a mind which cannot bear to see the suffering of others, my meaning may be illustrated thus: if men suddenly see a child about to fall into a well, they will without exception experience a feeling of alarm and distress. They will feel so, not as a ground on which they may seek the praise of their neighbours and friends, nor from a dislike to the reputation of having been unmoved by such a thing. From this case we may perceive that the feeling of commiseration is essential to man.... (Mengzi, Bk2A,6 公孙丑上第六章, Book 2A, Chapter 6)

This example shows that people cannot bear the suffering of others. The feeling of commiseration is the beginning of benevolence or humanity therefore humans have the beginning of humanity (仁ren) in their nature. Mencius further argues that the sprout of righteousness (义yi) is also innate. He writes:

I like life, and I also like righteousness. If I cannot keep the two together, I will let life go, and choose righteousness. I like life indeed, but there is that which I like more than life, and therefore, I will not seek to possess it by any improper ways. I dislike death indeed, but there is that which I dislike more than death, and therefore there are occasions when I will not avoid danger. If among things which man likes there were nothing which he liked more than life, why should he not use every means by which he could preserve it? If among the things which man dislikes there were nothing which he disliked more than death, why should he not do everything by which he could avoid danger? There are cases when men by a certain course might preserve life, and they do not employ it; when by certain things they might avoid danger, and they will not do them. Therefore, men have that which they like more than life, and that which they dislike more than death. They are not men of distinguished talents or virtue only who have this mental nature. All men have it; what belongs to such men is simply that they do not lose it. (Mengzi 6A,10 告子上第十章, Book 6A, Chapter 10)

Mencius wants to make the point that there is a general trait among

humans that we do have things we would not do even for the sake of survival. We have a principle about the sort of things we would or would not do which distinguishes us from beasts and is the beginning of the virtue of righteousness (义). Perhaps an example is needed to illustrate this human capacity to do what is righteous regardless of the terrible consequences which may befall one for the action. Take the case of Ismene and Antigone in Sophocles tragedy *Antigone*. Creon, king of Thebes, has forbidden the burial of their brother, Polyneices.

Antigone: He (Creon) does not treat the matter lightly; whoever disobeys him in any respect will face death by public stoning in the city. Now you know how things stand; soon you will show whether you are noble by birth, or a coward from a noble family.

Ismene: My poor sister, if this is how things are, what can I do to prevent or change them?

Antigone: Consider whether you will share the work and the action with me.

Ismene: What work? What are you risking? What do you mean?

Antigone: Will you lend your hands to mine, to lift the body?

Ismene: What? You intend to bury him, when it has been forbidden to the city?

Antigone: Yes, my brother and yours, even if you wish he were not. I will not be caught betraying him.

Ismene: You dare? When Creon has forbidden it?

Antigone: It is not for him to keep me from my own.

And so it is that the righteousness of Antigone sends her to her ultimate end and the example is pertinent to Mencius' point. The sprout of righteousness is part of human nature. And again, possessing the four sprouts is the common ground for human morality.

Mencius, like Plato, recognizes that it is natural to love one's own parents and siblings more than the fathers and sons of strangers. The tendency to favor one's own is the same for Plato and for Mencius and is natural. As Sapolsky

has shown us, it is hard-wired in our neurobiology. Plato overcame this by using the arguments of pure reason and by claiming we must follow reason wherever it leads to find the good wherever it may be found regardless of in whom (kin or stranger). Only reason and a pursuit of justice and the good can overcome the natural tendency to love one's own group and distrust the out-group. Mencius offers a different theory. The key is to understand that the metaphysical principles of the moral universe are identical to the four cardinal virtues within man. A mystical connection can exist between man and "heaven."⁶ Knowing heaven, a man is a "citizen of heaven" or a "citizen of the universe" (天民tianmin). The only way to know heaven is by the self-cultivation of human nature (the four virtues) and through this practice egoism and selfishness are reduced. Eventually one comes to feel that there is no distinction between oneself and others, and in a mystical way, there is no distinction between the individual, other individuals and all creatures, and the universe. Mencius says "All things are complete within us" (Book 7A, Chapter 4).

The mystical element is the cultivation of 浩然之气 (haoran zhiqi) or "The Great Morale" as Feng Youlan (冯友兰) has called it. Mencius calls it "the Qi (气) which is achieved by the combination of righteousness and Dao (配义与道pei yi yudao)" (2007). Through much practice of righteousness and an understanding of the Dao (the way, the truth) the Great Morale will naturally reveal itself to the citizen of the universe. This cannot be forced. In good Chinese fashion, it is a spontaneous, self-happening, (自然 ziran) like the growth of a tree or plant. It can only be achieved through the practice of virtue (德 de). It will emerge on its own terms from the center of one's being. This is because it is merely the fullest development of the original nature of man. At this point we can naturally extend our virtue to others and overcome the Confucian doctrine of "love with distinction" or graded love, thereby the Us/Them tendency in humans is overcome by Mencius moral theory founded in human sentiments

CONCLUSION

How can we prove that either of these ancient ethical theories are not merely idle intellectual speculations? Are the neurobiological facts regarding how we make moral decisions regarding whom we count as friend or foe decisive? Examples of individuals who bucked the trend towards a love of one's own and made clear moral decisions based upon reason alone or upon human sentiments most likely can be found. But these may be exceptions that prove the rule. Both Plato's ideal society as founded in speech in the Republic and Mencius' Confucian humanism are perhaps, merely that, ideals. Yet it is by having ideals that inspires humans to reach for what ought to be. While we may fall short of our ideals, the fact that we can build such ideals and strive for them, probably has a net effect that improves our actual existence. While the knowledge gained from neurological investigations may throw new light upon how and why we behave, surely, we are not limited to our biology. In the words of John Lennon "you may say I'm a dreamer, but I'm not the only one; perhaps someday you'll join us and the world will be as one."⁷

NOTES

- 1 Sapolsky spends half his time in a natural reserve in Africa studying primates.
- 2 William Shakespeare. *The Merchant of Venice*, Act 1, Scene 3
- 3 William Shakespeare. *The Merchant of Venice*, Act 3, Scene 1
- 4 Mencius, *The Works of Mencius* Bk. 7A ch. 4., 2008
- 5 A note on gender in Chinese: The classical Chinese language (文言文, 古文 wenyanwen, guwen) has no gender distinctions. The word for man or person is 人 (ren) and can be used to mean human. Humanity, humankind, and mankind are all 人類 (renlei). To translate these as woman or womankind would be entirely incorrect and inappropriate. To do so would be to distort the historical texts and be disrespectful to a different historical time and to an entirely different culture. We ought not impose our contemporary cultural values across time and wholly foreign cultures. We must be cognizant that the scholars of ancient China were men speaking to men about other men. This is not to conclude that human nature did not extend to women as well as men. It is only to observe historical fact that in ancient China the scholarly class (called the 士 shi) consisted entirely of men. It was not until modern language reforms in the first half of the twentieth century that pronouns for she (她 ta) and he (他 ta) were introduced into Mandarin Chinese. Notice that the pronunciation for both remained the same. Men and women are not distinguished in the spoken language. Only in the written script were new Chinese characters (汉字 hanzi) introduced to distinguish he from she, and this was purely due to the influence of European languages.
- 6 天Tian is a problematic term. Translating it as "Heaven" inevitably brings along Judeo-Christian notions that are entirely inappropriate to the ancient Chinese context. The world is not created by Heaven, rather, tian in the world of the classical Chinese philosophers, is the world. Ames and Rosemont write "Tian is both what our world is and how it is. The "ten thousand things (万物wanwu), and expression for "everything," are not the creatures of a tian

which is independent of what is ordered; rather, they are constitutive of it. Tian is both the creator and the field of creatures. There is no apparent distinction between the order itself, and what orders it. Pages 46-47 *The Analects of Confucius: A Philosophical Translation*.

7 From John Lennon's 1971 song "Imagine"

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The Human Person In Karol Wojtyla's Philosophy¹

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ABSTRACT

This paper argues that Karol Wojtyla's philosophy of the human person revolves on his concept of intersubjectivity. A human being is a unique, total and incommunicable being, capable of establishing relationship with other human beings. He relates with others, works for the common good in solidarity with others. He participates in the community. But in the midst of this participation within the community, intersubjectivity should be maintained by all means. One's intersubjectivity is very much part of human nature; it is an intrinsic and basic characteristic of a human being. This study uses the expository-descriptive and critical analysis of the ideas of Karol Wojtyla. It is divided into sections: introduction, on human person, participation, community, relationship (I-you, we), common good, solidarity and conclusion. This study does not claim to be an exhaustive discussion of the philosophy of Wojtyla but just a contribution on the ongoing conversation on human person specially on intersubjectivity.

Keywords: Philosophy of the Human Person, Intersubjectivity, Community, Solidarity

INTRODUCTION

What is a human being? Such a question bothers philosophers, psychologists, anthropologists, ethicists, and the like. For centuries, this question has become the starting point for every development in knowledge and science. Human entity is central in many endeavors in sciences and the arts. Many contend that a human being is different from other entities in the world (Heidegger, 1996). A human being possesses superiority over

1 Karol Wojtyla is the name of Pope John Paul II who held the pontificate from 1978 to 2005. See "Pope John Paul II: Timeline," at <https://www2.cbn.com/article/not-selected/karol-wojtyla-popejohn-paul-ii-timeline>, 20 January 2023. For some bibliography on the works of Pope John Paul II see "Writings of Pope John Paul II," at <http://www.princeton.edu/~aquinas/res/res-jp2.html>; 15 January 2023; "Biographical Profile of Pope John Paul II," at https://www.vatican.va/content/john-paul-ii/en/biografia/documents/hf_jp-ii_spe_20190722_biografia.html, January 31, 2023.

the ordinary animals like dogs, cats, turtles, and ducks. He has the ability to shape and form his own life, but the animals cannot.

Moreover, the question mentioned above triggers the human being himself to find an answer throughout his earthly existence. Furthermore, another question would be - what are the characteristics of the human person? What makes him unique from other beings in the world? Aristotle opines,

Man has a distinct nature which is really distinct from animals, that is, his rationality. Man is gifted with intelligence that he has the power to use his reason because of his intelligence, another immanent nature of man flows, it is his social nature. (as cited in De Torre, 1980, p. 79)

A human being does not and cannot live alone. He is always in need of the "other." Consequently, it is natural for him to be in a society. Indeed, "the full realization of human life is found only in a society" (Moga, 1995). In fact, there are numerous philosophers who tried to explain and expound this social nature of human being.

Furthermore, a human being is also conceived to be a finite being. There are hundredfold of potentialities and skills that he does not possess and a thousand of works that he cannot manage by himself alone. It is a necessity for him to ask the help of other persons. The others' ideas, advices, suggestions, and cooperation are important elements for the attainment of the human's goal "for man finds realization only with the others" (Moga, 1995, p. 111). From this description, it really shows that every action of a human person has a communitarian dimension. That means to say that whatever he does affects the others. In fact, "no one lives in pure isolation" (Cruz, 1993, p. 75; Moga, 2005, pp. 86-93).

A human being always finds himself living and acting within a particular group. However, a person should not lose his subjectivity and remain as he is while he enters in the humanness of others. It is because "each, real, unique, concrete and historical person has a primacy over the community" (Wojtyla, 1979, p. 279). Intersubjectivity here means that each human being is influenced by his family, friends, acquaintance, culture and the like.

It is in this line of thought on the human person where this study aims to expound, analyze, and interpret Karol Wojtyła's concepts of intersubjectivity of the person which is greatly expressed in his participation in the community and its relevance in the life of all members in a certain community. This insight does not claim to be an exhaustive study of Wojtyła's concept of the human being but an introduction on how he considers a human person in some dimensions such as intersubjectivity, participation, relationship, common good, and solidarity.

The Human Person

A human person refers to a unique, total and incommunicable being. It is unique because he/she is the only living being who has rational nature (Saranyana, 1996). There are no other beings in this world that have the property of rationality. A human person is incommunicable because there is no other person other than himself that can command him/her what to do. He is the master of his life. The other cannot make decision for him. The other cannot replace his personhood. No one can substitute his/her act of willing and doing.

The person has contact with the visible world and with reality through his/her inner self and body. Thus, his contact is not only physical, but it is also spiritual. Wojtyła contends,

A man does not only intercept messages which reach him from the outside world and react to them in a spontaneous or even purely mechanical way, but in this whole relationship with the world, with reality he strives to assert himself, his I, and must act thus, since the nature of his being demands it. Man's nature differs fundamentally from that of the animals. It includes the power of self-determination, based on reflection, and manifested in the fact that a man acts from choice (Wojtyła, 1993, p. 23; as cited in Tillich, 1952, p. 92).

It is the person who experiences himself. The human person is the agent of his actions. The subject is the source of all actions and existence, always one and the same. Without it, no actions could occur. It is the subject that is always

a person and does not cease to be a person (Wojtyla, 1979). Since the person is a thinking subject and capable of taking decision for him, he must not be used as a means to attain the end of another person. When the other treats another person as a means to his end, the other violates the natural right of the former. Thus, no one is entitled to use the person as a means to one's end. This ethical principle upholds what Wojtyla affirmed that the person is the agent of his own action.

Wojtyla does not rely on the concept of efficacy in the sense that efficacy occurs in every action of a person. Nature and the activeness it reveals are manifested in the activations of the man as subject, while action is performed by the efficacious self... Wojtyla clarified this does not mean a break in the unity and identity of the human being, because it is man who acts (as cited in Aguas, 2009, pp. 105-159).

Moreover, Wojtyla (1993) explained that whenever a person is the object of one's activity, one must remember that he/she may not treat that person only as the means to an end, as an instrument or tool, but must allow for the fact that he or she, too, has or at least should have distinct personal needs.. As an object, the person is always "somebody." It sets his difference from the other entity in this visible world, which always connotes objects as something. However, Wojtyla did not consider person as "something" but "somebody." The person cannot be regarded as a simple thing because he is endowed with rationality. Thus, a person is an objective entity which as a definite being has the closest contacts with the whole world and is most intimately involved with it precisely because of his inwardness, its interior life (Therefore, the person is both the subject and object of his action. He is the one who acts and at the same time the one who benefits from his actions.

On Participation

Participation is understood philosophically in two-fold manner. First, it is conceived as an ability to share in the humanity of others. Wojtyla says,

The notion of 'participation' as conceived in traditional philosophy seems to have been more connected with nature. It is the person's transcendence in the action when the acting is performed 'together with others,' transcendence which manifests that the person has not become altogether absorbed by social interplay and thus conditioned, but stands out having retained his very own freedom of choice and direction, which is the basis as well as the condition of participation (Wojtyla, 1993, pp. 268/269 as cited in Mejos, 2023).

Second, it is conceived as the property of the person which is expressed to give a personalistic dimension to his own existence and action while existing and acting together with others (Francisco, 1995). For Wojtyla (1979), Participation represents a feature of the person itself, that innermost and homogeneous feature which determines that the person existing and acting together with others does so as a person" (p. 269). When the person participates with others, he fulfills himself. There is a satisfaction of his nature as social being. From this, it is seen that participation is the factor that determines the personalistic value of all cooperation. Moreover, participation also corresponds to the person's transcendence and integration in the action because it allows man, when he acts together with other men to realize the authentic personalistic value.

Acting together with others corresponds to the person's transcendence and integration in the action, when man chooses what is chosen by others or even because it is chosen by other; he then identifies the object of the choice with a value that he sees as in a way or another homogeneous and his own. This is connected with self-determination, for self-determination in the case of 'acting together with others' contains and expresses participation (Wojtyla, 1979, p. 270).

Participation has also a normative significance because it becomes the obligation of the person to participate in order to realize himself. Thus, it is a duty of the person to engage in participation, that is, to be involved.

Intersubjectivity on the other hand is the consequence of man's social nature. Man as a social being signifies the reality of his existence and

interaction with others. He lives with others. And in living with others, he cannot avoid interaction, interrelation, and intersubjectivity. He participates in the society's concern and endeavor.

On Community

The concept of community is important in order to grasp better the meaning of participation. Its notion is correlated with the expression "acting together with others," while at the same time it introduces a new plane of action or a "new subjectiveness" in the acting. The community has "quasi-subjectiveness" in which it is not the proper subject of acting. Even when the acting is realized together with others; it is still the person who is always the proper subject of acting. All the people existing and acting together are obviously exercising a role in a common action but in a different way that each of them performs an action in its entirety (Wojtyla, 1979).

This community is composed of many subjects and within this, the human person with all his dynamism is found as one of its subjects. Moreover, being and acting with others does not create a new subject of action. Indeed, it introduces new relationships between real acting subjects (Francisco, 1995). Being and acting together with others does not constitute a new subject of acting but only introduces new relations among the persons who are the real and actual subjects of acting (Wojtyla, 1979). Wojtyla also gave two aspects of the community of acting. One is objective which brings the members to act together with others. The other is subjective community of acting which is called participation (Wojtyla, 1979). A community is essential to any social unity. Participation is realized in the community, and at the same time, the person is fulfilled in his actions in the community (Francisco, 1995)

I-You Relationship

The "I-You" interpersonal relationship needs to ascertain the personal subjectivity. This subjectivity is designated by the pronoun "I," a concrete person who lives and acts together with the other persons (Francisco, 1995).

The person is another “I” who is a person different from another “I,” but lives and acts together with the other. According to Wojtyla, to think and to speak of “You,” a person expresses the relation which extends beyond himself, but reverts to him (Francisco, 2005). The reflexivity of the relation whereby the human “I” is constituted through the relation to the “You” does not necessarily create a community (Francisco, 1995).

However, this process is important for a more complete experience of “I” in the light of another “I.” It is a sign that human persons are manifested with each other as personal subjects. However, it is a temptation that man can use other persons for his own ends. “Man can make pleasure the aim of his activity (use in its second sense). One can ‘use’ another person as a means of obtaining pleasure” (May, 2023).

In “I-You” relationship there is a mutual revelation between the two subjects. Through consciousness, the “I” experiences the “You” as another “I.” Through this consciousness and experience of each other, a community is formed, a community which is characteristically inter-human or interpersonal (Francisco, 1995). Human beings should reveal themselves to each other in the deepest structure, not only of self-consciousness but also of self-possession and self-domination. This mutual revelation of “I” and “You” does not stop there. Hence, the two personal subjects should accept and confirm with each other because these acceptance and confirmation serve as the moral ground upon which interpersonal community is founded.

Ultimately, Wojtyla wanted to emphasize that the “I” needs the other “You” in order to constitute its own self. This mutual revelatory experience of self through the “I-You” reference and the acceptance and confirmation of each other person constitute the community of persons.

We Relationship

This “We-Relationship” signifies the presence of several persons who co-exist as a result of accidental relations. Wojtyla called this group as a social group or society. This relation is accidental because society or social group in itself is a complex of relations, but the personal subjects contained in this society

are substantial beings (Francisco, 1995). Wojtyla (1979) made it clear that the pronoun "we" signifies not only a plurality of people, but rather the existing and acting together of persons. By common action, he meant that "action which together with it the existence of those many "I's" as well as in relation to some value," and this value is called the common good. He concluded that the relationship of several "I's" to the common good constitutes the core of the social community (Francisco, 1995). The personal subject remains himself and simultaneously experiences a new social dimension of his relationship. Wojtyla said that the constitution of the "I" by the "We" is the same process by the constitution of the "You" to the "I."

On Common Good

The common good is obviously the good of the community or of the society. It may also be considered as link in a teleological chain, in which every one of them is seen as a means to attain another goal that now presents itself as a common good (Wojtyla, 1979). But to identify common good with the goal of acting by a group of people is manifestly a cursory and superficial simplification. Wojtyla opines,

Common good does not consist only in the goal of the common acting performed by a community, but it also consists in that which conditions and somehow initiates in the person acting together their participation, and thereby develops and shapes in them a subjective community of acting (p. 281).

This subjective moment is an important consideration in order to give an exact definition to the common good. This common good is the principle of correct participation. It allows the person acting together with other persons to perform authentic actions and to fulfill himself through these actions. Before all else, as a philosopher Karol Wojtyla (year?) is interested in man as a dynamic subject, who is able to fulfill himself by fulfilling acts which correspond to him as a person with regard to their contents and the manner in which they are realized. This is realized in the context of a community where the human person belongs. He is concerned not only for himself but for the

common good. It is because the common good serves as the foundation of the authentic human existence. It also entails sacrificing one's own good for the welfare of the community. Wojtyla says,

In such communities of being, they have earned the name of natural societies because they inherently correspond to the social nature of man, each of its members expects to be allowed to choose what others choose and because they choose, and that his choice will be his own good that serves the fulfillment to his own person. At the same time, owing to the same ability of participation, man expects that in communities founded on the common good his own actions will serve the community and help to maintain and enrich it (p. 283).

Thus, the common good has priority and superiority over the partial and the individual good. However, it does not follow from the fact that the common good concerns a great number or the majority while the individual good concerns only individual or minority (Wojtyla, 1979). Wojtyla clarified that it is not the numbers or even the generality in the quantitative sense but the intrinsic character that determines the proper nature of the common good. Intrinsic character implies the very nature of thing. It is extremely important and basic character of a person or thing.

On Solidarity

The attitude on solidarity is the natural consequence of the fact that human beings live and act together with one another. It is an attitude of a community in which the common good properly conditions and initiates participation. Wojtyla defines it as a "constant readiness to accept and to realize one's share in the community because of one's membership within that particular community" (Wojtyla, 1979, 284). In accepting this attitude, man does what he is supposed to do not only because of his membership in the group, but because he has the benefit of the whole. The person does it for the common good that he sees. "In a certain way, a person is more himself, the more he is for others Only in love which is ampler to the degree that it is a 'giving of

oneself,' that the structure of self-determination characteristic of the person finds its proper place. If one could say so, man "possesses himself" in order that he may 'give himself:' the more completely he is as a person, the more he will desire and be able to give of himself as a gift." (Szostek, 1994, p. 64). This awareness of the common good makes him to look behind and to realize his own share. Indeed, solidarity prevents trespassing upon other's obligations and duties, and seizing things belonging to others. Wojtyla articulates this because the other is a person who has full responsibility to himself.

Moreover, solidarity means respect for the responsibility of the other who has his own share as a member of the community. It is not good to take over a part of duties and obligations of others. To do this is intrinsically contrary to participation and the essence of the community. Nevertheless, there are situations in social and individual life that make it necessary to take over the other's duties. In such situations, to keep strictly to one's share would mean, lack of solidarity (Wojtyla, 1979).

Thus, in the attitude of solidarity, the reference to the common good must always remain alive. It must dominate to the extent that it allows one to know when it is necessary to take over more than one's usual share in acting and responsibility (Wojtyla, 1979). Accordingly, there should be a mutual complementariness among the members. As Wojtyla states,

This mutual complementariness is in a way an intrinsic element in the very nature of participation, which we are now interpreting subjectively, that is, as the dynamic factor of the person, and not just objectively as the "parts" that are the share of every participant in the communal structure of acting and being (p. 285).

In this solidarity, the intrinsic manifestation of participation as a feature of the person is shown. Finally, it is this attitude where man finds fulfillment of himself in complementing others.

CONCLUSION

Wojtyla affirms in every way the significance of intersubjectivity as point of understanding of a human person. A human person refers to a unique, total and incommunicable being. He establishes relationship with other people. In the midst of this relationship, intersubjectivity is a very important component of that relationship. A human person interacts with other persons in solidarity for the common good.

Every person must act in view of his subjectivity. It is his personal task to reach his own subjectivity because by doing this he/she realizes his/her own self. It is a task of self-realization. This person becomes an integrated person, a person whose actions are always in relation to goodness and truth. This self-realization is necessary for every person to attain because it is an expression of his personhood. That is why no persons are deprived of self-realization. Rather, all persons have the power to realize themselves. It is something to be actualized in the individual himself.

Moreover, "being a person in the image and likeness of God thus also involves existing in a relationship, in relation to the other "I." It is already implanted in every person the character "to be with others" (Heidegger, 1996). He cannot escape to build relationship with the other subjects as he lives. In other words, every person is relational by nature (Dimaranan, 2006). This is a fact to every person that he needs to face and realize. He is a person who has the nature to "act together with others." This acting together with others opens the door of his intersubjectivity. Such intersubjectivity consists of several subjects who interact and interrelate with each other. As the person "acts together with others," he is asked of many things for the realization of a true community. This person does not only act and live with the other subjects; he is asked to give significant and personalistic value to his own action. He should consume his freedom properly every time he acts. He should not act simply as an unconscious actor, that is, he knows what are the end and the cause of his actions.

Moreover, he knows the meaning behind his actions. What is important is that he puts meaning and significance every time he acts together with

others and this acting must be always in relation to the common good. When this person is able to fulfill this, he shares to the constitution of an authentic community. Participation enhances and confirms the personal subjectivity of man (Francisco, 1995). Thus, authentic intersubjectivity finds its fulfillment in participation.

Furthermore, this participation is not only an attitude exclusively done by the few but all. However, it is a personal task to be accomplished by each member. So, it is the instrument of every member to shape his subjective contribution for the formation of the community. This community is not the new and the proper subject of acting. However, it is every person in the community who acts together with others and who is the proper agent of the action done by the community. Authentic intersubjectivity does not have the purpose to form another subject in the community. Nonetheless, it has the goal to establish relations among members. It is important that every member should accept and recognize his co-members since this acceptance and recognition of each other is the door to establish relationships. Acceptance and recognition are manifested through the attitudes of solidarity and opposition. Through these two authentic attitudes, the person feels and observes that his existing and acting together with others gains acceptance and recognition.

Finally, it should be noted that solidarity arises not to illicit conflict but to show the personalistic value of each person in his action. These are forms of participation that always lead the person towards the common good. This common good is the element that links every personal act in the community. Hence, this act must always be directed to the common good, which is the principle of correct participation. Participation is the expression of a person's authentic intersubjectivity while he acts together with others. By acting together with others through participation, the person reaches his self-fulfillment and self-realization.

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Re-viewing New Criticism¹

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ABSTRACT

There is a growing number of academic-critics that call for reinstituting the 'text' back to literary studies.² Formalist theories particularly New Criticism are revisited and reviewed in lens that coopt text, context, and reader. This paper joins in the conversation in reassessing New Criticism by tracing the historical roots of this theoretical thought and praxis, its salient points as theory and methodology, and the attacks against it in relation to the ideas of text, culture, society, reader, and author. The discussion here concentrates on the oppositions to New Criticism from texts that directly critique New Critical tenets. A review of New Criticism's salient points may help in sifting through and finding out which parts work, particularly in literary pedagogy, and which parts may not be sufficient in the reading of literature.

Keywords: New Criticism, formalisms, literary pedagogy, reading, interpretation

New Criticism³ is a formalist movement that originated in the United States in the latter half of the 20th century. "[It was] not simply a body of theory and practice but a network of programs, journals, and institutions" (Leitch, 2001, p. 1106) whose central figures include poet Allan Tate, poet, novelist, and critic Robert Penn Warren, critics Cleanth Brooks, William Wimsatt Jr., Robert Palmer Blackmur, and poet and critic John Crowe Ransom who was editor of the influential Kenyon review for two decades and whose book *The New Criticism* in 1941 supplied the name for the movement. But the movement's origins may have started much longer and influenced by Anglo-American poet T.S. Eliot who first articulated the New Critics' sensibility, the English critic I.A. Richards, William Empson and F.R. Leavis who in turn were influenced by Laura Riding and Robert Graves who first practiced close

reading (Childs, 2013).⁴ In a series of essays in the 1920s, Eliot foregrounds New Criticism. He reacts against scientific positivism's claim that only science produces knowledge. He aims for the scientific study of literature as it produces unique knowledge not available to science and borne out of various outlooks produced by experiences. To do this Eliot proposes "honest criticism and sensitive appreciation that is directed not upon the poet but upon the poetry" (p. 1095), a notion contrary to the Romantic perception of poetry as an expression of extraordinary personality. Indeed, Eliot would offer "depersonalization" as a way for the artist to grow: "[t]he progress of an artist is a continual self-sacrifice, a continual extinction of personality" (p.1094). This would later find articulation in Wimsatt and Beardsley's "Intentional and Affective Fallacy."

As New Criticism's thrust was not only theoretical but primarily methodological and pedagogical, I.A. Richards' concept of "poetry [as] a mode of communication" may have appealed to the New Critic-academics as well. They built upon the works of Richards who argued for the study of literature as literature and not something else. Brooks and Warren read Richards' *Practical Criticism* (1929) and it shaped their pedagogy at Louisiana State University in the 1930s that they successively wrote textbooks which later became successes and used in classrooms for more than twenty-five years (Cain, 2018). Richards, Brooks and Ransom's definition of a poem, as an "intricate and exquisite reconciliation of experiences" and 'pattern of resolved stresses,' hinges on the idea that the poem can be understood through its parts and the parts make a meaning. New Critics were attentive to irony, paradox, and ambiguity in poetry as they are reflective of the structure of poetry itself and poetry is "a simulacrum of reality" (Childs, 2013, p. 7) and the task of the poet is 'to unify experience' (Brooks as cited in Childs, 2013, p. 7). In *Practical Criticism* (1929) where Richards defines four different kinds of possible meanings in a poem – tone, feeling, sense, and intention—a new kind of reading is invited: "All respectable poetry invites close reading"⁵ (p.203). William Empson, Richards' student, illustrated close reading in his work *Seven Types of Ambiguity* (1929) which influenced the New Critics particularly Brooks and generally recognized as seminal if not model of critical reading.

Thus, it can be said that theoretical articulation of the New Critics' sensibility can be traced back to Eliot and the methodological practice of close reading may be traced back to Richards and Empson.

New Criticism, although the different critics and proponents have varied viewpoints, and may have been re-read differently today, proposes a form of reading that places the text as a primary object of inquiry. Unlike the current trends then of criticism which were historical-biographic, and didactic or moral, ethical-proletarian, New Criticism seeks to study literature as it is (Ransom, 1938/2001; Brooks, 1947; & Brooks & Warren, 1938)— a verbal structure which in some ways consists of denotations and connotations (Tate as cited. in Wimsatt, 1954, p. 72). A poem that holds up in criticism is a "verbal icon," a verbal image that fully realizes its capacities and interpretation of reality in all its symbolic and dynamic dimensions (Wimsatt, 1954).

Ransom's 1938 essay "Criticism, Inc." may be seminal of the New Critics theory and pedagogy. Ransom, being the most influential of the New Critics, called for a literary criticism that is suitable and appropriate to literature. His business in this essay aims to corral the concept of criticism by positing what is *not* criticism: (1) Personal registrations as affective impressions do not constitute criticism; the cardinal point for criticism is objectivity. How a reader-critic feels about a work should have no relevance in criticism itself. It should be objective, the study on the "nature of the object [text] rather than its effects upon the subject [reader]" (p.1115). (2) Synopsis and paraphrase employed uncritically should not replace the "real content." (3) Third is Historical Studies. While Ransom recognizes that historical scholarship is "indispensable" in the study of literary works, it is but "instrumental and cannot be the end in itself" (p. 1114). (4) Fourth is Linguistic Studies where the critic belabors meanings, origins, and usages of words. While this undertaking saves the critic from errors, knowledge with words and acquaintance with literatures of the world do not make a critic. (5) Moral studies is not literary criticism. Whether it be Christian ethics, Aristotelian, or proletarian, the moral content is not all there is to a work of art. (6) Studies that are irrelevant to the work of art are not within the purview of criticism. "Any other special studies which deal with some abstract or prose content taken out of the work."

In the same year in 1938 as Ransom's publication of *The World's Body* which contains "Criticism, Inc.," Cleanth Brooks and Robert Penn Warren's college textbook *Understanding Poetry* came out. Brooks and Warren's preface cum letter to the teacher reiterates the need to study the poem, and by extension literature, in itself that even if the poem is studied as historical or ethical document, "there is a prior consideration first: one must grasp the poem as a literary construct before it can offer any real illumination as a document" (p. iv). They continue that in their time it is tempting to substitute the poem under study for other things: (1) Paraphrase of logical and narrative content (2) Study of biographical and historical materials (3) Inspirational and didactic interpretation. For Brooks and Warren, a "satisfactory method of teaching poetry should embody the following principles: (1) Emphasis should be kept on the poem as a poem (2) The treatment should be concrete and inductive (3) A poem should always be treated as an organic system of relationships, and the poetic quality should never be understood as inhering in one or more factors taken in isolation" (p. ix).

While Cleanth Brooks was not a poet, he was at least during his time the consummate critic as he demonstrated par excellence the theoretical and pedagogical rigor of New Criticism in his rather influential book *The Well-Wrought Urn* (1947). The term, taken from John Donne's poem "Canonization" (one of the poems Brooks subjected to close reading in the book) has since then become a symbol for New Criticism's credo of the poem as an organic whole—*well wrought urn*, containing elements that work together to deliver a 'truth.'. Like Ransom several years back, Brooks resisted against the dominant modes of criticism which was historical and didactic. His preface to this book reveals his disagreement with historical criticism, that a poem can hardly be interpreted outside its epoch and age. Brooks main concern was to go beyond history and interrogate whether a "poem represents anything more universal than the expression of the particular values of its time" (Preface). The failure to do so would mean that poems of earlier period are significant in so far as they are "cultural anthropology" while the poetry of the present is important as they function as "a political, or religious, or moral instrument" (Preface).

Yet if poetry, or literature in general, must be studied scientifically,

great care has to be taken to study its language. Taking his cue from T.S. Eliot who sees the language of poetry as dynamic and ever changing—‘that perpetual slight alteration of language, words perpetually juxtaposed in new and sudden combinations,’ and that poets ‘dislocate language into meaning,’ (Eliot as cited. in Brooks, 1947, p.8, p. 192) Brooks claims that poetic language, unlike science where the terms are fixed, frozen, and stabilized, is “disruptive.” It continually defies its denotations and evolves its dictionary meanings; terms in themselves modify each other (p. 8) so that the language of poetry is inevitably “the language of paradox” (p. 3). Brooks advocated for a close reading of poetry and the treatment of the poetry as an “organic whole” where elements cum characteristics involve metaphor, symbolism, indirection, shifts of tone, complex of attitudes, tension, irony, paradox, and ambiguity. A poet, like all poets must do, continually exhausts the limits of language, probing its potentialities and essentially remaking it (p. 68). While Brooks recognizes that a poet must learn to master his material and form so that recognizable poetical devices are gleaned from his work, he also places the “burden of proof” on the reader. The reader has to relearn the art of closer reading for the language of poetry, for there is no other medium capable of saying what poetry essentially says: “the poem says what the poem says” (p. 69) and “the truth which the poet utters can be approached only in terms of paradox” (p. 3).

Why Brooks takes pains in interrogating these poetic elements may be explained through his stance on the problematic of form and content. For Brooks, form and content are inseparable in a successful work (Brooks, 1951/2001). Hence, to paraphrase a poem is to split form from its content and vice versa. While Brooks recognizes the need to do paraphrasing of the poem for convenience, this must function only as “scaffolding” of the poem and used as an approach critics or teachers employ to interrogate the poem more. The paraphrases which are “at best crude approximations of the poem” (1947, p. 189) must never substitute the poem itself. While again, Brooks recognizes the discomfort some critics feel when unable to pin down what the poem says in a paraphrase as perhaps equivalent to not saying anything at all, he reiterates the whole concept of a poem as that which is a successful resolution

of tensions and conflicts. To focus on the resolution is to miss the whole point of how it got there. The notorious charge of “heresy of paraphrase” explains that paraphrase is heretic exactly because poetic language does not have fixed meanings— “[b]ut the word as the poet uses it, has to be conceived of, not as a discrete particle of meaning but as a potential of meaning, a nexus or cluster of meanings” (p. 192) and hence to do so is to deny these “potentials of meanings” a word may suggest. Further, a poet’s task is to “unify his experience” to make sense and from this angle poetry may be said to be an “imitation of reality.”

Reality hardly constitutes a single “statement;” the poet by mastering his medium imitates reality in his poem “by *being* an experience rather than any mere statement about experience or mere abstraction from experience” (p. 194). The divergent, often contradictory human experiences are dramatized and resolved in a unified “new pattern” by the poet and thus necessitates the use of irony and paradox (pp. 194-195). Because Brooks was criticized for his approach as too narrow as it disregards the agency of the writer and the effect a work has on the reader, he defends his position through the text. He claims that the critic does indeed recognize the intention of the writer- author in so far as that intention is *realized* in the text. It is the intention that *got* into the text that which the author *realized* that matters, not what the writer was trying to do or remembers what he intended to do. As for the effect of poetry on the reader, Brooks calls for an ideal reader who, though he acknowledges there is no such thing as ideal reader if one is humble about it, focuses on a “central point of reference” to be used to study the structure of the poem or novel (1951/2001, p. 1368).

This emphasis on the text vis-à-vis the author’s intention and the reader’s response to the text may have been reinforced by William Wimsatt Jr. and Monroe Beardsley’s coauthored earlier essays which are significant texts in the New Criticism credo: “The Intentional Fallacy” in 1946 and “The Affective Fallacy” in 1949. While Wimsatt Jr. and Beardsley in “The Intentional Fallacy” believe that a poem is a product of the human mind, to insist that the “designing intellect” is “the cause of a poem is not to grant such intention or design the standard” (p. 1375). The poem may be an expression of a soul

as opposed to a physical object but the poem too reflects a dramatic response to an experience. Hence the poem and all its thoughts and attitudes should first and foremost be attributed to the “dramatic speaker,” and only to the author, if need be, by a “biographical inference.” Wimsatt and Beardsley see the difficulty of attributing the meaning of a poem to the author’s intention: “how is [the critic] to find out what the poet tried to do?” To judge a poem or work of art is like to judge a machine. When the machine works then one can infer the intention of the creator. If and when the author effectively achieves by revision what he has originally intended, the intention, in the general sense, remains the same. It was only his former specific intention that was not realized. Thus, when a work of art is finished, it no longer belongs to the author. It belongs to the public as language is a public domain and human experience, the content of poetry, is public knowledge. The intention of the poet/author can best be gleaned from the text itself: “If the poet succeeded in doing it, then the poem itself shows what he was trying to do. And if the poet did not succeed, then the poem is not adequate evidence, and the critic must go outside the poem-for evidence of an intention that did not become effective in the poem” (p. 1375). A poet’s intention is only as good as the poem itself. Whatever the poem says is subject to the same public scrutiny as statements on science or religion. Criticism remains an activity where a work of art is “measured against something outside the author” (p.1381) and the author’s intention should not have privileged stance over the meaning of his work.

While the Intentional Fallacy is the confusion between the poem and its causes and origins, the Affective Fallacy is the confusion between the poem and its results (p. 1388). Wimsatt and Beardsley caution against feelings and emotional responses to be the gauge in determining the meaning and value of a poem. An affective criticism is a discourse on the reader not on the text. Both critics acknowledge that there are several manifestations of affective criticism.⁶ The most articulate and successful of them for Wimsatt and Beardsley is I.A. Richards who demonstrates in *Practical Criticism* in 1929 how a word in a poem suggesting feelings or emotions may have a direct link to more concrete aspects of a poem. Nonetheless, the danger of fixating on the effect of the

poem, psychological or emotive, or of building criticism on the strength of reader response is that it cannot be proven or refuted. The critic is left with something vague and unprovable. For Wimsatt and Beardsley, “[p]oetry is a way of fixing emotions or making them more permanently perceptible when objects have undergone a functional change from culture to culture” (p. 1402) and it is the critic’s job to teach and explain this. While Wimsatt and Beardsley do not rule out emotions in the critique of a poem or work of art, such emotions should correlate to the specific precise object, in this case the poem. Taking their cue from Eliot’s idea of “objective correlative,” a ‘chain of events’ that provoke an emotion, Wimsatt and Beardsley accommodate emotions only in so far as these emotions are justifiably explained through the text.

In a separate work in 1954 in *The Verbal Icon*, Wimsatt claims that the structure of a poem is the “concrete universal” (p. 69). The exploration is a result of observation that critics from the early times to his present have tended to incline themselves to think that literature expresses one or other, it is concrete or it is universal, or at times both. Tracing the proponents of each, Wimsatt intervenes by saying that poetry or good literature is both concrete and universal. Literature through the vehicle of particularity in techniques as metaphors concretize what are merely abstractions of general condition as love or suffering. It is the degree of specificity that makes art as language, in the nature of words, reflects generalizations. “A literary work of art is a complex of detail... a composition so complicated of human values that its interpretation is dictated by the understanding of it, and so complicated as to seem in the highest degree individual—a concrete universal” (p. 7)

Citing E.M. Forster’s description of round versus flat characters, Wimsatt demonstrates that even in round characters there is a dimension of unity, a generalizing impulse of the specific traits that make up for the dynamism of such character. The very specific traits of a round character as opposed to the one-dimensional trait of the flat character is harmonized and unified by a “chosen...principle” (p. 78). So that specificity comes across effectively as it can now be understood in terms of how it is harmonized and unified (p. 77). Well- rounded characters are a type of concrete universal not only because

they have specific names not just class names but that their specificity need to be understood in terms of general human values: “structures of such precise variety and centrality that each demands a special interpretation in the realm of human values” (p. 79).

In poetry, other types of concrete universal may be learned through the study and analysis of metaphor. The use of metaphors, as Aristotle already suggested, demands an eye for resemblances for two different classes of objects. Such resemblances are a third kind of concrete universal. The structure of real poetry as concrete and universal would guide the critic to make the supposition that if the ‘subject matter’ of poetry is the moral realm and its attendant human actions of good and evil, it may be supposed as well that “the rhetorical structure of the concrete universal, the complexity and unity of the poem, is also its maturity or sophistication or richness or depth, and hence its value.” The inseparability of form and content which Brooks earlier emphasized found a newer articulation in the words of Wimsatt: “complexity of form is sophistication of content.” As critics “[t]he kind of unity which we look for and find in poetry is attained only through a degree of complexity in design which itself involves maturity and richness” (p. 82)

When New Criticism gained clout, critics and intellectuals alike have pointed out the failings of a text-centered critical theory.⁷ What initially were a radical break from a restrictive interpretive framework and the offering of the strength of textual scrutiny are now seen as failings in that its exclusiveness insulates the text, and thereby literature and writers from their social milieu. In addition, the theoretical and pedagogical method of New Criticism strips away authorial agency and reader- response engagement in criticism. Yet before the era of theory, New Criticism already came under attack during its time. Criticism even arose from among the ranks of New Criticism’s proponents, Ransom and Brooks who were let down by how New Criticism was subsequently applied to texts (Cain, 2018, p.17). Among those sibilant of their critique of the New Critics’ practice are Alfred Kazin, R.S. Crane, Lionel Trilling, David Daiches, Douglas Bush, Irving Howe, Randall Jarrell who each was dismayed by the current practice of New Criticism then, mechanistic and robotic, emptied of ideas and history (pp. 17- 18). Lead by R.S. Crane, a

different school of formalism developed alongside New Criticism and even engaged in “acrimonious debate” in the pages of journals and magazines. The Chicago School of Formalism otherwise known as the Neo-Aristotelian came in response to a call for revising undergraduate curriculum of the University of Chicago. In a collection of essays,⁸ the Chicago School while concentrating on textual explication and aesthetics, depart from New Criticism in its focus on what texts are meant to do. Following Aristotle’s concept of the *synolon* of ‘concrete whole’ of formed matter found in nature or manufactured by art, the Chicago Formalists, relegated language, a foremost concern of the New Critics to subordinate importance, as they championed the idea of the genre and its objective. A text is situated in the complex network of genres and forms, our understanding of the parts are contingent of the whole, and the objective is to evaluate the text whether or not it has achieved its end. The Chicago School however lost to the New Critics as the latter “revolutionized undergraduate” teaching in the strength of published textbooks. The second and third generation of Neo-Aristotelians (Wayne Booth, Ralph Rader, Sheldon Sacks among others) have defined themselves against New Criticism, revised and extended Chicago Formalism’s reach into what is now called Rhetorical Narrative Theory (Richter, 2018, pp. 24-33).

New Criticism and the Reader

From the 60’s thereon New Criticism came under fire again as proponents of the affective theory and reader-response refute the sole authority of the text as container of meaning. For reader-response critics, the reader is as much a maker of meaning, that a text is dead until the reader comes along. As George Poulet, in his 1969 essay “Phenomenology of Reading” would say “[b]ooks are objects.... [that] wait for [the reader] to come and deliver them from their materiality, from their immobility” (p. 1320). Both reader and text bring the work into existence. Wolfgang Iser believes that the literary work is a product of the two poles of literature: the artistic pole (the author’s text) and the aesthetic pole (the realization accomplished by the reader). Meaning resides neither in the text nor in the reader alone, but somewhere in between.

It was Stanley Fish in his 1970 essay "Literature in the Reader" who directly confronted New Criticism particularly Wimsatt Jr. and Beardsley's "Affective Fallacy." Fish starts with the claim that meaning is *event*. He proceeds to illustrate this in his analyses of two statements by asking the question *what does it do* instead of *what does it mean*. The meaning as Fish illustrates lies in the event of making sense of literature's effect as the reader responds to it: "the execution [of the concept] involves an analysis of the developing responses of the reader in relation to the words as they succeed one another in time" (p. 126). Unlike what Wimsatt and Beardsley call "purely affective reports," Fish intends to demonstrate a larger spectrum of responses, more deliberate and perhaps more intelligent and conscious than impressionistic and relativist. While Fish implicitly acknowledges that the entry point of analysis is a text, he cautions against the Formalist method of disregarding the mind that receives and engages with the text: "to consider the utterances apart from the consciousness receiving it is to risk missing a great deal of what is going on" (p. 134). Formalist criticism for Fish is a criticism that undermines the reading experience which essentially makes meaning: "what it does is what it means" (p. 131). A criticism that focuses on the meaning and extraction of it is a criticism that is spatial, not temporal. Fish faces head-on Wimsatt and Beardsley's notion of affective fallacy by claiming that affective fallacy is in itself fallacious. As Fish demonstrates in his analysis of some lines in a poem, reader-response is not impressionistic. Indeed, it takes careful note of all the registers involved in reading. Further, to consider the text as objective, as containing everything is an illusion. "Literature is a kinetic art" (p. 140) yet the text, "the physical form" it takes stops us from realizing this. The text as read moves and readers move with it. So that the final question most literary criticism asks "what does it mean" does not hold anymore as criticism on literature, in this method and theory, does not arrive at an extractable meaning. Rather the meaning lies in the experience of the reader of the words as they "succeed one another in time:" Fish admits for an "informed reader" who knows well the language from which the text is built, possesses "full semantic knowledge that a mature ... listener brings to his task of comprehension" and of course "has literary competence" (p. 145).

New Criticism and the Author

The New Critics' denunciation of the then conventional notion that the author occupies a privileged position in the determination of meaning, and which Wimsatt Jr. and Beardsley point out as Intentional Fallacy which goes a step further in Roland Barthes' famous phrase, "the death of an author," found a deeper exploration in the French critic Michel Foucault. Foucault (1969/2001) admits that the author has been effaced as the work takes on a life of its own, and in some cases licensed now to kill its author in its mandate to transcend death into immortality. But Foucault sees the problematic of these positions: if an individual who is an author is not called an author, then what should we call those works he has written? Reclaiming the author's place, Foucault calls for the re-examination of the author who has by current discourse been forgotten as a subject: what function does the subject "author" fulfill in the discourse. He observes that the name of the author oscillates between description and designation. For example, if people discovered that the house tourists often visited is not really the house that Shakespeare once lived does not affect the name Shakespeare. Yet if it is proved that Shakespeare's sonnets were written really by Francis Bacon, then the name Shakespeare would now take on a different coloring. An author's name also establishes a system of classification, groups together texts and differentiate them from others, determines forms of relationships among texts and "characterizes a particular manner of existence of discourse" (p. 1627). This discourse that owns the author's name, its significance and the manner by which such name is received is regulated by the culture in which it circulates. Thus, unlike other proper names that refer to an outside person, the name of the author remains with the texts, defining and classifying them, characterizing their mode of existence. An author's name signifies the existence of certain groups of discourse, their operation, their status within society and culture. In short, the author is "a function of discourse"—Foucault coins the phrase "author-function"—which is not constant and universal. It changes with time and context and formed through intricate and multifarious operation. It is "tied to legal and institutional systems" that control it and it does not refer to an

“actual individual.” Foucault, by emphasizing the “author-function” does not wish to attribute to the individual or writer the originating cause. Rather, by placing the author as subject within socio-historical forces that determine the discourse, he shifts our focus away from the writer into larger duly organized forces.

New Criticism and the Text

While the New Critics have varying viewpoints all seem to agree on the unified text, an organic whole that is a universe unto itself, reconciling contradictions. Somehow this idea always presumes that meaning can always be had. Paul de Man (1983), one of the most influential members of the Yale school, questions the idea of the unified text. Schooled in New Criticism and an ardent close reader, de Man departs from New Criticism in questioning the idea of the unified text. He attacked New Criticism via I.A. Richards and William Empson. Richards who so many New Critics afford special place in their theory, suggests that literary reading is a process of communication. The reader arrives at the meaning the author intends despite ambiguities as literary language can be reconciled in itself: “an exact correspondence between the author’s originary experience and its communicated expression” (p. 231). For de Man, Richards fails to take into account the ontological question here of language as signifier. Language may signify but it also functions as a creator of worlds. Rather than just signify reality, language actually constitutes it too: it creates into being a world and reality. If poetic language is ambiguous and as language is a signifier, then its most fundamental reckoning the New Critics should have done is acknowledge that the ontological problem here is the conflicted Being (p. 232).

It was Richards’ student William Empson in *Seven Types of Ambiguity* that to de Man’s thinking addressed this ontological question. Here, de Man noted Empson’s configuration: if poetic language is in itself ambiguous and yields quite a number of meanings then this is contradictory to New Criticism’s avowal of a unified, organic text or Richard’s injunction of reconciling reader’s experience with author’s original intention. There is a fundamental problem

that results from Empson's argument: poetry is fundamentally ambiguous as it can suggest multiple meanings and therefore the communication between reader, author and text is problematic as poetry, in this configuration sets out meanings, worlds, that are "yet to be constituted" by it (p. 236). De Man observes as well how Empson takes ambiguity farther from Richards's take in that it can take multiple meanings that even against the will of the author are "mutually exclusive" of each other. Here de Man points out that Empson has indeed recognized that ambiguity in poetry is a product of the deep division of Being and poetry does not reconcile it, it simply reflects it: "the text does not resolve the conflict, it names it" (p. 237).

This ambiguity in poetry is rooted in the sorrowful division of spirit and matter, the spiritual and the material worlds. The spirit world grounds itself in matter yet the material world is only knowable in its dissolution into non-being. The spirit cannot be reconciled with its object and this division is reflected in poetic ambiguity. De Man concludes that the promise in Richards's work has not been materialized and "after the writings of an Empson, little is left of the scientific claims of formalist criticism." The ideas of "form, communication, signifying experience, and objective precision" – formalist basic assumptions— have all been put into question. "Terms such as paradox, tension, and ambiguity abound in American criticism to the point of nearly losing all meaning" (p. 241). In short, de Man points out the failure of New Criticism's notion of texts as self-sufficient and self-authenticating for how can a text be possessing organic unity and yet riddled with paradox, irony and ambiguity.

For J. Hillis Miller (1980) the notion of "unreadability" pervades in texts. Readers and sometimes writers when reading their own work tend to believe in a "single and totalizable meaning" of a work (p. 113). This is the lure of metaphysics to make sense of ambiguities and paradoxes, to establish a logos. For Miller, texts in themselves are unreadable as is the nature of language. "Unreadability is the generation by the text itself of a desire for the possession of the logos, while at the same time the text itself frustrates this desire, in a torsion of undecidability which is intrinsic to language." While Miller recognizes that Empson and other New Critics have stretched

the idea of ambiguity to more than just ‘plurisignificance’ or richness in meanings that could not be encapsulated in paraphrase, nevertheless New Critics believe in organic unity that irons out ambiguities. For Miller, texts in themselves are unreadable as is the nature of language. He stretches this unreadability in language as a sort of power of the text making the reader believe he can say what a text means but at the same time the text itself makes it impossible for the reader to do so. While at the outset, Miller’s concept of the text as unreadable may appear to share affinities with the significance placed by New Critics on literary texts, he departs from New criticism in his refusal for closure. For Miller, texts are always open. Unreadability rendered by language “names the discomfort of this perpetual lack of closure” (p. 113) something that does not sit comfortably well with the New Critics that aim for organic unity that culminates in meaning.

Another critic who rejects the idea of the text as independent and self-sufficient is Harold Bloom. Bloom’s *The Anxiety of Influence* (1997) posits that a poem is an anxiety a writer experiences from having to live up to his predecessors and at the same time make his own mark. His conceptualization of writing, tradition-bound and championing the geniuses in the Western canon, may share affinities with the New Critical canon, but departs from it in its insistence that a poem is a product of a long line of tradition. Using the Oedipal model, Bloom insists that writers have come into a culture already much formed and to accept that a new work will always be overshadowed by previous works is equivalent to death. Thus a poem is anxiety itself. This aggressive, not to mention masculinist configuration is not only what drives the writing process but also guides the reading of literature.⁹ A poem is a product of the many poems before it. A poet experiences anxiety of influence which is a consequence of “poetic misprision” a strong act of misinterpretation (Preface xxiii) of parent literature (p. 96). Insisting on contextuality, Bloom asserts that “every poem is a misinterpretation of a parent poem.” Hence the reading of literature demands that a text will be examined in connection with other texts, and from such intertextuality criticism is conducted: “criticism is the art of knowing the hidden roads that go from poem to poem.” Bloom extends his rejection to poet and critic, poetry and criticism. For Bloom their

difference is “only a difference in degree and not at all in kind.....[f]or just as a poet must be found by the opening in a precursor poet, so must the critic” (pp. 93–96). This idea of placing significance in criticism disagrees with New Criticism as the division between primary text (literature) and secondary text (criticism) has been blurred if not altogether erased.

The extreme begetting of New Criticism in structuralism and poststructuralism has moved E.D. Hirsch (1960/2001) to intervene in his call for objective criticism. At the outset, objective criticism appears merely to join forces if not reinforced New Criticism’s credo of the organic text. Hirsch however diverges from New Criticism in that in his call for objective criticism, the author’s intention is the basis. Hirsch starts with differentiating the objectives of interpretation and criticism respectively, though he recognizes that the two usually interplay. Interpretation for Hirsch is the process of ascertaining *textual* meaning while criticism has for its objective valuing a work’s *significance*. While the two are intertwined, interpretation logically comes first as a critic cannot know the significance of the work and relate it to larger contexts unless he knows its *textual meaning*. Hirsch touches base with Eliot’s concept on tradition and individual talent but only agrees with him in so far as the changes that Eliot pertains to means “changes in significance.” Thus, a work’s significance changes with literary tradition in like manner that a newcomer text simultaneously changes tradition. In this respect, meaning is not changed but only the significance. For Hirsch textual meaning is “permanent” and it is the “author’s meaning” which is “unchanging and reproducible:” the main task of an interpreter is to determine the author’s logic, his stance, his cultural givens or his world. Hirsch calls this “psychological reconstruction” of the author’s verbal intention only in so far as it relates to the text. In this endeavor the concept of genre is important in ascertaining the “author’s horizon”— outlook, typical associations and expectations— which for Hirsch contextualizes and limits meanings. Using Saussure’s linguistic distinction between *langue* and *parole*, Hirsch refutes Wimsatt and Beardsley’s “intentional fallacy,” and the New Critics’ distinction of inside and outside of a text. To follow the logic of the New Critics’ claim that a text is independent, outside of reader and author, is to say that the text is not a *parole* of the

author but of the speech community. Linguistically this does not stand as only individuals utter parole. For Hirsch, the text is *parole*, an actualization of *langue* (the system of meaning possibilities shared by the speech community) and thereby predated by choice, determination, and intention (pp. 1684-1708). Meaning is predated by a meaner. Hence "interpretation is the reconstruction of *another's* meaning" (p. 1709), in this case the author's.

New Criticism, Culture, and Society

Inspired by Michel Foucault, Stephen Greenblatt (1982/2001), the leading figure of New Historicism seeks to intervene between New Criticism and historical scholarship partially misplaced by the latter after the second world war. For Stephen Greenblatt, the old configuration of historical scholarship though taking into account historical forces that shape the text, suggests too a kind of fixity in interpretation where the vantage point is almost always thought of as stable. Historical scholarship in a sense confers on the text independence and unchangeability, much like New Criticism where the text is believed to be verbal icon that contains its meaning(s). New historicism as opposed to New Criticism and to the old historical criticism that is "concerned with discovering a single political vision" most often identical to the ruling class, "erodes the firm ground of both criticism and literature." As a theory and methodology, it is less concerned with establishing the unity of a literary work rather literary works are "fields of force, places of dissension and shifting interests, occasions for the jostling of orthodox and subversive impulses" (pp. 2253-254). While this theory and critical methodology acknowledges "fields of forces," in itself it is also self-reflexive and questioning of its own methodological assumptions and that of others. It too challenges the assumptions that polarized literature and politics while "artistic production" and "other kinds of social production" exist these are not "intrinsic to the text." Rather, these are constantly redrawn by artist, audiences, and readers. This is based on the premise that no social world is stable and literary works are not separated from the power struggles that make up social reality (pp. 2251-254).

Another influential critic swayed under Foucault's influence is Edward Said. Said (1975) calls for the "worldliness" of criticism and criticizes a theory and critical methodology that focuses on the text and ignores the socio-historical forces from which the text sprang. Said's call for a 'worldly' criticism is an intervention to the current trend of deconstruction in the 70s and 80s which a lot of critics often label as the extreme extension of New Criticism where text and its textuality are made supreme over the consideration of social, political and historical forces that shape texts.¹⁰ For Said, a text is located in the world; it is worldly and can never be self-sufficient. Indeed, it is a fallacy to assume that texts are "pleasantly ideal without force or conflict" (p. 16). Following Foucault's idea on the analyses of systems of discourse, Said sees the text as a product of systematic inclusion and exclusion, of production, of the clash between controller and controlled. To imagine a text as free of these forces is to deny these real and material circumstances. Such imagining is also equivalent to an ethnocentric and exclusivist valuation of a text that ultimately disregards the "will to power from which texts can spring." Texts are embroiled in time, place, circumstance, and society in like manner that critics, as reader and as writer, are too. Though critics, through interpretation and reading, turn texts into "circumstantial reality or worldliness," they too are enmeshed with the world: "subject to and ...producers of circumstances" (p. 4) in spite of the impartiality of their methods.

Said specifically objects to some critics' subscription to language in the attempt to stay true to the study of a text. He questions whether the only way to do this is to leave the "world" and retreat to the literary but "hermetic textual cosmos" whose meaning is "wholly inward." Far from dissociating literary language from the language of everyday use, Said insists for a worldly engagement by critics on the premise that a text has a specific situation. He objects to the trend of criticism's "limitlessness" as texts are seen as a universe unto themselves and calls attention to texts being in the world and to one of the functions of the texts, that is they "*place* themselves...in the world."¹¹ To retreat from the world into the text is to evade responsibilities demanded by the realities of life, social events, and politics. Text and social circumstances or "situation" are on the same level and the critic's interpretation is circumscribed

by the situation of the text. Said's discussion of the critic's text, that is the essay, reinforces the role of the critic in the dialectical construction of the value and standard of art. Hence, a critic has to be worldly in this sense for the responsibility, otherwise s/he runs the risk of instituting monocentrism and cultural hegemony. Indeed, the critic's role through his text the essay is to give voices to the silenced, dominated, displaced by the "textuality of texts" as texts are "a system of forces institutionalized at some expense by the reigning culture" (pp. 21-22). Perhaps the most damning indictment on New Criticism came from the Marxist critic Terry Eagleton (1996): "[r]eading poetry in the New Critical way meant committing yourself to nothing" (p. 43). Because New Criticism teaches 'disinterestedness,' it sits well with liberals as they are spared from taking a political stand in what was happening around them (Cold War, civil rights, etc.). When a poem is wrested free from author and reader, the poem is disentangled as well from the web of history and politics. Social and historical contexts are not only necessary; for Eagleton, "to speak of literature and ideology as two separate phenomena which can be interrelated is...unnecessary. Literature ... is an ideology" (p. 19). To dissociate a text from context is to make it inaccessible. New Criticism demands that "the poem must be plucked free of the wreckage of history and hoisted into a sublime space above it." In this configuration, both texts and their reading become spatial rather than temporal, the text becomes a revered icon, a mysterious object that while holding ambiguities provides reconciling harmony, a meaning in the end. Even the phrase and pedagogical practice of "close reading," a significant tool in literary studies, warranted a closer look. Eagleton insists that when New Critics demand for close reading, they invariably draw attention to the text, to the words on the page rather than "something else." When attention is drawn to the 'words on the page' it systematically excludes the "contexts which produced and surround them." Indeed, New Criticism is a "recipe for political inertia and thus for submission to the political status quo" (pp.15-46).

Perhaps, a case has to be made for the pedagogy and learning structure of New Criticism, that "suspicion of which for many years served as a kind of disciplinary shibboleth" (McIntyre & Hickman, 2012, p. 231), and its tool of *close reading* "thrown out with the dirty bathwater of timeless

universals" (Gallop, 2007, p. 182). The historical roots of New Criticism were actually antiauthoritarian where learning literature was made available not just to cultured elites but to everybody. Close reading in New Criticism is an "antiauthoritarian pedagogy," much like a proactive response to Paulo Freire's critique against the "banking model" of education where students received preformed ideas, like a bank receiving deposits (pp. 184-185). What started out as a well-meaning pedagogy that 'democratized' the study of literature, giving students who did not have extensive background on philological study and the like the tools to study literature and an equal footing in the classroom (Hickman & McIntyre, 2012, p. 13), seemed to have exhausted the limits of its usefulness as deemed during the heyday of theory.

Recently, there has been a surge of writings that revisit the strengths of the New Criticism.¹² In fact there is the *new formalisms*.¹³ Others call the movement and theory as "strategic formalism" or "historical formalism," the 21st new formalist turn that combine strengths of New Criticism, Russian Formalism, the Chicago School, and New Historicism. The plural designation of "formalisms" allow for multiple stances and approaches in the reading, teaching, and writing of literature. While the movement shares affinities with New Criticism in bringing back attention to the text as object of study, it also departs from it in its inclusive concept and praxis.

While meaning in New Criticism resides solely in the text, a "verbal icon" in one instance and a "well-wrought urn" in another, proponents of New Formalisms aim for a formalist analysis that "*produces or discloses dimensions of textual meaning and textual performance that are of the greatest readerly, cultural, and social significance*" [emphasis added] (Bogel, 2013, p. 33). In New Formalisms, this is what Fredric Bogel advises: "consider meaning and reading together" (41). In fact "objective meaningfulness in which the work exists prior to interpretation must be rejected in favor of *inescapable positionality*" [emphasis added] (p. 29). Each reader comes from a specific positionality bringing expectations which may or may not coincide with others' expectations, but nevertheless bear upon the work's meaning.

Undeniably, there have been reconfigurations and repurposing of New Criticism, shedding off its restrictive baggage and holding on to its effective

aspects. These reconfigurations and repurposing are worthy of deeper explorations to avoid losing the effective pedagogical aspects and theoretical grounding of New criticism.

NOTES

- 1 This paper is part of a longer undertaking. Please see my postgraduate dissertation "This 'sense of disquiet': Postcolonialism, New Criticism, and the nation in the Silliman University National Writers Workshop. CUHK Digital Repository
- 2 See Jancovich; Hickman and McIntyre; Gallop among others.
- 3 William Cain claims we can connect the rise and the institutional of New Criticism and its emphasis on close reading to the following series of works: T. S. Eliot, *The Sacred Wood: Essays on Poetry and Criticism* (1920); *Selected Essays, 1917–1932* (1932) I. A. Richards, *Principles of Literary Criticism* (1924); *Practical Criticism: A Study of Literary Judgment* (1929); William Empson, *Seven Types of Ambiguity* (1930); Kenneth Burke, *Counter-Statement* (1931); *The Philosophy of Literary Form: Studies in Symbolic Action* (1941); Ezra Pound, *How to Read* (1931); *Make It New: Essays* (1934); F. R. Leavis, *Revaluation: Tradition and Development in English Poetry* (1936); R. P. Blackmur, *The Double Agent: Essays in Craft and Elucidation* (1935); Yvor Winters, *Primitivism and Decadence: A Study of American Experimental Poetry* (1937); John Crowe Ransom, *The World's Body* (1938); *The New Criticism* (1941); Cleanth Brooks, *Modern Poetry and the Tradition* (1939); *The Well Wrought Urn* (1947) Allen Tate, *Reason in Madness: Critical Essays* (1941)
- 4 Donald Childs in his book "The Birth of New Criticism: Conflict and Conciliation in the Early work of William Empson, I.A. Richards, Robert Graves, and Laura Riding (2013) argued that the story of the origins of New Criticism is inaccurate in that it leaves out Robert Graves.
- 5 The term "close reading" was not invented by the New Critics and except for Richards (*Practical Criticism*) and R.P. Blackmur in "close reading Henry James" (Blackmur 1948: 317), they 'rarely' speak of "close reading" as the "interpretive activity they perform." Like "close reading," the term "New Criticism" was not wholly original. There have been mentions of this phrase previously by literary historians J. L. Lowes (1911: 208) and Ruth Wallerstein (1927: 496). See William Cain page 12.
- 6 Examples include from Plato's concept of poetry as inciting passions, Aristotle's *katharsis*—a literary purging of emotions, of Longinus' *Sublimity* as reflective of the [author's and] reader's soul, in the Romantic notion of the effect of poetry as in Dickinson's claim of feeling her head being severed from her body, or Housman's "bristling of the skin"
- 7 According to Leitch, already in 1942 Alfred Khazin attacked New Critics for its "fetish of form." Another intellectual Philip Rahv also objected to the "restricted approach" of New Criticism: "Their attachment to the text is what is appealing about the 'new critics'; what is unappealing is their neglect of context." Rahv accused New Critics for calling into practice "a narrow textual-formalistic approach which cannot account for change and movement in literature and which systematically eliminates ideas from criticism." (See Leitch, *The Norton Anthology of Theory and Criticism*, 2001 pages 1351 – 1352).
- 8 R.S. Crane, then head of the English department, led a group of critics and academics including Elder Olson, Norman Maclean, Bernard Weinberg, and W. R. Keast, published their manifesto in *Critics and Criticism: Ancient and Modern* in 1952.
- 9 Sandra Gilbert and Susan Gubar reject Bloom's masculinist configuration. Instead, they

- posit that for women it is “anxiety of authorship” an ‘alienation’ that feels like illness or madness. From Chapter 2. Infection in the Sentence: The Woman Writer and the Anxiety of Authorship The Madwoman in the Attic: The Woman Writer and the Nineteenth-Century Literary Imagination (See Leitch, *The Norton Anthology of Theory and Criticism*, 2001 pages 2023- 2034)
- 10 Vincent Leitch expressed misgivings of deconstruction as he observes its obsession with language: “As a hedonism of the disseminated text, as self-indulgent and licentious practical criticism construction appears to be just another decadent version of always narrow formalism.” Frank Lentricchia was more strident in accusing deconstruction as “traditionalism’s last formalist buttress;” it “represents a new formalism . . . only in the sense that it is the older formalism with its ontological freight thrown away.” [See Shuli Barzilai and Morton W. Bloomfield “New Criticism and Deconstructive Criticism, or What’s New?” *New Literary History*, Vol. 18, No. 1, *Studies in Historical Change*, Autumn, 1986, pp. 151-169]
 - 11 Said continues: “Moreover, their manner of doing this is to place restraints upon what can be done with (and to) them interpretively” (p. 9). In his objection to deconstruction’s limitless foray into language, Said appears to confer on the text a controlling and circumscribing power on interpretation.
 - 12 See Jancovich; Hickman and McIntyre; Gallop among others.
 - 13 See *New Formalisms and Literary Theory* (2013) edited by Verena Theile and Linda Tredennick. Palgrave Macmillan

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Faith Begins Where Thinking Stops: An Existential Reading of Abraham's Faith Struggle through the Lens of Soren Kierkegaard¹

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ABSTRACT

When the road of reason comes to a dead end; when things that happen in our life leave us with more questions than answers; when everything we do does not even make any slight positive change in our destitute conditions, what should we do? Can holding on to one's faith in God be enough to give peace to our restless heart or is there something more that we need to understand about existential faith life conditions?

This paper will attempt to look at a different view of faith not so much from a purely religious perspective but from an existential lens using the 1843 seminal work of Danish Philosopher Soren Kierkegaard's *Fear and Trembling*. In such work, Kierkegaard, through Abraham's faith struggle, will make an illustration of faith not as a passive submission, but as something founded on what is reasonable. He explored the idea of faith as a subjective and passionate commitment that transcends rationality as it involves a personal relationship with God especially when God seems to be absent and silent leaving us alone in our own struggles and darkness.

Keywords: Absurdity, Uncertainty, Crisis of Faith, Contradiction, Silence, Anxiety

INTRODUCTION

The 2020 COVID-19 pandemic has brought all of us down to our knees unable to move as some of us lost someone we loved so much; some of us became insecure about the future as parents lost their jobs or businesses on the verge of bankruptcy shaking the very core of family relationship;² or perhaps most of us were devastated when we found ourselves "positive" with a virus not knowing if we can survive such an ordeal.³ In such a situation, what did we do? Most of us, in the academe, tried to divert our attention by not focusing on the negativity and, thus, a recourse to online study/teaching to

free ourselves from thinking and dwelling so much on the present condition by looking more at the future.

However, what we all thought was a peaceful refuge for rest became another source of mental stress as “online classes” also have their ups and downs: additional expenses for the internet, the inability to adapt and adjust to virtual learning/teaching, the passing of requirements, and learning a new technological system added more toil to us. To make matters worse, typhoon Odette came last December 2022 crushing some of us to the ground; puzzled, we looked for enough reason to get up. “Do I deserve this?” Where is God in times like this? Where is He when I needed him most? Does He know my misery? Does He see me getting broken, getting weak, becoming hopeless? Does God forget the things I did for him? Or am I so bad that God sees me unworthy of his time, of his help, of his attention? Such questions when unanswered bring more mental stress, psychological worries, insecurities, and even depression leading us to doubt if life has meaning at all. A crisis of faith emerged when what is happening seems hard to comprehend especially when it contradicts the very promise of God that he takes care of those who love Him. Is faith a matter of simply resigning or submitting to God’s plan even if such a plan seems to be unreasonable in our human thought?

This paper will give light on the different questions I raised above and relay another view about Faith that it is not supposed to be blind, an expression of passive submission, nor founded simply on what is reasonable. Rather, it is a matter of personal (*subjective*) choice on trusting God especially when He does not even answer our question but only responds with a deafening and puzzling silence. This is the kind of silence that was once experienced by a biblical figure “Abraham,” considered by most as the “father of Faith.” However, more than a religious discussion, this paper expresses a more philosophical-existential perspective of Faith based on existentialist philosopher Soren Kierkegaard’s 1843 work “Fear and Trembling.” Kierkegaard explored the idea of faith as a subjective and passionate commitment that transcends rationality arguing that faith requires a leap beyond reason, as it involves a personal relationship with God that goes beyond what can be fully comprehended or proven through logical means, relying instead on trust, personal experience, and intuition.

The discussion begins with Abraham's story, for contextualization, then it will proceed to Kierkegaard's analysis of Abraham's journey of Faith with an existential struggle, that is, in *"Fear and Trembling"* experience, and ends with my reflection on Kierkegaard's insight concerning the notion of faith with our common response to the pandemic.

Contextualizing: Abraham's Story: Genesis 22:1-18 (*New International Version*)

Sometime later God tested Abraham. He said to him, "Abraham!" "Here I am," he replied. Then God said, "Take your son, your only son, whom you love—Isaac—and go to the region of Moriah. Sacrifice him there as a burnt offering on a mountain I will show you." Early the next morning Abraham got up and loaded his donkey. He took with him two of his servants and his son Isaac. When he had cut enough wood for the burnt offering, he set out for the place God had told him about. On the third day, Abraham looked up and saw the place in the distance. He said to his servants, "Stay here with the donkey while I and the boy go over there. We will worship and then we will come back to you." Abraham took the wood for the burnt offering and placed it on his son Isaac, and he himself carried the fire and the knife. As the two of them went on together, Isaac spoke up and said to his father Abraham, "Father?" "Yes, my son?" Abraham replied. "The fire and wood are here," Isaac said, "but where is the lamb for the burnt offering?" Abraham answered, "God himself will provide the lamb for the burnt offering, my son." And the two of them went on together. When they reached the place, God had told him about, Abraham built an altar there and arranged the wood on it. He bound his son Isaac and laid him on the altar, on top of the wood. Then he reached out his hand and took the knife to slay his son. But the angel of the Lord called out to him from heaven, "Abraham! Abraham!" "Here I am," he replied. "Do not lay a hand on the boy," he said. "Do not do anything to him. Now I know that you fear God because you have not withheld from me your son, your only son." Abraham looked up and there in a thicket, he saw a ram caught by its horns. He went over and took the ram and sacrificed it as a burnt offering instead of his son. So Abraham called that place The Lord Will Provide. And to this day it is said, "On the mountain of the Lord it will be provided." The angel of the Lord called to Abraham from heaven a second time and said, "I swear by myself, declares the Lord, that because you have done this and have not withheld your son, your only son, I will surely bless you and make your descendants as numerous as the stars in the sky and as the sand on

the seashore. Your descendants will take possession of the cities of their enemies, and through your offspring, all nations on earth will be blessed, because you have obeyed me."

Kierkegaard, under the pseudonym "Johannes De Silentio," explains that before the journey to the mountain of Moriah, Abraham heard a "voice" saying a promise that from his seed all races of the world would be blessed (Kierkegaard, 1843/1954, p. 32). He was promised a son (Isaac), but Sarah did not immediately bore him a child and had to wait decades until they get old (p. 31). Those waiting moments, in themselves, were already a moment of struggle, within Abraham, questioning whether or not he understood what God correctly said as Sarah still bore no child after so many years. Within those moments of struggle, Abraham's response was to "let go of his earthly understanding" accepting the absurdities of being given the promise and having to wait for the fulfillment (p. 31). And then "in God's time" came the realization of the promise, Isaac was born. The promise was fulfilled but again another absurdity emerged. God commanded Abraham to sacrifice his very own son Isaac. He waited for a long time and then when Isaac was born, and just as he felt unconditional father's love for Isaac, he must now sacrifice him. It is from here that Kierkegaard poetically unfolds Abraham's inner suffering: "All was lost! Seventy years of faithful expectation, the brief joy at the fulfillment of faith. Who then is he that plucks away the old man's staff, who is it that requires that he himself shall break it? ...Is there no sympathy for this venerable old man, none for the innocent child? (pp.34-35)." Such anguish and agony experienced by Abraham require a better understanding from the lens of Soren Kierkegaard.

ABRAHAM'S FEAR AND TREMBLING EXPERIENCE

The conflict between Ethical (Society's Expectations) and Religious Duties

While most people read Abraham's story from a religious perspective, Kierkegaard sees something more as he recognized the conflict between Abraham's duty to society (Ethical Duty) and his duty to God (Religious Duty).

Abraham's act of sacrificing Isaac is seen differently from each perspective. From the ethical view (Society), Abraham will murder Isaac. From the religious view (God), he is offering him back to God, the Giver of Isaac. Here lies the conflict of duties and moral views that from society's perspective there is killing, but from religious view it is more of a sacrifice. Within such conflict, Abraham has to make a choice as a proof of his unwavering commitment amidst a dreadful feeling of anxiety (Kierkegaard, 1843/1954, p. 41). What does it mean?

By virtue of being a "member of the society," Abraham, Kierkegaard argues, is bound to obey his ethical duty. Society expects Abraham to be a loving father to his son, Isaac, as it is the moral obligation of every parent (p.67). Abraham, himself, also believes that he must prevent any possible harm done to his beloved son (p.70). As a parent, you don't murder the one you love and, more importantly, the one who loves you so much. There is no valid reason for Abraham to harm his son Isaac as both of them have a reciprocal love for each other. Thus, if he acts according to the expectation of society, his ethical duty is far more important than his duty to God (pp. 68-69). And for doing that, he will be blameless in society's eyes especially through those of Isaac, Sarah, and his relatives. Kierkegaard even goes further that what if Abraham instead "thrust the knife into his own breast. He would have been admired in the world, and his name would never be forgotten..." (p. 35). But as an "individual," Abraham has awareness that he is also related to God and answerable to Him as the "Giver" of his life and that of Isaac's. Since Abraham believes that all life is a gift from God, including his life and his son's life, then he knows that he owes God that much. So, which one will he follow? Is it his duty as a member of society or as an individual?

During such a situation, God was silent. Abraham was alone carrying that burden after he received God's order to offer Isaac in Mt. Moriah. In the three days' journey toward the sacrificial place, he couldn't hear any other message after the first message, which is to offer Isaac. He couldn't even feel God's presence. All he had was silence. In that silence, he was alone. He couldn't tell his son or his servants about his plan. Here we find the concrete reality of his dreadful anxiety as Abraham was internally torn between fulfilling his

religious duty to God and his duty to his son. He was alone in such anxiety and he alone should make such a decision. Thus, when Abraham drew his knife to slay his son, he transgressed his ethical duty, going against society. He did it so he could “furnish the proof” of his total commitment to God (pp. 69-74). Alone he made that decision, without even the help of God. In such an absurd situation, Abraham did not doubt or challenge God. He knew that it was the hardest sacrifice that could be required of him and that no sacrifice was too hard when God required it – thus, in faith, he drew the knife (p. 36). It is from here that Abraham became the “father of faith” as it is one thing to be admired by the society by following its rule and norms but it’s “another to become a guiding star that saves the anguished” (p. 35), those whose faith are tested in fire.

In such an overwhelming anxiety, in Kierkegaard’s view, Abraham acted as a knight of faith. When conflict occurs between one’s ethical duty to society and his duty to God, the latter takes precedence. Abraham has a choice not to sacrifice Isaac by disobeying God since it’s wrong in the eyes of society but he chose to obey and, even though, God would return Isaac to him intact as expressed by Kierkegaard: “By faith, Abraham did not renounce Isaac, but by faith Abraham received Isaac” (pp. 46-59). Here is where logical reasoning ceases control of one’s decision as Abraham’s conviction lies in his full trust in God: “he who loved himself became great by himself, and he who loved other men became great by his self-less devotion, but he who loved God became greater than all” (p. 31). It was not by reason that Abraham consummated his faith; rather, Abraham’s love expressed in total trust in God became the foundation of his faith. For that reason, Abraham was able to overcome the absurdity of his situation and made such choice.

Duty to one’s religious affiliation and personal duty to God

But a question must be asked: Does it mean that when there’s a conflict between one’s ethical duty to society and one’s religious duty to God, should I simply use blind faith in making decisions? Such thinking/ attitude might be dangerous to society as proven by so many historical accounts in the past until

the present where immoral acts of killing unbelievers were done by religious fanatics convinced that they are doing it for God. "Blind faith," a faith without some sense of moral understanding, is a dangerous thing especially when it is done for other reasons except for God. This is where we have to distinguish between a duty to one's religious affiliation and a personal duty to God. We commonly associate commitment and loyalty to one's religious institutional affiliation with its doctrine and teachings as a religious duty to God. This, however, is not what duty to God means in the view of Kierkegaard as it also falls within the context of ethical duty to the established religious institution but not necessarily to God. Allow me to clarify this.

Kierkegaard argues that every duty (either religious or ethical) is fundamentally a duty to God. But this does not mean that every duty brings one to a deeper relation to God: "The duty becomes duty by being referred to God, but in the duty itself, I do not enter into relation to God. For example, it is a duty to love one's neighbor. It is a duty by its being referred to God, but in the duty, I do not enter into relation to God, but to the neighbor I love" (p.78). Kierkegaard's message is clear that whatever ethical duty we do for others, and even to our own religious institution with which we are affiliated, it will always end up in a deep relationship with them but not necessarily with God. Duty to God is a personal choice while duty to the established religious affiliation is by virtue of being a member (p. 80). Thus, following one's institutional ethical goals and mission does not necessarily bring one to a deeper relationship with God but only to one's religious affiliation. Kierkegaard is clear that duty to God is a priority and over and above our duty to our religious affiliation. In other words, one's duty to God is best expressed when one is willing even to give up his love for his religious affiliation for the sake of one's love for God. In the case of Abraham, he gave up his love for his son for the sake of his love for God. His duty as a father to Isaac becomes relative while his duty to God becomes his priority. But Kierkegaard also claims that when God becomes our priority, our other duty to our institutional affiliation and to others are not invalidated. Rather, they receive a completely different expression, a paradoxical expression that our overflowing love for God may become the foundation of our love for others

(pp. 80-81). Out of the abundance of our love for God enables us to love the rest. Such an attitude is totally different from religious fanatics' attitudes and convictions that "true religion" is theirs and they could treat the rest wrongly simply because they are enemies of the faith. No! Such is not what love for God means. We can understand this better when we look at our Lord Jesus Christ's saving act. Jesus' death on the cross brought salvation to everyone with no exemption.⁴ Christ enduring love to God, his Father, enables him to love everyone. In the same way, it is not blind faith but rather a deep personal love for God that enables Abraham to make that most difficult decision to obey God, a faith nurtured by deep love. Was it an easy thing for Abraham to simply choose God over his love for his son, Isaac? Definitely, not!

God's Silence and Abraham's Disclosure

One beautiful insight of Kierkegaard in his book is the notion of "Disclosure" (p. 91). In the eyes of society, 'disclosure' is an important ethical conduct. Being with society necessitates everyone to obey their duties in revealing or explaining the reason for their actions. Communication between moral agents is necessary for the preservation of the moral community, while concealment is its destruction. Mark C. Taylor expresses it better: "To remain silent and to refuse to express oneself in an honest and forthright way is to negate the very possibility of moral relationships... moral community is impossible without communication" (as cited in Lippitt, 2004, p. 111). If disclosure is a mark of the ethical, then Abraham's "silence" or concealment of God's command to his son, Isaac is wrong from the eyes of the society. Recalling Genesis 22:6-8:

Abraham took the wood for the burnt offering and placed it on his son Isaac, and he himself carried the fire and the knife. As the two of them went on together, Isaac spoke up and said to his father Abraham, 'Father?' 'Yes, my son?' Abraham replied. 'The fire and wood are here,' Isaac said, 'but where is the lamb for the burnt offering?' Abraham answered, 'God himself will provide the lamb for the burnt offering, my son.' And the two of them went on together.

Isaac has all the right to know the plan of his father especially since his life is at stake. Abraham's act of not directly answering the question of his son shows his intention of concealing the information from his son. His concealment clearly expresses the betrayal of his relationship as a father to his son. Is Abraham acting selfishly? Does he not care about the life of his son, Isaac? Does he not mind at least respecting Isaac's right to know that his life will soon end through his hands? What ethical justification can we make to explain Abraham's concealment? Kierkegaard argues that Abraham's concealment does not mean that he did not want to answer his son, Isaac. The truth is, he simply cannot answer his son's question and, because of that, he found himself in total "distress and anguish" (p. 122). In other words, it is not about Abraham's inability to utter words for he is not struck dumb but his inability to communicate his situation: "...there is one thing he cannot say and since he cannot say it... in a way that another understands it, he does not speak..." (p. 122). To say something, Abraham needs to use all possible means to explain the situation in a way that his son, Isaac, will understand him. But he perfectly knows that his son will never understand him since he himself does not also understand the command of God. God's silence made Abraham lose his ability to comprehend His command. In life when we don't understand what is happening to us, we start to doubt God and question his love. We start to falter from our religious convictions until we abandon Him and do things our own way. But Abraham did not do any of those tendencies. In God's silence, in such a situation, what Abraham can only do is be "silent."

But though Abraham cannot speak, cannot make himself be understood, he does say something: "God will provide himself the lamb for the burnt offering, my son" (p. 128). Though it may appear that Abraham is being untrue to Isaac for not telling him directly that he is "the sacrifice," for Kierkegaard, this is not so. He explains that Abraham's response is clear evidence that there is a double movement happening within his soul. The first movement is his renunciation of Isaac because God demands Isaac as a sacrifice; while the other movement, through his response, was a movement of "faith... by virtue of the absurd" (p. 10). This means that when Abraham says "God will provide" he utters no falsehood for in virtue of the absurd it

is possible that God could do something entirely different, that is, either the death of Isaac will not occur or God will bring back Isaac to him again, or something else will happen. Abraham's faith lies not in understanding the absurdity of his situation but in his total confidence in God because he deeply knows Him. Evans (1981) explains it better:

Abraham knows God as an individual; he knows God is good, and he loves and trusts God. Although he does not understand God's command in the sense that he understands why God has asked him to do this or what purpose it will serve, he does understand that it is indeed God who has asked him to do this. As a result of his special relationship, Abraham's trust in God is supreme. This trust expresses itself cognitively in an interpretative framework by which he concludes, all appearances to the contrary, that this act really is the right thing to do in this particular case. (p.146).

Abraham's action is justified for the reason that his 'special relationship' with God enabled him to trust God completely even if God contradicts his own words. What does it mean? For Kierkegaard, the most difficult struggle of Abraham is the contradiction intrinsic to God's command. As I said in the beginning, God promised Abraham that he will be the "father of the nation" yet he has to wait until his old age for the completion of that promise. And when that promise is fulfilled through Isaac, God asked him to sacrifice him. It doesn't make sense in any human common sense such plan of God. It is not about society versus God, or ethical duty versus religious duty. The dilemma of Abraham is not simply a "collision between God's command and man's command but between God's command and God's command" (Davenport, 2008, p. 888). God is contradicting his own words. He promised Abraham that he would be the "father of all nations" and, yet, also asked him to sacrifice his only son, Isaac. Confronted with this conflict, with such tragic dilemma, with such contradiction, Abraham found himself alone in carrying such a burden as God's silence was the only response he received. During the travel, the preparation of the sacrifice, the inquiry of Isaac, and even in the time when he was still getting the knife tucked from his belly, there was not a single sound he could hear. We could simply imagine Abraham's "fear and

trembling” experience beyond ordinary experiences. Perhaps, Kierkegaard argues, the necessity for God’s silence is in part because a description of the act is not to be comprehended (p. 129). No amount of reasoning can decipher the mind of God for only in the eyes of faith can one see God as He is. Abraham did not allow his reasoning to be the basis for his decision as his reason couldn’t comprehend his situation. Kierkegaard has beautiful words for Abraham, “Faith begins precisely where thinking stops” (p. 64). In his “absolute isolation,” it was his deep faith nurtured in love and full trust in God that enabled him to make an exemplary decision (p.149).

An Insight on Kierkegaard’s Existential Reading

What reflection can we get from Kierkegaard’s existential analysis of Abraham’s faith that we can use in improving our view of what genuine faith should be especially in times of life’s struggles? Let me share some crucial reflections.

Faith is more than an Intellectual Ascent

Our present age has devalued faith when it is anchored merely on our human reasoning. When everything that happens in our life has some reasonable justification, it’s easy to put our faith in God. But when something unexpected happens, when our life is at stake and whose direction has no clear explanation, as proven by the effect of the pandemic, we see the reality as it is. Faith founded on reason does not necessarily bring one to trust God. That’s not what happened to Abraham. Faith is something more. It is a commitment of the whole self to a ‘living’ God who journeys with us even if we fail to understand his plan. Faith is a lived commitment best expressed not when our life is in good condition but when it is threatened by crisis that has no clear justification. The pandemic has brought all of us to the reality that despite all our faith in God, all our prayers to him, and all the good things we did for him, we still find ourselves suffering like the rest. No magical hands of God have prevented us from having the virus nor from experiencing all

kinds of worries and stress. Confronted with such a situation, perhaps, there came a moment when we started to look for God and, in our hearts, asked such questions: "Where are you in times like this, God? Where are you when I needed you most? Perhaps, that's the same experience of Abraham as he tried to understand God's way of thinking. Yet, like Abraham, all we received was total silence. In that silence, we started to see how weak our faith is. In that silence, our real color is revealed that we demand God to save us, that He must do what we normally expect him to do, be a "saving hero." But what happen when God did not manifest any saving act? We began to falter. The truth is most of the time God won't be there to save us nor change our condition. But he will be there unconditionally in "silence" staying with us in those moments of sorrow and worries, suffering with us with no intention of leaving us alone. However, only those who have the "eyes of faith" can recognize it: "Blessed are those who have not seen me and yet believed" (John 20:29). But how could one achieve such deep faith? This is where the second insight becomes crucial.

Faith is a daily commitment

Faith is a daily commitment, a decision we make each morning to prove how much we love God, especially in the face of doubt, hardship, and pain. Such commitment will serve as a guiding compass, shaping our actions, decisions, and responses to the challenges of life. Abraham's faith experience is not just a one-time encounter with life's difficulties but an everyday struggle. Kierkegaard's presentation of Abraham's journey of faith was a life of confusion. He received the promise that in his seed all races would be blessed and he believed it. Yet, he had to wait decades for the realization of that promise. Those waiting moments were a period of his inner struggles as he was insulted by Sarah's comments; had relations with one of his slaves bearing him a child but feeling unsure if he did the right thing; perhaps, he also heard some negative remarks from his friends and neighbors about him and Sarah not blessed by God as they remained barren for a long time; or he himself was struggling if the promise would come through as it seemed impossible for Sarah to beget a child in her old age. And then, Isaac was

conceived and then born. The long wait has finally ended; the promise was fulfilled. But another more confusing command, God was asking him to sacrifice his only son, Isaac. From that moment, he was at a loss: "All was lost! Seventy years of faithful expectation, the brief joy at the fulfillment of faith. Who then is he that plucks away the old man's staff, who is it that requires that he himself shall break it? Is there no sympathy for this venerable old man, none for the innocent child? (Kierkegaard, p. 34)" Such is Abraham's everyday struggle from the time he heard the promise until the time he raised his knife to slay his son. Yet remarkably, even though he was confused he never lost his conviction. He gave up his earthly understanding, accepting the contradiction in God's order, and held firm to his faith that God knows better (p. 31). He knew that it was God who was testing him. It was not the test that matters to him but the one who is giving the test.

None of us have experienced Abraham's length of agony. Yes, the pandemic has put all of us in misery after losing someone we love, after being inflicted by the virus with its irreversible effect, or after finding ourselves in financial instability. Those insecurities resulted in us doubting ourselves and our faith in God resulting in a disbelief that there is a better life ahead as we can't look beyond what lies in the present. Our problem lies in the fact that we focus too much on the problem that we lose sight of God. We do our everyday activities with the goal of finishing our task alone, trusting our abilities, and not mindful whether God is there or not unless something wrong and disturbing happens to us. Perhaps what makes Abraham different from us is his conviction that God is part and parcel of everything that happened to him. God is in his everyday existence that without Him, his life has no meaning. Our faith in God will never grow unless we make it an intense, personal, and passionate affirmation of one's existence and relationship with God on a daily basis. It is a commitment that requires dedication, courage, and a willingness to grapple with difficult questions. It's a journey that demands us to constantly reaffirm and recommit to our beliefs and trust in God, day after day.

However, such lived commitment is not an easy thing to do. Thus, the question is "How did Abraham do it? Where did he get such strength

to commit himself to God steadily?" This is where the last insight becomes essential.

Faith as a 'Special Relationship'

The pandemic experience became a test of faith, a test of commitment, and a test of love for everyone who believes in God. There is nothing wrong to question God for being insensitive and unfair when those who love Him suffer in the same way as those who live their life unmindful of Him. How could an all-powerful, all-knowing, all-caring God allow those who put their faith in him to suffer and be destroyed by the virus? It's one thing that people are punished for the wrong things they did as they deserved it, but it's absurd that good and innocent ones suffer without valid justification, just like Abraham. Yet, remarkably Abraham, despite his unfortunate situation, did not doubt God. How and why? John J. Davenport, in his article "Kierkegaard's Postscript in Light of Fear and Trembling: Eschatological Faith" has this to say, "Faith... is a willed commitment of absolute trust in a promised good that is possible only by divine power" (2008, p. 887). It seems that Abraham's daily commitment resulted into a special intimate relationship with God. Perhaps, by constantly putting God as his priority, he became closer to God and felt His presence even in silence. With such a special relationship, God's divine grace enabled him to hold on to his faith against all odds (Lippitt, 2004, p. 163). His closeness to God enabled him to realize what he truly needs in life— God's unconditional love. Here is another aspect of faith, a deep and intimate relationship between man and God; where both God and man entered into a covenant and are nourished by such relationship. Thus, Kierkegaard concludes: "he who loved himself became great by himself, and he who loved other men became great by his selfless devotion, but he who loved God became greater than all" (p. 31).

CONCLUSION

Kierkegaard's work *Fear and Trembling* is rich with existential religious and philosophical insights. He was not only able to illustrate the true meaning of faith in relation to life but also reveals the existential struggles of those who chose God above everything else. He tries to illustrate that it is impossible to understand faith from an external point of view or from a form of a concept:

Even though one were capable of converting the whole content of faith into the form of a concept, it does not follow that one has adequately conceived faith and understands how one got into it, or how it got into one" (Kierkegaard, 24).

One's genuine faith requires an existential submersion to a "fear and trembling" experience. Let me end this paper through a true-to-life story of Mang Doming, who is not a "biblical figure" but a real person like us but whose faith, like Abraham, is worthy of emulation. Archbishop Broderick Pabillo once shared such inspiring story when he was still the parish priest in one church in Macarascas, Palawan in 2004.

I visited Mang Doming. I was so shocked when I entered his hut. It was see-through. I could see the sky from inside since the nipa leaves are so threadbare. It was then already in their rainy season. I wondered how the family would be doing when it rains. Mang Doming is completely blind for 7 years already. His wife is a katutubo, a Tagbanua. When I saw him, he was cleaning rattan strips with his knife. His wife gathers them from the forest and Mang Doming cleanses them to be sold at 30 pesos per hundred in the local store. This is how they support themselves and their three small children. At one point in our conversations, I asked him, "Mang Doming, how do you manage to survive?" I was deeply struck by his answer. With a serene smile on his face, he said quite naturally, "Father, nabubuhay kami sa awa ng Diyos (We live in the mercy of God)."⁵

How could a family of five live with 30 pesos a day even in 2004? With a hole in their roof, surely, they felt the coldness of the night, the scorching heat of the sun, or the dripping of the rain every day. Is he not worried or

does he not feel helpless every time his children and wife leave the house knowing that he couldn't even protect or defend them from others? Is he not afraid about his wife leaving him and his children because of their financial situation or because of his blind condition? Is this not the everyday dilemma of Mang Doming? Is his faith not challenged by different circumstances and every day worries? Like Abraham, Mang Doming's faith was a daily struggle. But when Archbishop Pabillo asked him how they survive, with full conviction, he answered "*Nabubuhay po kami sa awa ng Diyos.*" He, who has more reason to complain and even curse God for their unfortunate situation, surprisingly is more grateful. His answer testifies to his firm trust that God is the one providing them all their needs not because it is His responsibility but out of His mercy. He who is justified to question God realizes that even his life and his present condition, he owes it to God. So, instead of doubting God's love, he is resigned to Him. Despite his blindness, he clearly recognizes his place in the hands of the merciful God.

I concluded with this story as an argument that though, for some, Abraham is a "fictitious figure," there are real people around the globe who also struggle in keeping their faith. While the pandemic experience is just a temporary moment in our lives, some of these people's life condition remains the same even until they die. Yet, those who have eyes like us seem to be more blind to see God "working in silence" during our personal struggles. Perhaps, it is not because God is not there but simply because our faith requires deep anchoring through some life's tests.

NOTES

- 1 Originally, this work was a research paper submitted as a requirement in class in the subject Philosophy of Religion handled then by Dr. Victor Aguilan during my master's study in Philosophy in the SY 2014-2015 entitled "Understanding Kierkegaard's Concept of Faith: Revisiting Soren Kierkegaard's 1843 Seminal Work *Fear and Trembling*." Modifications were done to focus on the most important insights on faith that fit the current needs of time especially the pandemic experience and lessen the arguments to follow required format of the journal.
- 2 <https://www.worldbank.org/en/country/philippines/brief/covid-19-impacts-on-low-income-families-in-the-philippines>

- 3 <https://www.worldbank.org/en/country/philippines/brief/monitoring-covid-19-impacts-on-firms-and-families-in-the-philippines#:~:text=Impacts%20on%20businesses%20are%20felt,as%20food%20and%20health%20care>.
- 4 Anyone who rejects Jesus's offered salvation by constantly living a life of sin is the only exemption I could think of. See John 3:19-21.
- 5 An excerpt from the speech of Fr. Broderick Pabillo during the Second National Congress of the Clergy of the Diocese of Manila entitled *Poor Priests for the People*.

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Enhancing Agricultural Knowledge Management for Improved Extension Services: Insights from Local Agriculture Offices in Three Municipalities of Masbate, Philippines

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ABSTRACT

This study examines agricultural knowledge management in local extension offices across three municipalities in Masbate, Philippines. Interviews with agricultural officers and technicians reveal a reliance on the Department of Agriculture (DA) for agricultural innovations, with minimal local knowledge creation activities. Instead, knowledge is acquired through training and collaboration with DA-affiliated agencies. However, there's a lack of structured knowledge sharing among officers, hindering organizational development. Additionally, there's insufficient documentation of successful agricultural practices by farmers. Respondents emphasize the need for systematic knowledge collection and organization to facilitate storage and retrieval for potential users. Recommendations include documenting program outcomes to promote organizational learning and investing in information technology for better access to knowledge sources. These measures are crucial for improving extension services to farmers and promoting sustainable agriculture.

Keywords: knowledge management, extension service, knowledge generation

INTRODUCTION

Agriculture stands as a cornerstone of the Philippines' economic development and poverty reduction efforts, catering to the needs of a predominantly rural population and serving as a vital source of food and raw materials for various industries. However, despite its pivotal role, the agriculture sector has faced challenges, including fluctuating productivity

levels and vulnerability to adverse weather conditions, hindering its growth and stability compared to neighboring ASEAN countries.

Recognizing the importance of addressing these challenges, successive Medium Term Philippine Development Plans have underscored the necessity of modernizing the agriculture sector to foster robust and inclusive economic growth (Habito, 2005). Yet, achieving this modernization has been impeded by various factors, including unfavorable weather patterns, policy constraints at both national and local levels, and inadequacies in institutional support systems for farmers with diverse resource capacities and farming circumstances.

In response to the need for more responsive and accountable governance in the agriculture sector, the Local Government Code (LGC) of 1991 decentralized authority and responsibility to local government units (LGUs), including the governance of agricultural extension services. This decentralization aimed to empower LGUs to formulate plans, implement programs, and manage the delivery of essential services, including agricultural extension. Moreover, legislative acts such as the Agricultural and Fisheries Modernization Act (AFMA) of 1997 and the Philippine Fisheries Code of 1998 provided policy frameworks to modernize agriculture further.

Central to the enhancement of farming communities' productivity and efficiency is the effective utilization of locally generated or introduced agricultural knowledge and innovations. Agricultural Knowledge Management (KM) emerges as a critical component in this regard, facilitating the dissemination and utilization of valuable insights and innovations among farmers. KM involves the creation, capture, acquisition, and utilization of knowledge assets within organizations to support and enhance their performance (Metaxiotis et al., 2005).

In the context of agriculture, KM encompasses various processes, including knowledge generation, acquisition, sharing, storage, and utilization. These processes are vital for fostering innovation, improving agricultural practices, and addressing the evolving needs of farming communities. Essential knowledge areas include cultural management practices, new technologies, diagnostic information on plant and animal diseases, and soil-related issues. However, despite the recognized importance of agricultural knowledge

management, there exists a research gap regarding its implementation and effectiveness within the extension services of selected municipalities in Masbate.

This study aims to explore the landscape of agricultural knowledge management within the extension services of selected municipalities in Masbate. Specifically, it seeks to describe the status and performance of LGU agricultural extension services in these municipalities and evaluate the system of agricultural knowledge management, focusing on knowledge generation, acquisition, sharing, storage, and utilization. By shedding light on these aspects, the study aims to identify areas for improvement and inform strategies to enhance the effectiveness of agricultural extension services in supporting the needs of farming communities in Masbate,

METHODOLOGY

The study employed a descriptive approach to describe the status and performance of LGU agricultural extension services in these municipalities and evaluate the system of agricultural knowledge management. Three municipalities were chosen, each representing a major crop: a coconut-producing municipality, a rice-producing municipality, and a corn-producing municipality.

Purposive sampling was employed to select study sites based on specific criteria: being among the top 10 municipalities in the province in terms of area or volume of production for the designated crop, willingness of the Office of the Municipal Agriculture to provide assistance, favorable peace and order situation, and accessibility. Consequently, Milagros, Cawayan, and Masbate City were chosen to represent rice, corn, and coconut production, respectively.

Data collection involved interviews with key informant interviews. A total of 19 agricultural technicians were interviewed to gather socio-economic data, and extension activities of local agriculture offices. Key informants also included heads of relevant offices such as the Office of the Provincial Agriculturist, and the Office of the City/Municipal Agriculture Officers.

To contextualize the study, secondary data on agro-climatic and socio-economic features of the study sites were obtained from various sources,

including government documents and reports of previous studies conducted in the area. Data on agriculture sector support services, including research and development, technology extension, advisory services, credit provision, communication infrastructure, and market support, were gathered primarily through interviews with key informants.

RESULTS AND DISCUSSION

Profile of the Agriculture Sector

Recent studies have highlighted the pivotal role of agriculture in Masbate's economy. According to the latest available data from the Provincial Planning and Development Office (PPDO), agriculture remains the primary livelihood source for a significant portion of the province's population. As of 2021, agriculture accounted for approximately 65% of total employment, reflecting its substantial contribution to rural livelihoods and economic sustainability.

Agricultural production in Masbate is characterized by a diverse range of crops, with coconut, rice, and corn being the major staples. While coconut trees continue to dominate a significant portion of the province's land area, recent trends suggest a gradual diversification towards other crops to enhance resilience and address market demand fluctuations.

In terms of land use, statistical data from the PPDO indicates that as of 2021, coconut plantations cover approximately 20% of Masbate's total land area. This extensive cultivation of coconuts underscores the province's reliance on the coconut industry for income generation and livelihood support.

Moreover, rice and corn cultivation remain integral to Masbate's agricultural landscape. Recent reports from the Department of Agriculture (DA) indicate that rice cultivation spans over 25,000 hectares, with corn production covering approximately 20,000 hectares. These staple crops play a crucial role in ensuring food security and sustaining local livelihoods.

Furthermore, the average farm size in Masbate has been relatively stable over the years, with an average of approximately 3.5 hectares per farm, as reported in the latest agricultural census data. This indicates the

predominance of small-scale farming systems in the province, highlighting the importance of targeted interventions and support mechanisms to empower smallholder farmers and enhance their productivity and income.

Organization and Structure of Extension Services in Surveyed Municipalities

Extension services related to agriculture and fisheries at the municipal and city levels of Masbate, are primarily overseen by the Office of the Municipal Agriculture (OMAG) and the Office of the City Agriculture (OCAG), respectively. This organizational structure mirrors the setup found across the country.

The OMAG in the towns of Milagros and Cawayan are headed by the Municipal Agriculture Officer (MAO). The MAO plays a pivotal role in coordinating and implementing agricultural programs and projects at the municipal level. They serve as the key liaison between the local government unit (LGU) and various stakeholders in the agricultural sector, including farmers, government agencies, and non-governmental organizations (NGOs). The MAO is responsible for formulating policies, plans, and strategies for agricultural development within the municipality, in line with national and provincial directives. They also oversee the day-to-day operations of the OMAG, including budget management, staff supervision, and program evaluation.

Similarly, the OCAG in Masbate City is headed by the City Agricultural Officer (CAO). The CAO assumes similar responsibilities as the MAO but at the city level. They spearhead efforts to promote agricultural productivity, ensure food security, and support the sustainable development of the agricultural sector within the city. The CAO collaborates closely with city officials, agricultural stakeholders, and partner organizations to address the unique challenges and opportunities facing urban agriculture and fisheries.

Studies by Bernaldez et al. (2017) emphasize the crucial role of MAOs and CAOs in driving agricultural development at the local level. These officers serve as catalysts for innovation, knowledge dissemination, and community empowerment, thereby contributing to the overall socioeconomic

progress of their respective areas. Additionally, research by Aquino et al. (2019) highlights the significance of effective leadership and governance in enhancing the impact and sustainability of agricultural extension services provided by MAOs and CAOs.

Profile of Agricultural Technicians (AT) in the Surveyed Sites

The profile of Agricultural Technicians (ATs) in the surveyed sites reveals a predominantly male demographic, accounting for 57.9% of the respondents. Moreover, the vast majority of ATs were married (94.7%), indicating potential stability in their personal lives that may contribute to their professional commitment. The age range of ATs spanned from 25 to 64 years, with a mean age of 42.9 years, indicating a mix of experienced individuals and relatively younger professionals entering the field.

In terms of educational attainment, nearly all ATs (except one) held college degrees, predominantly in agriculture-related disciplines. This educational background likely equips them with the necessary theoretical knowledge and technical skills to effectively carry out their extension duties. Furthermore, one AT possessed a Master's degree, suggesting a higher level of academic qualification within the group.

The duration of service among ATs varied considerably, with tenure ranging from 1 to 24 years, averaging 8.1 years. This indicates a substantial level of experience within the cohort, which can contribute to their effectiveness in extension work. Over the past three years, ATs attended an average of eight training sessions or seminars on various agricultural topics. This ongoing professional development reflects their commitment to staying abreast of emerging trends and innovations in the agricultural sector, aligning with findings from studies by Santos et al. (2020), which emphasize the importance of continuous training for extension workers.

Despite their shared responsibilities in technology promotion, ATs reported assignments covering a diverse range of agricultural domains, including rice, corn, high-value crops, animal husbandry, fisheries, and cooperative development. While distribution of assignments was equitable,

ATs' academic backgrounds and personal interests were also taken into consideration, underscoring the importance of aligning individual strengths and preferences with specific extension tasks for optimal performance (Santos et al., 2019).

Common Extension-Related Activities

The interviewed ATs were queried regarding the common extension-related activities they engage in to fulfill their roles, offering insight into the breadth of their extension efforts. According to the data presented in Table 1, farm and home visits emerged as a ubiquitous activity, with all ATs reporting such engagements. These visits served various purposes, including information dissemination (84.2%), project monitoring (84.2%), provision of technical and advisory services (84.2%), and distribution of farm inputs (78.9%). These individualized visits allow for flexibility in addressing farmers' diverse needs, although the geographical dispersion of farmers within a locality imposes limitations on the number and frequency of visits per farmer.

Furthermore, the findings indicate widespread involvement in organizing training sessions and seminars, with almost all surveyed ATs (94.7%) participating in such activities. Additionally, a significant portion of ATs reported facilitating the establishment and reinforcement of farmers' associations. However, the frequency of these activities per community and the extent of personal involvement by ATs remain unclear from the data.

Moreover, collaborative partnerships with the DA were highlighted, with the majority of ATs indicating their assistance to DA staff in implementing and monitoring nationally initiated projects such as Farmer Field Schools (FFS), Techno Demo, and on-farm research. This collaborative approach underscores the importance of interagency coordination in maximizing the effectiveness of extension efforts, as emphasized in studies conducted by Gonzales et al. (2020), which demonstrated the benefits of interorganizational collaboration in agricultural extension services.

Table 1. Extension-related activities performed by responding ATs.

Extension Activities	Number of ATs reporting	Percent (n=19)
Farm and home visits	19	100
Conduct training and seminars	18	94.7
Organize and strengthen farmers' associations	17	89.5
Monitoring of field projects	17	89.5
Provide technical and advisory services	16	84.2
Information dissemination	16	84.2
Assist DA partners	16	84.2
Dispersal of farm inputs	15	78.9
Conduct techno-demo	10	52.6
Conduct on-farm research	6	31.6

Extension Service Management Strategies of the OMAG and OCAG

Given their extensive geographical coverage, diverse programmatic responsibilities, and the varied needs of their clientele, the OMAGs and OCAGs included in this study have implemented a range of strategies to address the information and knowledge needs of their constituents.

a. Staff assignment per area

Efficient allocation of extension staff resources is crucial for the effective delivery of agricultural extension services, particularly in areas with limited staffing and large geographical coverage. The surveyed OMAG and OCAG have implemented multiple area and program assignments per AT to optimize their outreach efforts and cater to the diverse needs of farmers. Research by Birner et al. (2018) emphasizes the importance of strategic staff allocation in agricultural extension, highlighting the need for a balanced distribution of personnel to ensure adequate coverage and support for farming communities. In the surveyed areas, the OMAGs and OCAG have adopted this approach, assigning each AT to cover multiple barangays and

oversee specific agricultural commodities or programs.

For instance, in Milagros, each AT is responsible for an average of three barangays, focusing on a particular commodity or special program. Similarly, in Cawayan and Masbate City, ATs are assigned to cover an average of four to five barangays and three barangays, respectively, reflecting efforts to optimize staff deployment while considering the geographical spread of their service areas

Despite these efforts, challenges persist, as noted by Prasai et al. (2020), including logistical constraints such as bad road conditions, high transportation costs, and wide area coverage, particularly in rural and remote locations. Additionally, some ATs reported encountering indifferent attitudes among farmers and a lack of expertise to address farmers' diverse needs effectively.

Furthermore, budgetary constraints pose significant challenges to the implementation of extension programs, with a substantial portion of the budget allocated to personnel services, as highlighted by the interviews with MAOs and CAOs. This underscores the need for strategic resource allocation and greater investment in operational expenses and capital outlay to enhance the effectiveness of extension services, as suggested by Admassie et al. (2019).

b. Use of farmer networks

Utilizing farmer networks has emerged as a crucial strategy for agricultural extension services, facilitating the dissemination of agricultural technologies and knowledge. As highlighted by Berdegúe et al. (2018), farmer organizations and cooperatives play a pivotal role in enhancing smallholder farmers' access to information, inputs, and markets, thereby contributing to agricultural development and poverty reduction.

In the surveyed areas, agricultural technicians (ATs) have recognized the importance of developing and mobilizing farmers' organizations or cooperatives to address the diverse needs of their constituents. These farmer groups serve as vital channels for the dissemination of agricultural technologies, leveraging the collective knowledge and resources within the community. The strategic use

of farmer networks allows extension services to reach a wider audience within a shorter timeframe, as noted by Singh et al. (2019). By working through these established networks, ATs can maximize their outreach efforts and ensure that agricultural innovations reach a larger number of farmers.

Moreover, farmer networks enable a more efficient delivery of extension services, as farmers within these groups often have their own mechanisms for communication and information sharing. This decentralized approach empowers farmers to take ownership of their learning process and encourages peer-to-peer knowledge exchange, as emphasized by Mendoza et al. (2020). Additionally, farmer groups provide a platform for collective action, allowing farmers to advocate for their needs and interests more effectively.

Overall, the use of farmer networks in agricultural extension represents a strategic approach to amplify the impact of extension services and promote sustainable agricultural practices. By harnessing the collective strength of farmer organizations, extension programs can enhance their effectiveness in addressing the diverse challenges faced by smallholder farmers. Further research, as suggested by Gebremedhin et al. (2021), could explore innovative approaches to strengthen farmer networks and foster greater collaboration between farmers, extension services, and other stakeholders in the agricultural value chain.

c. Linkages with local, provincial, regional, and national agencies

The OMAG and OCAG have strategically forged linkages and collaborative partnerships with various local, provincial, regional, and national agencies involved in agriculture programs. This strategic networking enhances their capacity to deliver agricultural extension services and support programs to farmers, particularly in light of their constrained resources, budget limitations, expansive coverage areas, and limited technological capabilities. Studies by Agarwal et al. (2019) emphasize the significance of such inter-agency collaborations in leveraging resources and expertise to address agricultural challenges effectively.

In the rice-producing municipality of Milagros, for instance, the OMAG's collaboration with the OPAG has proven beneficial, as the OPAG facilitates collaborative projects with national agencies like the DA, Philippine Rice Research Institute (PhilRice), Bureau of Soils and Water Management (BSWM), and Agricultural Training Institute (ATI). These partnerships enable the implementation of rice technology development and dissemination programs, such as Farmer Field Schools on rice Integrated Pest Management (IPM), seed supply initiatives, and farm trials. Similar findings by Maheshwari et al. (2018) underscore the importance of such collaborative initiatives in promoting technology adoption and sustainable agricultural practices.

Likewise, in Cawayan, initiatives for corn farmers are sourced from national agencies, including programs on high-yielding varieties, pest management, and nutrient management. The OCAG of Masbate City and OMAGs in coconut-growing municipalities rely on the expertise and programs of the Philippine Coconut Authority (PCA) to meet the needs of coconut farmers. These partnerships alleviate the financial burden on LGU extension services for monitoring and evaluating new technologies, as noted by Hondrade (2007). However, it is essential to address challenges related to fund allocation and feedback mechanisms, as national agency funds are often channeled through the OPAG, potentially hindering the OMAG's ability to gather farmer feedback effectively.

Overall, these inter-agency collaborations represent a strategic approach to optimize resources, leverage expertise, and enhance the effectiveness of agricultural extension services, ultimately benefiting farmers and fostering agricultural development at the local level. Further research, as highlighted by Singh et al. (2020), could explore mechanisms to strengthen these partnerships and address potential bottlenecks in program implementation and feedback mechanisms.

d. Use of Information Communication Technologies (ICT)

The integration of ICTs such as mobile phones in agricultural extension services is gaining traction among the interviewed ATs. Through proactive

initiatives, ATs from the OMAG and OCAG have begun leveraging cellular phones to engage with farmers, disseminate farming-related information, and provide timely advice. This aligns with findings from studies by Osei-Kyei et al. (2020), which emphasize the potential of mobile technologies in enhancing extension services by facilitating real-time communication and knowledge sharing with farmers.

In the surveyed areas, the widespread availability of cell networks makes the use of mobile phones feasible, with many barangay officials and progressive farmers already equipped with these devices. However, ATs recognize the importance of physical presence and face-to-face interactions with farmers for a more nuanced understanding of their needs and challenges. While the use of the internet for farmer communication is currently limited due to connectivity issues and farmers' access to computers, ATs acknowledge the value of online platforms for accessing information, technological updates, and networking with peers. Similar findings by Tait et al. (2019) underscore the potential of internet-based communication tools in extending the reach of agricultural extension services and facilitating knowledge exchange among extension practitioners.

It's worth noting that the limited availability of computers in the OCAG offices underscores existing challenges in adopting ICTs for extension purposes. Nonetheless, the positive reception and utilization of mobile phones among ATs signify a promising trend towards embracing technology-driven approaches to enhance agricultural extension services in the surveyed municipalities. Future efforts should focus on addressing connectivity barriers and enhancing digital literacy among farmers to maximize the potential of ICTs in agricultural knowledge dissemination and advisory services.

Extension Program Planning, Monitoring, and Evaluation

Extension Program Planning, Monitoring, and Evaluation play crucial roles in ensuring the effectiveness and impact of agricultural extension services, particularly at the local government level. With the devolution of extension functions to local government units (LGUs), the responsibility for program

planning, implementation, and evaluation now rests with the LGU's agriculture office, led by officials such as the PAO, CAO, and MAOs.

Studies by Rivera et al. (2018) emphasize the importance of local-level planning processes in aligning extension programs with the needs and priorities of farming communities. However, findings from the surveyed areas suggest that extension program planning is often characterized by short-term, budget-driven activities, with minimal involvement of extension staff in the planning process. Long-term planning is notably lacking, indicating a potential gap in strategic foresight and goal alignment within extension services.

Furthermore, time allocation among ATs appears to be skewed towards monitoring and evaluation (M&E) activities, rather than direct engagement in training and advisory services for farmers. While M&E activities are essential for assessing project progress and outcomes, the lack of formal documentation and prioritization of these activities poses challenges in capturing valuable insights and lessons learned (Rivera et al., 2018).

Studies by Rivera et al. (2018) highlight the importance of robust M&E frameworks for ensuring accountability, learning, and continuous improvement within extension services. However, findings suggest a need for strengthening documentation practices and integrating M&E activities more strategically into extension program cycles to enhance program effectiveness and impact.

KNOWLEDGE MANAGEMENT (KM) OF THE LOCAL EXTENSION SERVICES

Agricultural extension services act as conduits for disseminating knowledge generated by research and extension organizations, aiming to enhance farmers' productivity and efficiency. The success of these services relies on effective knowledge management practices, encompassing the creation, dissemination, and utilization of knowledge. Studies by Metaxiotis et al. (2005) emphasize the importance of knowledge dissemination within organizations

for fostering innovation and achieving organizational objectives.

KM in agriculture involves facilitating the exchange of information and insights on various agricultural innovations among knowledge generators and users. This exchange encompasses a wide range of topics, including cultural management practices, new agricultural technologies, disease diagnostics, market information, and government policies. Harwich et al. (2007) highlight the multifaceted nature of KM in agriculture and its significance in addressing the diverse needs of rural and farming communities.

The success of extension programs hinges on the ability of the organization to generate new knowledge, internalize newly acquired ones, disseminate it widely throughout the organization, and represent it into new technologies and products for farmer clients to use.

A. Agricultural Knowledge Acquisition/Sourcing/Sharing

In the surveyed areas, agricultural technologies and innovations primarily originate from government agencies such as the DA, PhilRice, ATI, BSWM, PCA, as well as other DA-attached agencies and private organizations offering extension services. However, there is a notable absence of formal technology development or knowledge creation initiatives within the OMAG or OCAG. Consequently, agricultural knowledge and technologies are predominantly acquired through the participation of MAO/CAO and Agricultural Technicians ATs in training sessions and seminars organized by these entities, along with collaborative endeavors.

While MAOs and ATs have engaged in numerous training sessions and seminars over the past three years, the opportunities for such engagements are disproportionately greater for MAOs. These events often enable MAOs to interface with counterparts from various locations and heads of relevant government agencies, facilitating knowledge exchange on a wide array of agricultural issues and technological advancements. However, the data indicate a dearth of organized and formal mechanisms for sharing acquired knowledge within the organization, whether between MAOs and ATs or among ATs themselves. Echo-seminars, aimed at disseminating acquired

knowledge, experiences, and skills within the organization, are conspicuously absent. As a result, valuable insights and expertise remain largely confined to individual practitioners rather than being integrated into organizational knowledge accessible to all stakeholders.

Related studies underscore the importance of effective knowledge sharing mechanisms within agricultural extension services. Research by Osman-Gani and Tan (2012) emphasizes the significance of collaborative learning initiatives, such as echo-seminars, in enhancing knowledge transfer and organizational learning. Similarly, findings from Elahi et al. (2015) emphasize the role of structured knowledge management systems in optimizing the utilization of agricultural innovations. Thus, the absence of formal knowledge sharing mechanisms observed in the surveyed areas presents a critical gap that needs to be addressed to harness the full potential of agricultural extension services in driving agricultural development.

B. Knowledge documentation and storage

Interviews with the MAOs/CAOs and ATs highlighted a concerning lack of systematic documentation and storage of newly acquired knowledge or technologies within the surveyed offices. There was minimal evidence of organized efforts to collect, categorize, and archive information for easy retrieval by potential users, hindering effective dissemination to farmer clients. Remarkably, the offices lacked structured filing systems or repositories for printed materials obtained from trainings or seminars attended by members of the OMAG or OCAG. Moreover, there was no formalized organizational record documenting seminars attended by all members of the organization over the past five years, including the present year.

The absence of robust knowledge documentation and storage mechanisms observed in the surveyed offices is a critical concern echoed in related studies. Research by Geetha et al. (2018) underscores the importance of systematic knowledge management processes in enhancing organizational effectiveness and innovation diffusion within agricultural extension services. Similarly, findings from Mishra and Shukla (2014) emphasize the pivotal role

of proper documentation and storage systems in preserving institutional knowledge and facilitating its dissemination. Therefore, addressing the deficiencies in knowledge documentation and storage identified in the surveyed offices is imperative for optimizing the impact of agricultural extension services on farmer communities.

C. Documentation of Successful Innovations, Farmers' Best Practices, Successes, Failures

Analysis of records provided by the surveyed offices revealed a glaring absence of formal documentation concerning successful agricultural innovations and farmers' best practices within their respective localities. The OMAG and OCAG lacked structured records detailing successful initiatives undertaken by farmers or capturing their best practices, which could serve as valuable insights for fellow farmers and extension service providers. Despite farmers' rich experiences and their ability to innovate and adapt farming practices to local conditions, there was no evidence of formal documentation capturing these insights for wider dissemination and utilization.

Related studies underscore the importance of documenting successful innovations, best practices, and program outcomes within agricultural extension services. Research by Gaur et al. (2017) emphasizes the significance of systematically capturing and disseminating successful farmer innovations to enhance technology transfer and adoption rates. Similarly, findings from Mishra and Mishra (2015) highlight the role of documenting program successes and failures in promoting organizational learning and improving decision-making processes within extension services. Thus, the absence of formal documentation observed in the surveyed offices represents a missed opportunity to leverage farmers' knowledge and experiences for the benefit of agricultural development. Addressing this gap is essential for fostering innovation and enhancing the effectiveness of extension programs in supporting farmer communities.

CONCLUSIONS

Based on the findings regarding extension service management strategies and knowledge management practices of the OMAG and OCAG included in this study, the following conclusions can be drawn:

- Efficient staff allocation strategies demonstrate a strategic approach aimed at optimizing outreach efforts and addressing diverse farmer needs. However, logistical constraints and budget limitations present significant hurdles that must be overcome to fully leverage the effectiveness of this approach.
- Strategic utilization of farmer networks emerges as a crucial strategy, facilitating the dissemination of knowledge and technologies while promoting sustainable agricultural practices. Strengthening these networks holds the potential to amplify the impact of extension services.
- Strategic linkages with various agencies enhance the capacity of OMAGs and OCAGs to deliver extension services effectively. However, challenges related to fund allocation and feedback mechanisms need to be addressed to maximize the benefits of such collaborations.
- Integration of ICTs, particularly mobile phones, offers promise in enhancing extension services. Yet, challenges such as connectivity issues underscore the need for further efforts to improve digital literacy among farmers and enhance the utilization of online platforms.
- Extension program planning tends to prioritize short-term, budget-driven activities, with limited involvement of extension staff. Strengthening long-term planning processes and integrating monitoring and evaluation activities more strategically are vital for enhancing program effectiveness and impact.
- There is a significant gap in formal technology development or knowledge creation initiatives within the surveyed OMAG or OCAG areas. Consequently, agricultural knowledge and technologies are primarily acquired through participation in external training sessions and seminars, as well as through collaborative efforts with external entities.

- There is a significant gap in formal mechanisms for sharing acquired agricultural knowledge within the surveyed organizations. The absence of structured processes like echo-seminars limits the dissemination of valuable insights and expertise among stakeholders, hindering organizational learning and innovation.
- The surveyed offices lack systematic documentation and storage mechanisms for newly acquired agricultural knowledge and technologies. This deficiency impedes effective dissemination to farmer clients and hinders organizational effectiveness and innovation diffusion within extension services.
- There is a glaring absence of formal documentation regarding successful agricultural innovations and farmers' best practices within the surveyed offices. Failing to capture and disseminate these insights limits the potential for technology transfer, adoption rates, and the overall improvement of agricultural productivity. Without accessible records, it becomes difficult for other farmers to learn from these successful strategies, hindering broader knowledge sharing and the scaling of effective solutions across different regions.

RECOMMENDATIONS

- With wide coverage, and multiple banner programs to attend to, the LGU extension service need to invest in information technology and internet connection to facilitate access to farming updates, new agricultural technologies, market information, recording of data, etc., in order to improve the quality extension services to farmers
- The OMAG must put greater emphasis on developing the capability of AT and of the organization to engage in knowledge creation activities taking into consideration local knowledge.
- The OMAG must aspire to bring the communities of extension experts and farmers together in all the knowledge management phases – from knowledge creation to utilization. There's a need to improve knowledge sharing mechanisms by implementing structured processes like echo-

seminars and establishing formal platforms for regular knowledge-sharing sessions among practitioners. Collaboration and exchange between different staff levels should be encouraged to leverage diverse perspectives.

- The OMAG must develop an environment conducive to the systematic collection, organization, documentation, and sharing of newly acquired knowledge or technologies within the organization. Robust documentation and storage systems need to be implemented, including systematic protocols, centralized repositories, and training for staff on effective documentation practices to ensure consistency.
- Promoting a culture of knowledge sharing and learning is essential, which can be achieved through recognition, ongoing training, and feedback mechanisms to continuously improve knowledge management processes.

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Geologic Map of Negros Island

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BS Geology IV

ABSTRACT

This geologic map is an updated compilation of previous work by others. When printed on 8.5" x 13" long bond paper, the scale of the map is 1:700,000. The purpose of this compilation is to provide geology students a simplified geologic map of Negros Island. The adapted base map was from a report submitted to the Bureau of Mines by Antonio et al. (1976). Updates were incorporated into the base map. These included works by the Mines and Geosciences Bureau (MGB, 2010), Aurelio et al. (2016), and PHIVOLCS (2021, 2022) for the faults. Below is a summary of lithologies based on the publicized descriptions by both Antonio et al. (1976) and the MGB (2010). Descriptions of each formation below may therefore vary from the descriptions by the other referenced authors. For detailed descriptions, the cited authors may be consulted.

Keywords: geology Negros Island, geologic map Negros, geology Dumaguete

SUMMARY OF NEGROS ISLAND STRATIGRAPHY

Based on our compilation and review of literature, the following is a brief summary of stratigraphy in Negros Island:

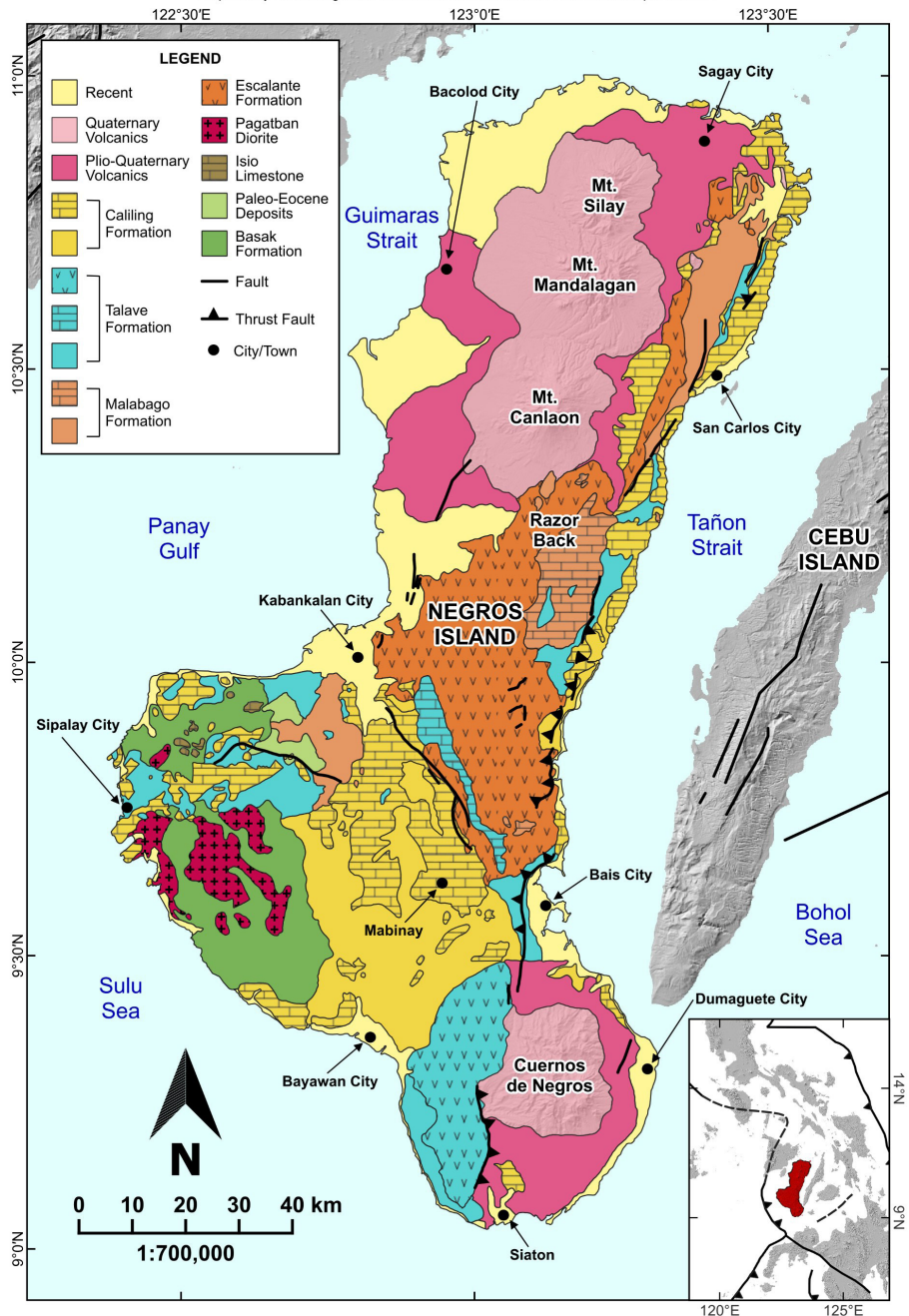
- **Volcanics (Quaternary)** – described as unclassified intermediate to basic cone and plugs of dacite and andesite (Antonio et al., 1976). Known by MGB (2010) as “Canlaon Volcanic Complex” encompassing all volcanoes of Negros Island.
- **Volcanics (Pliocene to Quaternary)** – described as volcanic plain and

piedmont deposits, chiefly pyroclastic and volcanic debris at foot of volcanoes (Antonio et al., 1976).

- ***Caliling Formation (Late Pliocene to Late Pleistocene)*** – comprised of limestone, sandstone, siltstone, and shale as described by MGB (2010).
- ***Talave Formation (Late Miocene to Early Pliocene)*** – comprised of limestone, conglomerate, and mudstone as described by MGB (2010).
- ***Malabago Formation (Early Middle Miocene)*** – comprised of conglomerate, tuffaceous sandstone and siltstone, tuff, volcanic breccia, pillow lava, mudstone, marl, and limestone as described by MGB (2010).
- ***Escalante Formation (Late Oligocene to Early Miocene)*** – comprised of sandstone, siltstone, shale, limestone, and conglomerate as described by MGB (2010).
- ***Pagatban Diorite (Oligocene)*** – comprised of diorite, quartz diorite, and minor gabbro as described by MGB (2010).
- ***Isio Limestone (Late Eocene)*** – comprised of limestone as described by MGB (2010).
- ***Deposits (Paleocene to Eocene)*** – described as marine deposits, largely wackes and shales associated with minor basalt, conglomerates, reef limestone, and calcarenite; sometimes with dacitic and/or andesitic flows and pyroclastics (Antonio et al., 1976).
- ***Basak Formation (Cretaceous?)*** – comprised of basalt, sandstone, siltstone, and shale as described by MGB (2010).

GEOLOGIC MAP OF NEGROS ISLAND

Prepared by Duane Augustine G. Guevarra and Kirk William E. Inocian on April 19, 2024



Note: Image is approximately 46.42% of original.

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An Analysis of Selected Emerging Pollutants in the Wastewater of Dumaguete City and its Implication on the Design of a Wastewater Treatment Facility

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ABSTRACT

Emerging pollutants such as trace pharmaceuticals are unregulated compounds that show potential harmful effects on living organisms. Pharmaceuticals are introduced in the environment because of untreated or poorly treated wastewater. Studies about trace pharmaceuticals are mostly done in developed countries and a few to none are conducted in developing countries. To address this gap, this study determined the amount of selected non-steroidal anti-inflammatory drugs (NSAIDs)-diclofenac, ibuprofen, and naproxen in water samples, specifically wastewater outfall discharge, influent and effluent wastewater, well waters, and headwater. NSAIDs were extracted from water samples by dispersive liquid - liquid microextraction based on solidification of a floating organic drop method (DLLME-SFO) and determined by HPLC-UV. Results showed that water samples contain < 0.21 , < 0.29 , < 0.40 , and < 0.53 $\mu\text{g/mL}$ for diclofenac, < 0.09 , < 0.18 , < 0.20 and < 0.22 $\mu\text{g/mL}$ for ibuprofen, and < 0.08 and 0.11 $\mu\text{g/mL}$ for naproxen. The detection limits obtained from the study are relatively higher than the pharmaceutical concentrations reported globally in various environmental compartments. Thus, it's difficult to ascertain whether these NSAIDs are absent or present in the samples, considering that other studies are presenting concentration way below the results. The study recommends considering advanced treatment technologies that efficiently remove emerging contaminants from wastewater. This way, precautionary measures will be in place, and possible effects of these contaminants can be avoided.

Keywords: emerging contaminants, NSAIDs, wastewater treatment, liquid-liquid micro extraction, LOD

INTRODUCTION

Pharmaceuticals can be considered as one of man's great discoveries. The process of drug discoveries and mass production will continually

grow even during the present time with the increasing demand of new pharmaceuticals to combat existing and emerging diseases. Though this might answer humanity's problem in combating disease, it also causes problems to the environment. Pharmaceuticals have been detected in the environment and gained increasing attention and concern both in the scientific community and regulatory agencies. Usually, these pharmaceuticals get introduced in the environment by untreated or poorly treated wastewater from household, hospitals or pharmaceutical manufacturing plants, concentrated animal feeding operations, and direct disposal of expired pharmaceuticals in the environment (Barcelo & Petrovic, 2008). The German Federal Environment Agency or (UBA) detected 156 pharmaceuticals in their environmental compartments with surface waters having the highest concentration range of 0.1 – 10.0 µg/L (Kuster & Adler, 2014). One known example which demonstrated the effect of pharmaceutical in non-target animals was the incident on the high death rate of vultures in India and Pakistan linked with diclofenac. The pharmaceutical diclofenac is a prescription drug that belongs to a group of non – steroidal anti – inflammatory drug (NSAID) used to treat mild or moderate pain related to osteoarthritis, rheumatoid arthritis, and menstrual cramps (Oaks, 2004). This medicine has been commonly used in these countries not just for human medication but as well as for veterinary medicine since the 1970s.

The high death rate of these animals was said to be caused by ingestion of the pharmaceutical that led to renal failure and visceral gout in vultures. As natural scavengers, vultures tend to feed on carcasses of wildlife and domestic livestock. However, some of these livestock were previously treated with diclofenac, which then caused ingestion of the drug by these vultures. This was further investigated and confirmed by the study conducted by Oaks et al. in 2004. In their study, vultures specifically the oriental white-back vulture (*Gyps bengalensis*) were experimentally administered with single oral doses of diclofenac and feeding these vultures with diclofenac-treated livestock. The study showed that in both experiments, there was direct correlation between diclofenac residues and renal failure in oriental white-back vultures. Furthermore, the continued decline of vulture populations

in these countries eventually led to the banning of the drug for veterinary use in 2006. Another NSAID that has been identified in the environment is ibuprofen. This drug is widely used as pain reliever. Traces of this drug and its metabolites are found in environmental samples which are mostly related in the high intake of this medicine (Zur et al., 2019). Various toxicity studies related to this medicine was conducted to assess effects in other animals. In a study by Parolini et al. (2011 as cited in Zur et al. 2019), environmental concentrations of ibuprofen (0.2, 2.0, and 8.0 $\mu\text{g/L}$) resulted in moderated genetic and cellular damage in zebra mussel (*Dreissena polymorpha*). Other effects observed in other studies include changes in hemoglobin, hematocrit, and other blood parameters in Indian major carp *Cirrhinus mrigala* and *Ruditapes philippinarum* after laboratory exposure of ibuprofen (Saravanan et al., 2012; Aguirre-Martinez et al., 2013.).

Furthermore, another commonly used NSAID is naproxen sodium. The drug is another popular over-the-counter medicine that is taken to treat pain. According to studies, this drug can cause negative effects on aquatic invertebrates and vertebrates. Li et al. (2016 as cited in Wojcieszńska, & Guzik, 2020) investigated the potential effects of naproxen in their study using the embryos and larvae of zebrafish *Danio rerio*. The study exposed the zebrafish to a concentration of 10 $\mu\text{g/L}$ of naproxen for 14 days that caused an altered gene expression in the gill tissue of zebrafish. Moreover, the study showed that the liver of larval zebrafish was sensitive to naproxen. They observed a number of hepatic reactions to the drug such as swelling of hepatic cells, hepatocellular vacuolar degeneration, nuclei pyknosis and obscure cell borders. These reactions suggested a sign of mobilization of the organism to detoxify the impurities in their system. .

Due to the increasing concerns of pharmaceutical traces in the environment they are considered as emerging contaminants which are unregulated compounds that show potential harmful effects to living organisms. However, most research on emerging contaminants such as trace pharmaceuticals, are centered in developed countries such as China, the USA, Spain, and Germany and less are found in developing countries like the Philippines (German Environmental Agency, 2014). In response to

this, this study will determine the amount of commonly used non-steroidal anti-inflammatory drugs (NSAIDs)-diclofenac, ibuprofen, and naproxen- in different water samples such as outfall discharges, influent and effluent from a wastewater treatment facility, artesian wells, river water. Also, this study recommends through literature search – possible wastewater treatment to remove pharmaceuticals in wastewater and avoid contaminating nearby water bodies. Furthermore, this study can provide additional information to support regulatory bodies in deciding if these contaminants need to be monitored or regulated. The information that would be generated from this study can also help identify possible knowledge gaps in the field of emerging contaminants, specifically in developing countries where studies of the same are relatively limited.

METHODS

Sample collection

Samples are collected from four different sites. These sites are the Dumaguete City Rizal Boulevard from which the sewage outfall discharge is taken; the Bayawan City wastewater treatment facility; selected artesian wells within Dumaguete City and part of Banica River which is located in Valencia, Negros Oriental. However, the focus of this study is the identification of the presence of the selected pharmaceutical in the sewage outfall discharge collected at the Dumaguete City Boulevard and the other set of samples collected from different sites would be for comparison and control purposes. All collected samples were preserved by adding 0.5 g/ 500 mL sodium azide (Loba Chemie) and placed inside a storage box maintained at a temperature of 4 – 8 °C for transport to the laboratory.

Reagents and chemicals

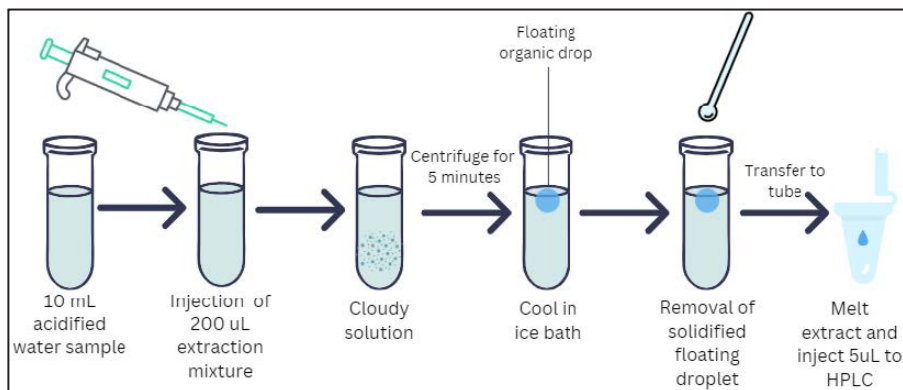
Diclofenac, Ibuprofen, and naproxen are from Sigma Aldrich, Rhea Pharmaceuticals, and Taisho Pharmaceuticals respectively. Two sets of stock

solutions were prepared. Stock solution A was prepared by weighing 12 mg of diclofenac and ibuprofen in 100 mL diluent solution. Stock solution B was prepared by weighing 12 mg in 100 mL mobile phase solution. Working solutions were prepared by suitable aliquots of each stock solution diluted with a solution of acetonitrile: distilled water (1:1). HPLC grade acetonitrile was obtained from RCI Labscan. 1-undecanol used in preparing extraction solution was from Sigma-Aldrich. Orthophosphoric acid (JT Baker) was used for sample pH adjustment. Sodium chloride used during extraction was from Scharlau.

Analyte extraction by dispersive liquid-liquid microextraction based on solidification of a floating organic drop (DLLME-SFO)

Samples were extracted according to the method by Belden et al. (2020). Collected samples were filtered first through a Whatman No. 41 filter paper to remove larger particles. Further filtration was done by passing the sample through a Whatman glass microfiber filter GF/C with a 1.2 μm pore size to remove finer particles that pass through the first filtration. A 100 mL filtered sample was acidified to pH 3.0 by adding 1% orthophosphoric acid. A 10 mL portion of the acidified samples was placed into 20 mL (16 x 125 x 0.55 mm) glass tubes and 0.5 g NaCl was added to each tube. Using a vortex mixer, the samples were mixed to fully dissolve the salt and ensure a homogenous solution. To the solution, a 200 μL extraction mixture (150 μL acetonitrile: 50 μL 1-undecanol) was quickly added and shaken vigorously until the solution was cloudy. Samples were centrifuged for 5 minutes. The separated 1-undecanol was solidified by placing the tubes in an ice bath for 10 minutes. The solidified 1-undecanol was collected using a spatula and was transferred to a 1.5 mL microcentrifuge tube. The extract was left at room temperature to melt. Once it melted, 5.0 μL was taken using a micro syringe and was directly injected into the HPLC. Figure 1 show a schematic diagram for the analyte extraction procedure.

Figure 1. Schematic diagram of dispersive liquid-liquid microextraction based on solidification of a floating organic drop (DLLME-SFO) to extract the trace pharmaceuticals in water samples.



Chromatographic analysis

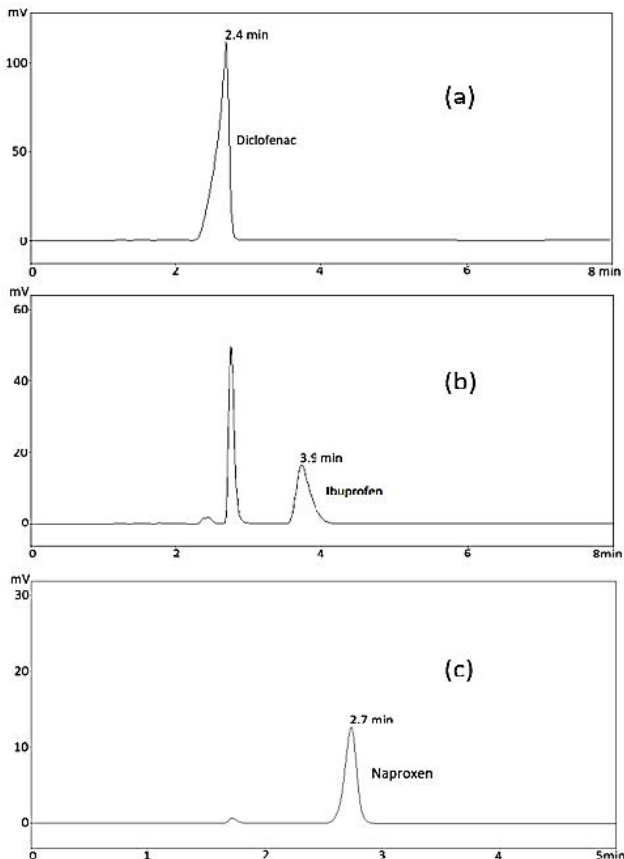
The analytical detection of selected pharmaceuticals was performed using Shimadzu LC 10AT reverse phase-HPLC with UV detector and manual injector. The manual injector is a model Rheodyne 7725i manual valve, fitted with a 20 μ L sample loop. The analytes were separated using an InertSustain C18 4.6 $\times$ 250 mm 5 μ m HPLC column as the stationary phase. The mobile phase had an elution profile with an isocratic flow of acetonitrile:distilled water (55+45, v/v) mobile phase, a constant flow rate of 1 ml/min and an injection volume of 5 μ L. The chromatograms were processed using Shimadzu chromatography system software.

The HPLC system was prepared for analysis by pumping HPLC-grade acetonitrile for 2 hours. Afterwards, the mobile phase was also pumped into the system for an hour. HPLC system was ready for use when a stable baseline was obtained. The solutions were injected into the system following the sequence – (1) blank solutions; (2) individual solution of pharmaceutical standards for identification; (3) working standard solutions; and (4) sample solution extract. The compounds were identified by comparing the retention times of the peaks found in the sample chromatograms with that of the corresponding retention times of the peaks in the standard chromatograms.

RESULTS

The retention time (R_T) obtained for each pharmaceutical from individual standard injections are the following: 2.4 minutes for diclofenac, 3.9 minutes for ibuprofen, and 2.7 minutes for naproxen. The difference in elution time or R_T can be attributed to the difference in the polarity of each analyte. Depending on the analytes' polarity, it can either interact more with the stationary phase, thus leading to a longer R_T , or it interacts with the mobile phase, which leads to a shorter R_T . The difference in R_T allows the identification of the pharmaceuticals in sample solutions. Figure 2 shows the chromatograms of the individual standard pharmaceutical solutions.

Figure 2. Chromatogram of (a) diclofenac (b) ibuprofen, and (c) naproxen.



After establishing the identification of each pharmaceutical through their R_T values, working standards were then prepared, analyzed, and used to prepare standard calibration curves. Figure 3 shows the chromatogram for constructing the calibration curve of diclofenac and ibuprofen, while Figure 4 shows the chromatogram for naproxen.

Figure 3. Calibration curve for diclofenac and ibuprofen

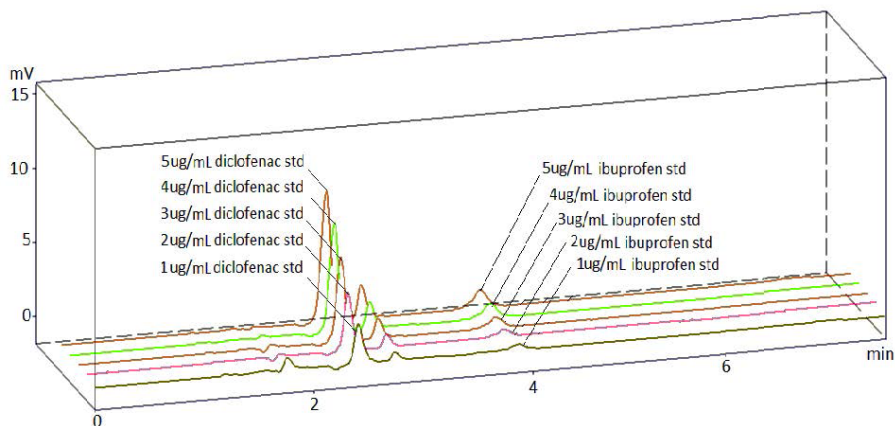
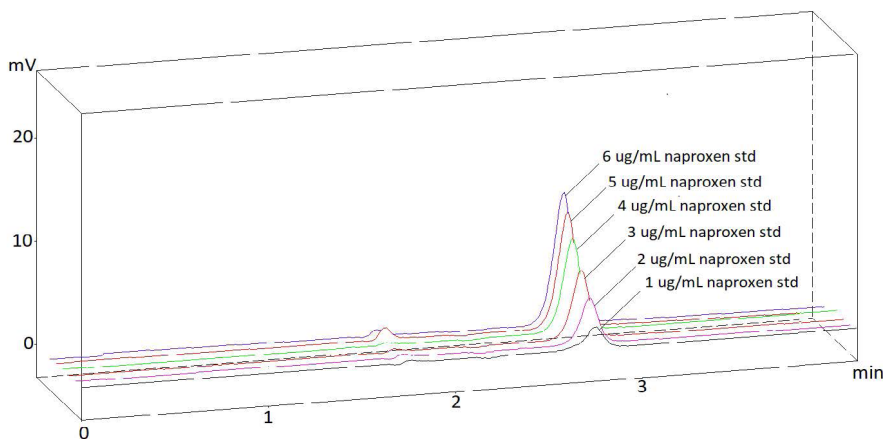


Figure 4. Calibration curve for naproxen



The constructed calibration curves displayed a linear relationship between the concentration of the standard solutions and their respective absorbance. Regression analysis was applied to the constructed calibration curves to obtain

the data that are needed to quantify the amount of pharmaceuticals in the samples. The data obtained from Figure 3 were used to determine the presence of diclofenac and ibuprofen in the samples. On the other hand, the data from Figure 4 was used to determine the presence of naproxen in the samples. New sets of working standards for each calibration curve were prepared for different HPLC analyses conducted on different days. The regression data derived from the various calibration curves are summarized in Tables 1 and 2.

Table 1.

Regression data for Sampling 1 analysis Runs 1 and 2

Pharmaceutical	Sampling 1			
	Run 1		Run 2	
	R ²	Equation of the Line	R ²	Equation of the Line
Diclofenac	0.9995	$y = 10833x + 329.89$	0.9962	$y = 8723.7x + 1542.6$
Ibuprofen	0.9998	$y = 2184x - 12.071$	0.9990	$y = 1931.3x - 24.267$
Naproxen	0.9998	$y = 14280x + 5.0571$		

Table 2.

Regression data for Sampling 2 analysis Runs 1 and 2

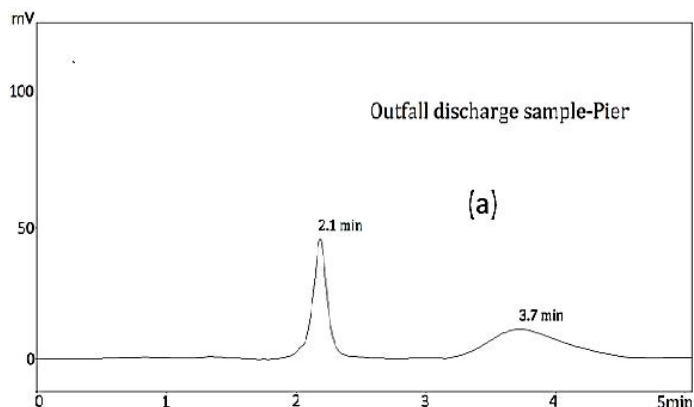
Pharmaceutical	Sampling 1			
	Run 1		Run 2	
	R ²	Equation of the Line	R ²	Equation of the Line
Diclofenac	0.9952	$y = 9263.9x + 1883$	0.9993	$y = 9611.7 + 555.36$
Ibuprofen	0.9991	$y = 1907.6x + 6.2857$	0.9990	$y = 2019 - 116.38$
Naproxen	0.9997	$y = 14471x - 994.04$		

A total of two calibration curves for diclofenac and ibuprofen were made for Samplings 1 and 2 due to the long HPLC analysis run time. Only one calibration curve for naproxen was made for both sampling periods since the run time is shorter.

Regression analysis of each calibration curve showed that the coefficient of determination (R^2) ranged from 0.9952 to 0.9998. The R^2 values closer to 1 suggest a strong correlation which means that the dependent

variable can be predicted from the independent variable (Barwick, 2003; Chicco, Warrens, & Jurman, 2021). Since the R^2 obtained from the calibration curves is relatively close to 1, this would imply that the calibration curve is suitable for quantifying the amount of each pharmaceutical in the samples. HPLC analysis of different sample extracts was done right after the standard calibration curve was constructed and their corresponding R^2 was established. Figure 5 shows representative chromatograms coming from the HPLC – UV analysis of outfall discharge samples. Figure 6 presents representative chromatograms from the Bayawan wastewater samples. While Figure 7 shows representative chromatograms of freshwater and deep well samples. It is seen in the representative chromatograms that all samples showed chromatographic peaks. A common chromatographic peak at 2.1 minutes is observed in all samples. Aside from this chromatographic peak, certain samples showed peaks specific to them. Samples collected from the Pier outfall (Figure 5a) showed a chromatographic peak at 3.7 minutes. For influent samples coming from Bayawan (Figure 6a), it produced peaks at 2.9 minutes and 4.6 minutes. Figure 7a shows the chromatogram of a groundwater sample collected in Tinago, Dumaguete City displayed a peak at 3.1 minutes. The sample coming from Banica River (Figure 7c) produced a peak at 4.1 minutes.

Figure 5 Representative chromatograms of outfall discharge samples from (a) the culvert near the Pier area, (b) the culvert along San Juan Street



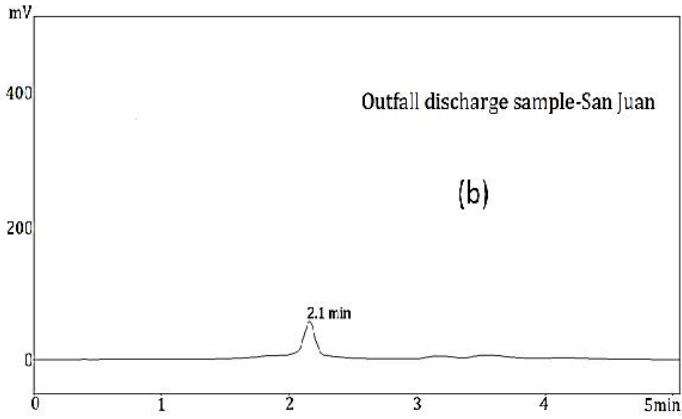


Figure 6. Representative chromatograms of (a) Bayawan wastewater influent, (b) Bayawan wastewater effluent

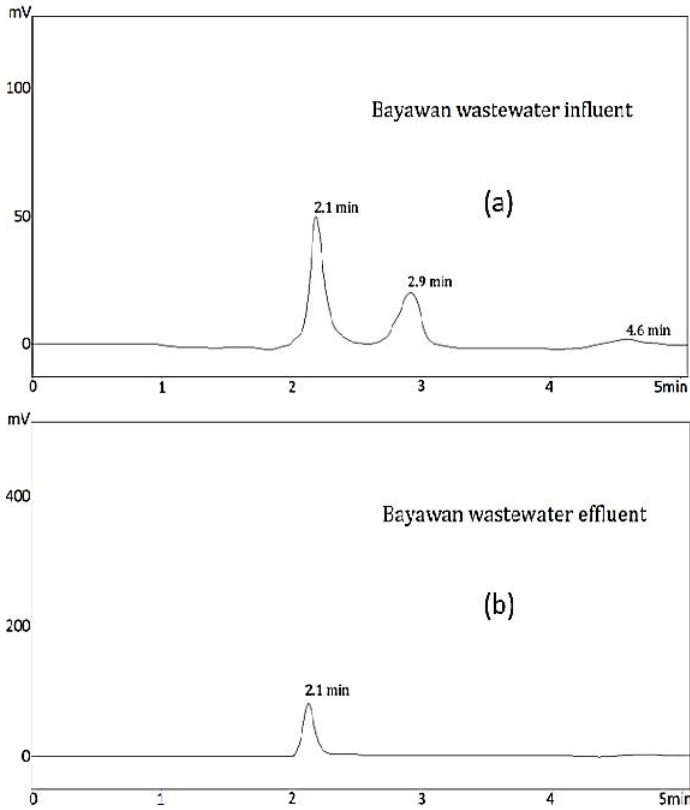
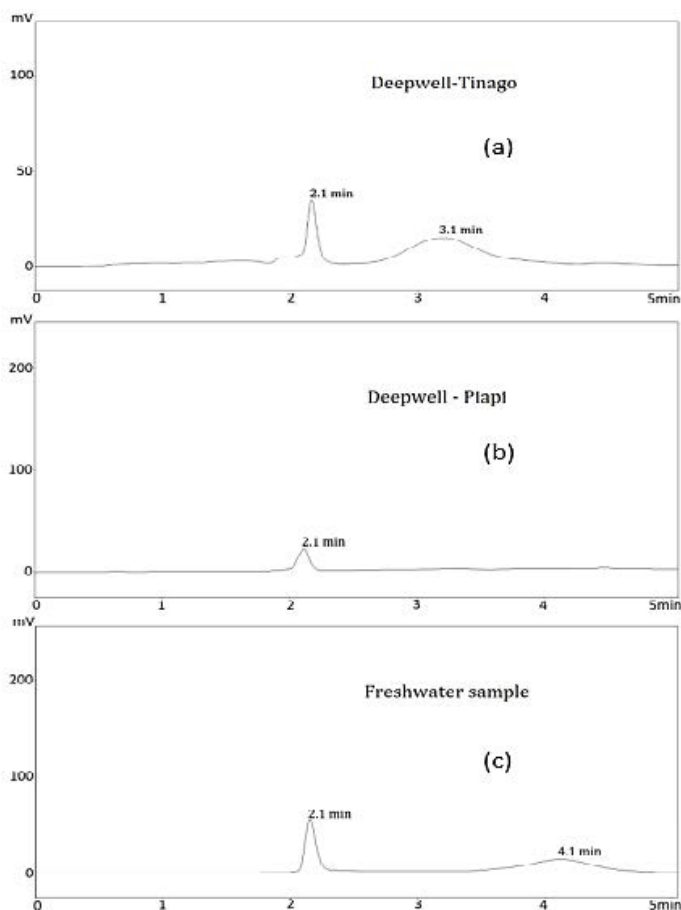


Figure 7. Representative chromatograms of (a) deep well samples in Tinago, (b) deep well samples in Piapi, (c) freshwater



The chromatographic peaks present in the chromatogram of each sample were compared against the retention time of each pharmaceutical. The peaks from each sample did not correspond to any retention time produced by the pharmaceuticals considered in the study. Due to this, detection limits from the calibration curve of the method were determined. The computed detection limit results were < 0.21 , < 0.29 , < 0.40 , and $< 0.53 \mu\text{g/mL}$ for diclofenac, < 0.09 , < 0.18 , < 0.20 and $< 0.22 \mu\text{g/mL}$ for ibuprofen, and < 0.08 and $0.11 \mu\text{g/mL}$ for naproxen. These values are relatively higher than the pharmaceutical concentrations reported globally in various environmental

compartments. Table 3 shows a summary of the limit of detection for the three pharmaceuticals.

Table 3.

Calculated limit of detection for the three selected pharmaceuticals

Pharmaceutical	Limit of Detection (LOD), $\mu\text{g/mL}$	
	Sampling 1	Sampling 2
Diclofenac (HPLC Run 1)	0.21	0.53
Diclofenac (HPLC Run 2)	0.40	0.29
Ibuprofen (HPLC Run 1)	0.09	0.22
Ibuprofen (HPLC Run 2)	0.20	0.18
Naproxen	0.08	0.11

DISCUSSION

The peaks from each sample did not correspond to any retention time produced by the pharmaceuticals considered in the study. Thus, it could mean that these pharmaceuticals are not present in the sample. It could also mean that the amounts of these pharmaceuticals in the samples were too low for the instrument to detect or quantify. The low concentration of the selected pharmaceuticals can be attributed to the fate in which these pharmaceuticals undergo once they enter into the environment. Standard fate processes include sorption in sediments or biodegradation by microorganisms. Furthermore, the computed LOD of the study are relatively higher than the pharmaceutical concentrations reported globally in various environmental compartments. The study by Patel et al. (2019) reviewed research publications made worldwide about pharmaceuticals in the environment from 1990 – 2018 to summarize the pharmaceutical occurrence and associated risks. In their study, they found the highest concentration of diclofenac is at 1010 – 10200 ng/L [0.00101 – 0.0102 $\mu\text{g/mL}$], ibuprofen at 524 – 17600 ng/L [0.000524 – 0.0176 $\mu\text{g/mL}$], naproxen at 59300 ng/L [0.0593 $\mu\text{g/mL}$] in the Umgeni River, South Africa. Other studies such as the one conducted by Hanif et al, (2020) assessed the presence and concentration of diclofenac in both surface water and wastewater in two

cities located in Pakistan. Their study found concentrations of diclofenac as high as 216 $\mu\text{g/L}$ [0.216 $\mu\text{g/mL}$] in an industrial area and 116 $\mu\text{g/L}$ [0.116 $\mu\text{g/mL}$] was found in Sawan River. Another study by Corpa- Santos (2015) found diclofenac concentration levels ranging from 284.4 – 1667.2 ng/L [0.0002844 – 0.0016672 $\mu\text{g/mL}$] in effluent samples from wastewater treatment plants located in Spain from two sampling campaigns. Furthermore, the study by Villanueva et al. (2017) obtained the highest concentration of ibuprofen at 276 to 838 ng/L [0.000276 – 0.000838 $\mu\text{g/mL}$] in Pasig River, Philippines. For naproxen, another study by Kermia et al. (2016) also showed a high concentration at 9.58 $\mu\text{g/L}$ [0.00958 $\mu\text{g/mL}$] and 8.613 $\mu\text{g/L}$ [0.008613 $\mu\text{g/mL}$] for ibuprofen in influent samples taken from different wastewater treatment facilities in Algiers, Algeria. The same study also found concentrations of these selected pharmaceuticals in surface water at 85.2 ng/L [0.0000852 $\mu\text{g/mL}$] for diclofenac, 372.8 ng/L [0.0003728 $\mu\text{g/mL}$] for ibuprofen, and 334 ng/L [0.000334 $\mu\text{g/mL}$] for naproxen. As shown in the results from different studies, concentration levels of these pharmaceuticals reported around the world are below the detection limits obtained in this study which is shown in Table 3. Due to this, it would be difficult to quantify these pharmaceuticals at the concentration levels which they have been reported in different water samples globally.

Even though these trace pharmaceuticals are present in low concentrations, they are considered as pseudo-persistent because of their constant introduction into the environment. Ecotoxicology study shows that ibuprofen concentrations as low 0.2, 2.0, and 8.0 $\mu\text{g/L}$ induced moderate genetic and cellular damage in the zebra mussel, *Dreissena polymorpha* (Parolini et al., 2011 as cited in Zur et al., 2019). On the other hand, ecotoxicity study of diclofenac showed that levels at $>0.9 \mu\text{g/L}$ can cause impaired development in amphipod embryos of *Gmelinoides fasciatus* which eventually died. Diclofenac concentrations as low as 0.1 $\mu\text{g/L}$ affects the metabolic process while levels close to 1 $\mu\text{g/L}$ can lead to reproductive disorders in both amphipods and mollusk (Berezina, Sharov, Chernova, Malysheva, 2022). Furthermore, ecotoxicity study of naproxen also affects organism at low levels. The study by Li et al. (2016) exposed the zebrafish to a concentration

of 10 $\mu\text{g/L}$ of naproxen for 14 days that caused an altered gene expression in the gill tissue of zebrafish. With the effects reported on the toxicity of these pharmaceuticals in non- target organism, it is essential to apply advance wastewater treatment technologies that remove these emerging contaminants to avoid further release into the environment.

A number of wastewater treatment technologies have been developed to address not only the removal of common regulated contaminants but also pharmaceuticals. One is the use of granulated activated carbon (GAC). It is identified as an effective way to remove pharmaceuticals from the environment. Its application in the removal of pharmaceuticals from wastewater was studied by Angeles et al. (2020). Their study showed an efficiency rate of >95% from two wastewater treatment plants that utilized the technology. The effectiveness of removing pharmaceuticals in wastewater using granulated activated carbon is influenced by the electrostatic interaction between the pollutants and the activated carbon itself. Its ability to absorb natural organic matter that is already present in wastewater results in a net negative charge on the surface of the activated carbon, which would mean more capacity for lipophilic and hydrogen bonding with trace pollutants. Apart from this, the use of granulated carbon is not only limited to the removal of trace pharmaceuticals but also other micropollutants found in wastewater. Due to this, the use of GAC in wastewater treatment is considered a good option when dealing with non “conventional” pollutants such as trace pharmaceuticals. In addition, GAC adsorption can easily be incorporated into existing wastewater treatment facilities which would mean less constructional cost. However, one of the disadvantages of using GAC is the waste generated from the spent carbon, which can no longer be generated and can lead to land disposal problems (USEPA, 2000).

Another wastewater treatment technology that showed effectiveness in the removal of some pharmaceuticals in wastewater is ozonation. Angeles et al. (2020) mentioned that ozonation is effective in removing compounds with activated aromatic moieties, amine functional groups, or double bonds. Similar to the use of granulated carbon, ozonation also obtained an efficiency rate of >95% in removing pharmaceuticals from wastewater. Removal

of pharmaceuticals or organic micropollutants via ozonation is through the production of hydroxyl radicals and also by its oxidative properties. Additionally, the ozone molecule is electrophilic and reacts with nucleophilic and electron rich molecules. Compounds containing carbon-carbon double or triple bonds, aromatic groups, certain oxygen, nitrogen, phosphorus, or sulfur moieties are susceptible to direct ozonation. However, pharmaceutical that are aliphatic in nature with polar functional groups undergo insignificant oxidation at <20% (Patel et al. 2019). Furthermore, Deegan et al. (2011) stated that even with its high effectivity rate in removing pharmaceuticals, the disadvantage of using ozonation is its tendency to produce transformation by-products since compounds are not fully mineralized during the process. These transformations by-products can be more harmful than the parent compound. In addition, the ozonation process is also more costly to implement and maintain when incorporated in a conventional wastewater treatment facility since it requires a steady energy input to generate ozone.

Furthermore, another advanced wastewater treatment method that can remove pharmaceuticals in wastewater is by Fenton and photo-Fenton processes. In this process, hydroxyl radicals are produced via a free radical chain reaction in the presence of ferrous or ferric ions with hydrogen peroxide. On the other hand, the photo-Fenton reaction occurs when there is UV-irradiation applied. This produces more hydroxy radicals making the process more efficient in removing pharmaceuticals in water and wastewater (Klavarioti et al., 2008). These hydroxy radicals drive the oxidation process that results in the removal of the pharmaceuticals present. Moreover, the efficiency of the photo-Fenton process in the removal of diclofenac was shown in the study by Perez-Estrada et al. (2005). Their study showed that diclofenac was completely oxidized after 60 minutes and was totally mineralized with full disappearance of dissolved organic carbon after 100 minutes of exposure to sunlight. Ibuprofen is also degraded in photo-Fenton oxidation process and is completely depleted at around 40% TOC removal. (Patel et al., 2019). In addition, Klavarioti et al. (2008) also mentioned that Fenton-oxidation process is also capable of mineralizing a considerable portion of the pollutant which results in effluents that are less toxic and are treatable by biological

post-treatment. This is shown in the study by Tekin et al. (2006). Their study investigated on the applicability of the Fenton-oxidation process to improve the biodegradability of pharmaceutical wastewater before subjecting it to the biological treatment process. The study obtained around 45 – 50% COD removal efficiency for the Fenton-oxidation process and an overall COD removal efficiency of 98% after treatment in aerobic degradation in sequencing batch reactors (SBR). However, even with its high potential in removing pharmaceuticals in water and wastewater, the Fenton-oxidation process also has its limitations. For one, this process is not applicable to wastewaters having high concentrations of organic, chloride, bicarbonate, nitrate, and carbonate compounds since the presence of these compounds can scavenge hydroxyl radicals. Another disadvantage in Fenton-oxidation processes is it requires high energy and operational cost. Additionally, formation of by-products is also considered as a disadvantage with this process (Patel et al., 2019).

Membrane filtration is another technique that is identified as an effective technique in the removal of pharmaceuticals in wastewater (Heberer & Feldmann, n.d.). Membranes act as a barrier that separates two phases from each other by letting other components selectively pass through them and restricting the remaining components from getting through. According to Deegan et al. (2011) pressure-driven membrane processes such as nanofiltration and reverse osmosis are considered to be effective in the removal of pharmaceuticals from wastewater compared to other membrane filtration technology. Both technologies showed >85% removal of several NSAIDs which included diclofenac in groundwater samples (Radjenovicet. Al., 2008). For nanofiltration, ion repulsion is considered as the primary driving force with higher negatively charged pharmaceuticals than neutral pharmaceuticals since the charged membrane are used in the process. Furthermore, removal depends on the pharmaceutical's physiochemical properties, membrane properties, and operating conditions. On the other hand, reverse osmosis removes contaminants by a selective semipermeable membrane under pressure. The process is influenced by the following factors: membrane properties, membrane type, mechanical resistance, porosity, and chemical nature. When incorporated into conventional wastewater

technologies, membrane filtration only requires a smaller space for operation. However, the use of membrane filtration has been limited due to the high cost of the material. Aside from that, the membrane especially the ones used in reverse osmosis, is susceptible to oxidizing agents and can foul easily. This makes it unsuitable for large scale reverse osmosis applications (Patel et al., 2019).

There are still a number of wastewater technologies that can also remove pharmaceuticals from wastewater. However, the ones mentioned in this section have shown good efficiency in removing most pharmaceuticals from wastewater. It is the use of activated carbon and ozonation that is considered the most economical and effective advanced treatment option (OECD, 2019). These advanced wastewater treatment technologies both have their advantages and disadvantages. The selection of the kind of advanced wastewater treatment technology to be applied is influenced by the efficiency and cost of the technology. The cost of installing advanced wastewater treatment technologies can reach millions and would vary depending on the size of the wastewater treatment facility. However, selection should not be based entirely on these two factors, but environmental factors should also be considered. These include its potential to form transformation by-products, energy efficiency, carbon emission, and disposal of sludge containing trace pharmaceuticals (Bui et al., 2016).

CONCLUSION

In conclusion, the result of the study cannot say that the concentrations of diclofenac, ibuprofen, and naproxen in Dumaguete City and Bayawan City wastewater are not a cause of concern. Since, studies around the globe detected their presence in surface waters, coastal waters, and wastewater. Rather, this indicates that trace pharmaceuticals are of increasing concern that needs to be addressed. Knowing this, the "Precautionary Principle" can be applied when dealing with emerging contaminants, such as trace pharmaceuticals. That is, to take anticipatory action even under scientific uncertainty to prevent environmental degradation. Thus, improvements in

wastewater handling and treatment are still necessary to prevent the further release of these trace pharmaceuticals into the environment which can pose harm to both the environment and humans.

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Functionalization of Dextrin-capped Gold Nanoparticles with DNA Oligonucleotides

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ABSTRACT

DNA-functionalized gold nanoparticle (AuNP) is a colloidal zerovalent nanoscale gold whose capping agent is replaced by DNA. Its unique properties offer great potential applications in many fields including biosensing. The objective of this study was to functionalize dextrin-capped AuNP with DNA oligonucleotide to produce an AuNP-DNA conjugate intended for lateral flow biosensor. Synthesized dextrin-capped AuNP was mixed with a 20-base long DNA for ligand exchange reaction through salt-aging process. DNA-functionalization products were characterized by color validation, UV-vis spectroscopy, and high-resolution transmission electron microscopy (HRTEM). The numbers of DNA strands attached to the AuNPs were quantified using potassium cyanide and UV-vis spectroscopy measurements. AuNPs with average core sizes of 7, 9, and 10 nm were successfully functionalized. The AuNP-DNA conjugate retained the characteristic AuNP red color, exhibited surface plasmon resonance (SPR) bathochromic shift, and remained stable against aggregation at high salt concentrations. The DNA loading was found to be 9 ± 1 , 17, and 22 ± 2 strands per particle of the 7, 9, and 10 nm AuNPs, respectively. Dextrin-capped AuNPs were successfully functionalized with DNA oligodeoxynucleotide and produced stable AuNP-DNA conjugates. Functionalization was affected by the stability, concentration, and sizes of the dextrin capped AuNPs.

Keywords: Bathochromic shift, dextrin-capped gold nanoparticles, DNA loading, salt-aging, UV-vis spectroscopy

INTRODUCTION

Nanotechnology is the study, production, manipulation, and application of materials with at least one dimension at the nanometer size range

of 1-100 nm. These materials are termed as nanomaterials. They include nanostructured surfaces, fibers, plates and nanosized particles, and cover many different areas of applications such as advanced materials for sensor technology, medical applications, and industry (Vogel et al., 2023). Among the many types of nanomaterials, colloidal gold has received so much attention over the years. Its unique properties attracted researchers for many applications such as colorimetric analysis (Zhu et al., 2023; Du et al., 2022), chemistry (Herrera & Gimeno, 2021), biotechnology (Samani, M.T. & Hashemianzadeh, 2020), biosensors (Ielo, et al., 2021), and clinical applications (Chen & Feng, 2022; Hosseini et al., 2023).

For every possible application, proper functionalization of AuNP is a pre-requisite. This is accomplished by linking organic molecules to the surface of colloidal gold via covalent bond. Gold nanoparticles can be functionalized in different ways and generate variety of ways for their uses and applications (Amina & Guo, 2020). Functionalization will determine the interaction by which the AuNP is designed for and ultimately affect the colloidal stability of the nanoparticle (Lee et al., 2021). Gold has a well-established bio-conjugation chemistry and many functional groups can be conjugated to the AuNP surface (Wu et al., 2020). The affinity of gold surface atoms to many electron-donating groups contributes to rapid development of functionalized AuNPs (Dumur et al., 2020). AuNP has been exploited as scaffolds for different biomolecules like carbohydrates (Bucu et al., 2023), proteins (Simon et al., 2021; Jomehpour, et al., 2024), drug molecules (Amina & Guo, 2020), and nucleic acids (Chen et al., 2012). The conjugation of AuNP with biomolecules facilitates bioimaging (Sanzhakov, et al., 2021), drug delivery (Alzahrani et al., 2023), therapeutic (Zhu et al., 2017), and diagnostic applications (Mercy & Vasimalai, 2023).

Nucleotides are often used in the functionalization of AuNPs (Zhang et al., 2020). Functionalization of AuNP with DNA produces AuNP-DNA conjugates which are widely used as antisense agent in nanotherapeutics for gene regulation and as a probe in many bio-diagnostic systems. AuNP-DNA conjugates are popular in biosensors due to their ability to recognize and specifically interact to target molecules through DNA recognition sequences (Huang & Liu, 2021; Hurst et al., 2006). Recently, AuNP-DNA conjugates have

been used in a variety of applications including drug delivery, nanomachines, and biosensor fabrication for detection of other molecules (Hakimian & Ghourchian, 2019).

Conjugation of DNA to AUNP has been reportedly accomplished using different techniques that include butanol dehydration method, freeze-thaw method, low-pH method, microwave-assisted dry heating method, and salt-aging method (Ding et al., 2023). Common methods of conjugating DNA to AuNP involves either saturating the surface of the AuNP with single stranded DNA molecules or by attaching DNA molecules through the thiol caps (Amina & Guo, 2020). According to Liu and Liu (2017), Mirkin and Alivisatos published back-to-back in *Nature* for programmable assembly of DNA-functionalized AuNPs in 1996. Mirkin and group immobilized a high density of DNA on AuNP while Alivisatos and group immobilized a limited number of DNA on each AuNP. Since then, these two ideas have been extensively developed for analytical and medicinal applications. Functionalization technique by Mirkin and group was called the “salt-aging” method (Ma et al., 2022).

Salt-aging method involved the stepwise addition of NaCl to AuNP-DNA mixture. In the presence of an excess amount of thiolated DNA, NaCl was gradually added to increase DNA loading on AuNP within 1–2 days. The density of attached DNA was later discovered to be proportional to the final NaCl concentration (Huang & Liu, 2021). The conjugation of thiolated DNA to AuNP has made numerous applications especially in biosensor (Ma et al., 2022).

Dextrin-capped gold nanoparticle synthesis was a novel work reported by Anderson et al. (2011) and was successfully modified and improved by Yrad (2022). Several works have been reported on the use of dextrin-capped AuNPs in some biosensing applications. However, there is no report on characterizing their functionalization product and DNA loading. Knowing the DNA loading on AuNPs is of value since higher DNA loading has the potential to impact bio-detection and nanotherapeutics (Hurst et al., 2006). The objective of Hurst’s study was to functionalize dextrin-capped AuNPs with DNA oligonucleotides using the salt-aging method and produce AuNP-

DNA conjugates. The DNA loading of the various sizes of AuNPs were determined and the factors affecting the functionalization were investigated. Characterization of the AuNP-DNA conjugates included visual inspection, UV-vis spectroscopy, and HR-TEM imaging. Decomposition of AuNP-DNA conjugates by aqueous KCN enabled quantification of DNA molecules per particle of the AuNP.

MATERIALS AND METHODS

Materials

The DNA oligonucleotide was purchased from Integrated DNA Technologies, Inc. (IDT) (Coralville, IA). Dithiothreitol (DTT), sodium chloride (NaCl), sodium hydrogen phosphate (Na_2HPO_4), sodium dihydrogen phosphate (NaH_2PO_4), sodium dodecyl sulfate (SDS), bovine serum albumin (BSA), sodium phosphate (Na_3PO_4), and Tween-20 were purchased from Sigma-Aldrich. Dextrin ($\text{C}_6\text{H}_{10}\text{O}_5$)_n from potato starch was purchased from Fluka Analytical. Hydrochloric acid (HCl) was purchased from EMD Millipore. Two hundred proof ethanol was purchased from Koptec. Sucrose ($\text{C}_{12}\text{H}_{22}\text{O}_{11}$) and potassium cyanide (KCN) were purchased from JT Baker. Potassium dihydrogen phosphate (KH_2PO_4) was purchased from Sigma. Illustra™ nap-5 column was purchased from GE Healthcare (Cranbury, NJ). Nuclease-free water and IDTE 1xTE solution (pH 8) were purchased from IDT. All chemicals used were analytical grade and all aqueous solutions were prepared using Type I water ($\leq 18.2 \text{ M}\Omega \text{ cm}$) from Direct-Q3 Water Purification System.

Preparation of AuNP-DNA conjugate

Gold nanoparticles with average core sizes of 7, 9, 10, and 19 nm were synthesized as described in the modified dextrin method (Yrad, 2022). The dextrin-capped AuNPs produced were functionalized with thiolated DNA (5'ThioMC6-D/GA TGC AAG GTC GCA TAT GAG-3') based on a previously reported method (Hill & Mirkin, 2006) with slight modifications. A 50 μL of

100 μ M thiolated DNA was activated with 50 μ L freshly prepared 0.2 M DTT. The mixture was set aside for 2.5 hours and vortexed occasionally. The 100 μ L DNA-DTT mixture was poured into a nap-5 column which was previously flushed with 10 mL sterile type I water. A 400 μ L volume of sterile Type I water was added into the nap-5 column and flowed through uncollected. Then, 950 μ L of sterile Type I water was added to the column and the effluent was collected 4 drops at a time. The purity of DNA in each collected eluent was determined based on the measured UV-vis absorbance at 260 nm wavelength. The measured volume of purified DNA (x) was added to a 20-mL EPA vial that contained 1 mL of AuNP. The vial was wrapped in foil and shaken overnight. A volume of phosphate adjustment buffer (y) calculated as $y = (\text{total volume A})/10$, where $A = 1,000 \mu\text{L AuNP} + x \mu\text{L DNA}$ was added and obtained a phosphate concentration of 9 mM. A volume of SDS solution was added and obtained a final SDS concentration of $\sim 0.1\%$ (wt/vol) calculated as $\text{SDS} = (\text{total volume B} \times 0.1)/10$; where total volume $B = 1,000 \mu\text{L AuNP} + x \mu\text{L DNA} + y \mu\text{L phosphate adjustment buffer}$. The mixture was wrapped in foil and shaken for 30 minutes. A total volume of salting buffer (z) calculated as $z = (\text{total volume B} \times 0.3 \text{ M})/(2\text{M})$ was added in 6 equal portions over two days and obtained a final concentration of 0.3 M NaCl. After the last addition, the mixture was equilibrated overnight. Successful functionalization produced stable AuNP-DNA conjugate.

The AuNP-DNA conjugate was purified by centrifugation for 15 minutes at 13,000 rpm at 4°C. The supernatant was removed, and the pellet was washed twice with 1X phosphate-buffered saline (PBS). The washed pellet was resuspended in adequate amount of phosphate-BSA buffer (20 mM Na_3PO_4 , 5% BSA, 0.25% Tween, and 10% sucrose) and produced purified conjugate in 1 mL original volume. Purified AuNP-DNA conjugate in phosphate-BSA buffer were stored at 4°C until use.

Characterization of AuNP-DNA conjugate

Absorbances of AuNPs, DNA molecules, and AuNP-DNA conjugates were measured in NanoDrop™ One Microvolume UV-vis Spectrophotometer from

Thermo Scientific. The extinction coefficient (ϵ) of each size of AuNP was derived from Beer-Lambert Law and the value of ϵ was obtained from the slope of the linear graph. HRTEM images were generated from a JEM-2200FS analytical electron microscope equipped with a 200kV field emission gun (FEG) and in-column energy filter. HRTEM works were done at the Center for Advanced Microscopy, Michigan State University, Michigan, USA.

Quantification of DNA loading

The quantification of DNA bound to AuNP was based on a previous report (Baldock & Hutchison, 2016) with modifications. A 500 μL volume of unpurified AuNP-DNA conjugate was centrifuged for 15 minutes at 13,000 rpm at 4°C. Then, 400 μL of the supernatant were discarded and the pellet was washed twice with 400 μL of 10 mM tris-acetate buffer pH 7.5. After two cycles of washes and centrifugations, 400 μL of the supernatant were discarded and replaced with 200 μL Type I water. The UV-vis absorbance of the purified AuNP-DNA conjugate at 520 nm was measured. After spectrophotometric measurements, 200 μL of 20 mM KCN was added and decomposed the AuNP overnight. The absorbance of the post-decomposition mixture was measured at 260 nm. The molar concentrations of AuNP and DNA in the AuNP-DNA conjugate were calculated from Equations 1 and 2 based on Beer's Law. The number of DNA strands bound to AuNP (# DNA) was calculated from Equation 3 (Baldock & Hutchison, 2016):

$$[\text{AuNP}] = A_{520} \text{ AuNP-DNA conjugate} / \epsilon_{\text{AuNP}} C \quad (1)$$

where: A_{520} = absorbance of the AuNP-DNA conjugate at 520 nm λ

ϵ_{AuNP} = size-dependent extinction coefficient of AuNP

C = pathlength

$$[\text{DNA}] = (A_{260} \text{ of AuNP-DNA} - A_{260} \text{ of AuNP}) / \epsilon_{\text{DNA}} C \quad (2)$$

where: $A_{260} \text{ AuNP-DNA}$ = absorbance of decomposed conjugate

$A_{260} \text{ AuNP}$ = absorbance of decomposed AuNP

ϵ_{DNA} = extinction coefficient of DNA reporter probe

C = pathlength

$$\# \text{ DNA} = \frac{[\text{DNA}]}{[\text{AuNP}]} \quad (3)$$

where: [DNA] = concentration of DNA calculated from Eq. 2

[AuNP] = concentration of AuNP calculated from Eq. 1

RESULTS AND DISCUSSION

Among the four sizes of dextran-capped AuNPs synthesized, only the 7, 9, and 10 nm core sizes were successfully functionalized with single stranded 5'-thiolated DNA molecules and produced stable AuNP-DNA conjugates. The concentrations of AuNP and DNA were determined spectrophotometrically and applied Beer's Law. The AuNP-bound DNA molecules were released into the solution after KCN was added and the DNA loading per AuNP particle was quantified. The schematic diagram for AuNP functionalization and decomposition is shown in Figure 1.

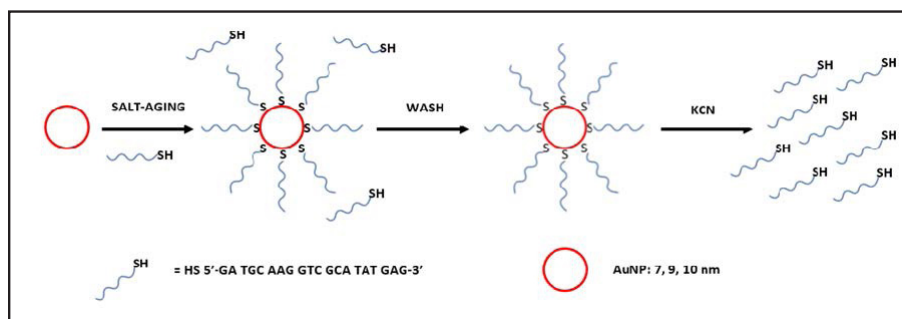


Figure 1. Scheme of DNA functionalization by salt-aging method and DNA quantification by KCN method.

Formation of AuNP-DNA conjugate

The initial step in the functionalization was the activation of thiolated DNA. Thiolated oligonucleotides commercially obtained from IDT were shipped as lyophilized powder in their disulfide-protected form (DNA-S-S-R). Activation of DNA-S-S-R was accomplished using reducing agent DTT as illustrated in Figure 2. Reduction of the disulfide bond by DTT proceeds via two sequential thiol-disulfide exchange reactions. The DTT forms a ring with

an internal disulfide bond in oxidized form converting the DNA disulfide into an activated sulfhydryl group.

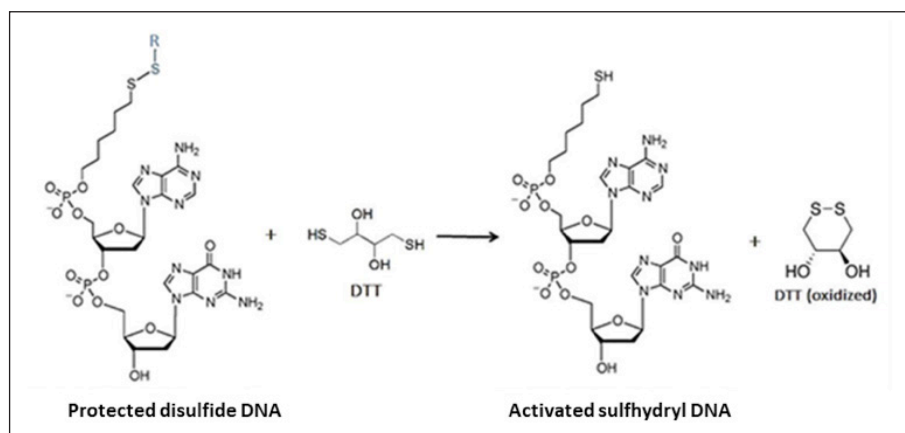


Figure 2. Activation reaction of 5'-thiolated DNA using DTT (Contreras et al., 2016).

The activated DNA molecules were purified using the nap-5 column and the eluents were collected in 6 separate tubes. The DNA location was determined spectrophotometrically by measuring the UV-vis absorbance of the collected eluents at 260 nm. The absorbances of the eluents in tubes 1 to 6 were 0.001, 0.123, 0.366, 0.047, 0.012, and 0.016 AU, respectively. Based on these data, subsequent experiments collected purified DNA starting from the second drop eluent. The activated purified DNA molecules were then mixed with 1 mL of AuNP which allowed conjugation reactions overnight. The principle of the conjugation involves dative bond formation between the AuNP surface atom and the sulfur (S) atom of the activated sulfhydryl group (-SH) in the thiolated DNA molecule. Despite the inertness of Au, the surface atoms can form stable bonds with sulfur-containing molecules because the coordination bond between Au and S from the thiol group has a bond energy of nearly 40–50 kcal/mol and is comparable to gold–gold bond (Ielo et al., 2021). Monolayers of alkanethiols on Au surfaces were widely studied and it was accepted that the Au-S bond which anchored self-assembly molecules (SAM) is a strong bond. The Au-S bond is strong enough to retain the organic chain on Au surface and precludes recombinative

desorption of a disulfide product at room temperature (Love et al., 2005; Wenck et al., 2024).

The overnight Incubation was followed by the salt-aging process. Prior to the salting process, volumes of phosphate adjustment buffer and SDS were added. The addition of adjustment buffer ensures physiologic buffer conditions for DNA hybridization while the surfactant SDS reduces the sticking of AuNPs to each other (Hill & Mirkin, 2006). The salting buffer was added in 6 equal portions over two days and obtained a final concentration of 0.3 M NaCl.

Characterization of AuNP-DNA conjugate

Successful functionalization was validated based on the color of the post-reaction mixture. Well-functionalized AuNP retains its characteristic ruby red color without aggregation (Hill & Mirkin, 2006). Figure 3A shows a well-functionalized 10 nm AuNP as indicated by the ruby red color of the post-reaction mixture containing the AuNP-DNA conjugate. The AuNP-DNA conjugate was purified by centrifugation. Figure 3B shows the red pellet of the AuNP-DNA conjugate at the bottom of the tube after centrifugation. After washing steps, the supernatant was discarded, and the red pellet AuNP-DNA conjugate was resuspended in a phosphate-BSA buffer. Figure 3C shows the purified AuNP-DNA conjugate resuspended in a phosphate-BSA buffer which remained red in color.

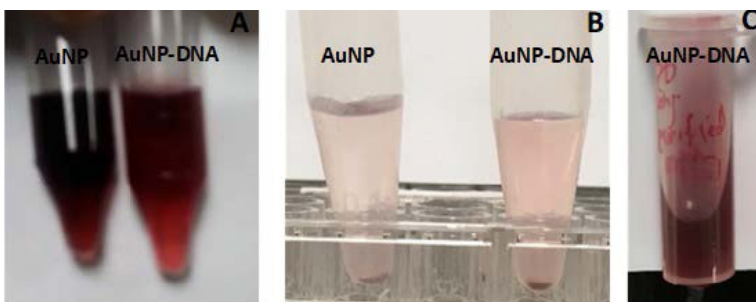


Figure 3. Photo images of AuNP-DNA conjugate compared to AuNP (A) after salt-aging process and (B) after centrifugation. (C) Purified AuNP-DNA resuspended in phosphate-BSA buffer.

Color validation of AuNP-DNA conjugate

Validation of AuNP-DNA conjugates based on the retention of red AuNP color is important. This is because while the salt-aging method involves addition of salt to achieve 0.3 M NaCl, AuNP is susceptible to aggregation at concentrations >20 mM of NaCl. Salting causes aggregation of colloidal gold because addition of salt shortens the Debye length and AuNP has a very large Hamaker constant. As the Debye length is shortened, AuNPs can approach each other more and enter an attractive van der Waals force region which is responsible for its aggregation (Liu & Liu, 2017). Figure 4 shows photographs of vials A, B, and C containing unfunctionalized 10 nm AuNP without NaCl, DNA-functionalized 10 nm AuNP with 0.3 M NaCl, and unfunctionalized 10 nm AuNP with 0.3M NaCl, respectively. As demonstrated in Figure 4, vials A and B have comparable ruby red color while vial C has purple-black color. The comparable red color of A and B signifies the well functionalization of the latter. The purple-black color of C signifies aggregation of AuNP because of the loss of colloidal stability (Hurst et al., 2006).

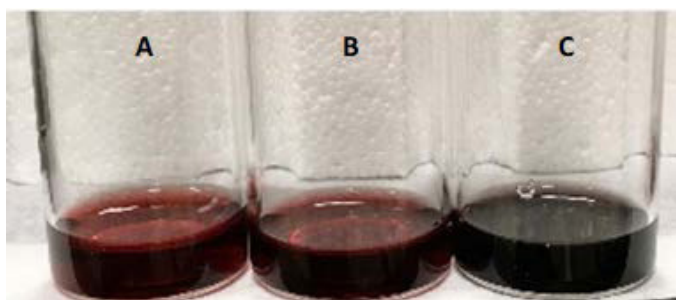


Figure 4. Photo images of (A) 10 nm dextrin-capped AuNP without NaCl; (B) AuNP-DNA conjugates with 0.3 M NaCl; and (C) 10 nm dextrin-capped AuNP with 0.3 M NaCl.

Stability of AuNP-DNA conjugate

A well-functionalized AuNP can remain in the post-reaction mixture at room temperature for one month without aggregation (Hill & Mirkin, 2006). A poorly functionalized AuNP stored in the same condition loses its colloidal

stability in less than a month. This contrast of stabilities was evident in functionalization experiments involving trials K, L, M, X, FMY-1, and FMY-ST. Figure 5 shows the vials containing post-reaction mixtures on day 1 and day 20 of storage. It was observed that trials K, L, M, FMY-1, and FMY-ST remained red which indicated that AuNPs in these trials were well-functionalized. On the other hand, trial X (indicated by the arrow) turned into purple liquid with black precipitates on day 20 of storage. The loss of colloidal gold stability suggested that the AuNP in trial X was not well-functionalized.

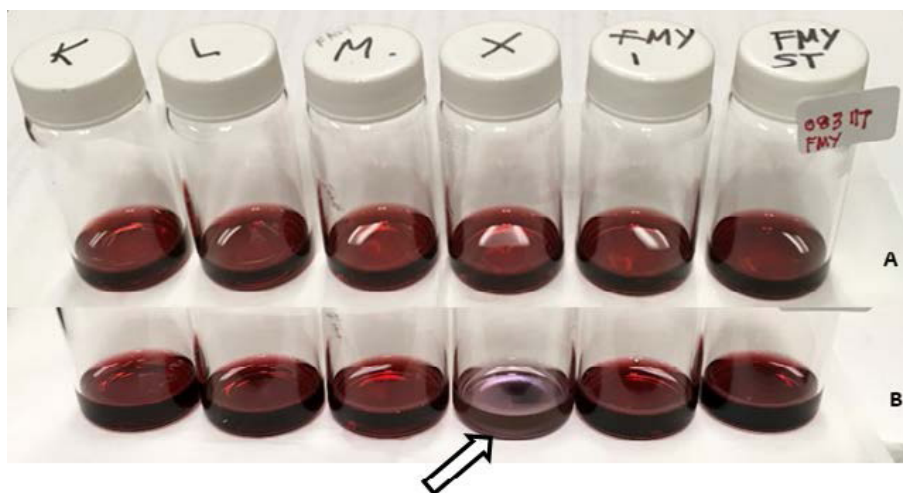


Figure 5. Vials containing unpurified AuNP-DNA conjugates of trials K, L, M, X, FMY-1, and FMY-ST as labeled. Conjugates on (A) day 1; and (B) day 20 of storage at room temperature.

UV-vis spectra of AuNP-DNA conjugate

All AuNP-DNA conjugates exhibited bathochromic shifts in their SPR bands. Figure 6 shows three separate UV-vis spectra of 7, 9, and 10 nm dextrin-capped AuNPs, each compared to the spectrum of corresponding post-reaction mixture, as labeled. The three separate plots show a common observable pattern. When the SPR band of each size of AuNP was compared to its corresponding AuNP-DNA conjugate, the latter exhibited a bathochromic shift. The SPR band of 7 nm AuNP at 520 nm was shifted to 526 nm after the formation of AuNP-DNA conjugate. Similarly, the SPR bands of 9 nm

AuNP at 520 nm and of 10 nm at 517 nm were shifted to 528 nm and 523 nm, respectively.

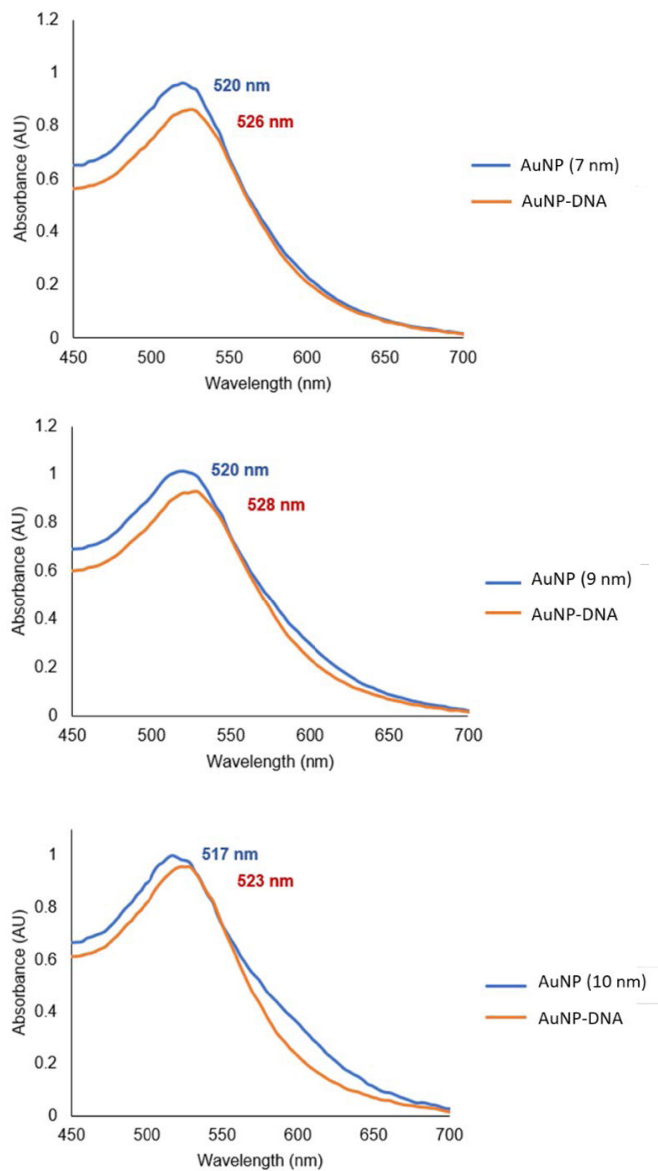


Figure 6. UV-vis spectra of the different sizes of dextrin-capped AuNPs (7, 9, and 10 nm from top to bottom), each compared to the spectrum of the resulting AuNP-DNA conjugate, as labeled.

UV-vis spectroscopy is a sensitive technique in analyzing the environment of gold nanoparticles and a preliminary technique for ensuring their primary characteristics (Ielo et al., 2021; Kumari & Meena, 2020). Bathochromic shift is well-documented in accompanying bioconjugation of AuNP as reported in other studies (Zhu et al., 2017; Matea et al., 2015). A previous study on enhancing sensitivity of lateral flow assays reported a 7 nm red shift of AuNP SPR band after conjugation with thiolated oligonucleotide (Hu et al., 2013). This shift is due to the increase in local refractive index of the AuNP surface (Mock et al., 2003), brought about by the change in the electron density on the AuNP surface, induced by the biomolecule upon binding (Eustis & El-Sayed, 2006). Since the initial SPR band of AuNP has red-shifted, it means that the electron density on the surface of dextrin-capped AuNP has changed which could only mean the replacement of dextrin capping by the thiolated DNA. It was reported that AuNPs exhibited localized surface plasmon resonance which was dependent on the shape, size, interparticle distances, and refractive index of the surrounding medium (Wenck et al., 2024; Jalali, 2023).

HRTEM micrograph of AuNP-DNA conjugate

Transmission electron microscopy (TEM) is one of the classic techniques in characterizing AuNPs for imagery to get elemental qualitative analysis (Dumur et al., 2020). Based on TEM imagery, it was found that well-functionalized AuNPs retained as monodisperse after functionalization. Figure 7 shows HRTEM micrograph of AuNP-DNA conjugate using 10 nm AuNP core size. Functionalized AuNPs were in clusters, but most of the individual particles were not touching. One notable observation is the seemingly uniform distances between the particles. The relatively uniform distances between the particles are attributed to the DNA molecules surrounding each of the AuNPs.

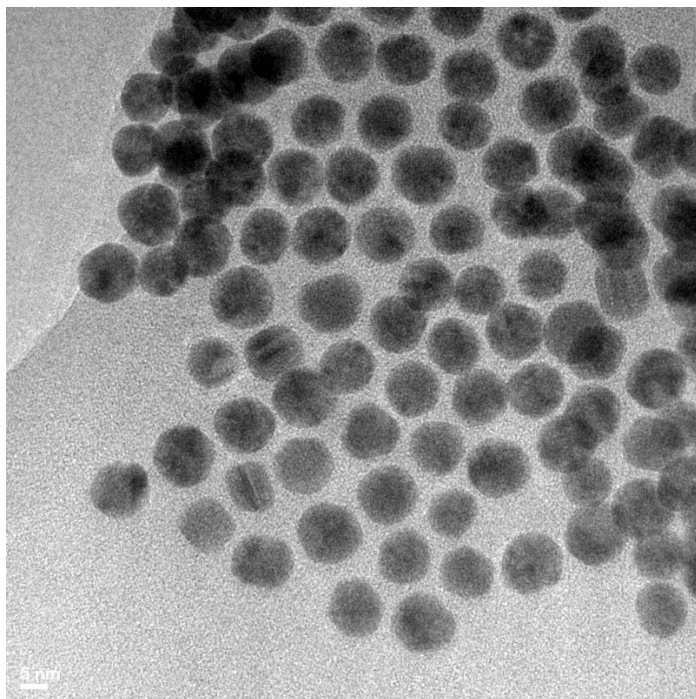
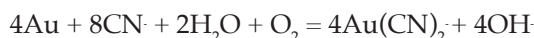


Figure 7. HRTEM micrograph of 10 nm AuNP functionalized with DNA.

Quantification of DNA bound to AuNP

The quantification of DNA bound to AuNP was achieved by UV-vis spectrophotometry and applying Beer's Law. The analytical approach determined the concentrations of AuNP, decomposed the AuNP-DNA conjugate, determined the concentrations of the bound DNA, and calculated the DNA loading using Equation 3 mentioned earlier. The AuNPs and AuNP-DNA conjugates were separately purified by centrifugation. Upon addition of KCN, the AuNPs were oxidatively decomposed. Cyanide has long been used to extract gold from ores and has recently been used to decompose AuNP for the quantification of DNA ligand by fluorescence (Baldock & Hutchison, 2016). The decomposition reaction can be represented in the chemical equation below as reported by McCarley and Bard (1992).



Before the decomposition reaction, purified AuNPs and purified AuNP-DNA conjugates were colored red as shown in Figure 8A. After oxidative KCN decomposition, the reaction mixtures appeared colorless shown in Figure 8B due to the conversion of zero valent colloidal gold into ionic form.

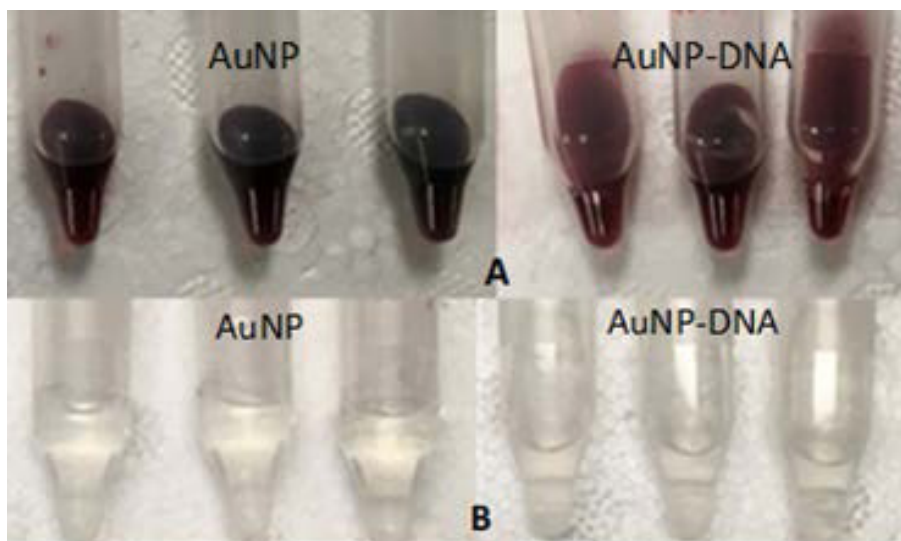


Figure 8. Triplicate samples of purified AuNPs and purified AuNP-DNA conjugates (A) before and (B) after decomposition.

The UV-vis spectra of AuNP and AuNP-DNA conjugates were separately taken before and after decomposition. Figure 9 shows the UV-vis spectra of 10 nm AuNP and its corresponding AuNP-DNA conjugate before and after decomposition. As shown in Figure 9A, AuNP-DNA conjugate exhibited characteristic absorption peak at 523 nm for the gold core and characteristic absorption peak at 260 nm for DNA as indicated by the arrows. Figure 9B shows the characteristic peaks at 230 and 240 nm for $\text{Au}(\text{CN})_2^-$, and at 260 nm for DNA. Salts of $\text{Au}(\text{CN})_2^-$ were formed during AuNP decomposition, and the peaks at 230 and 240 nm observed in this study are consistent with previous observations as reported by Baldock & Hutchison (2016).

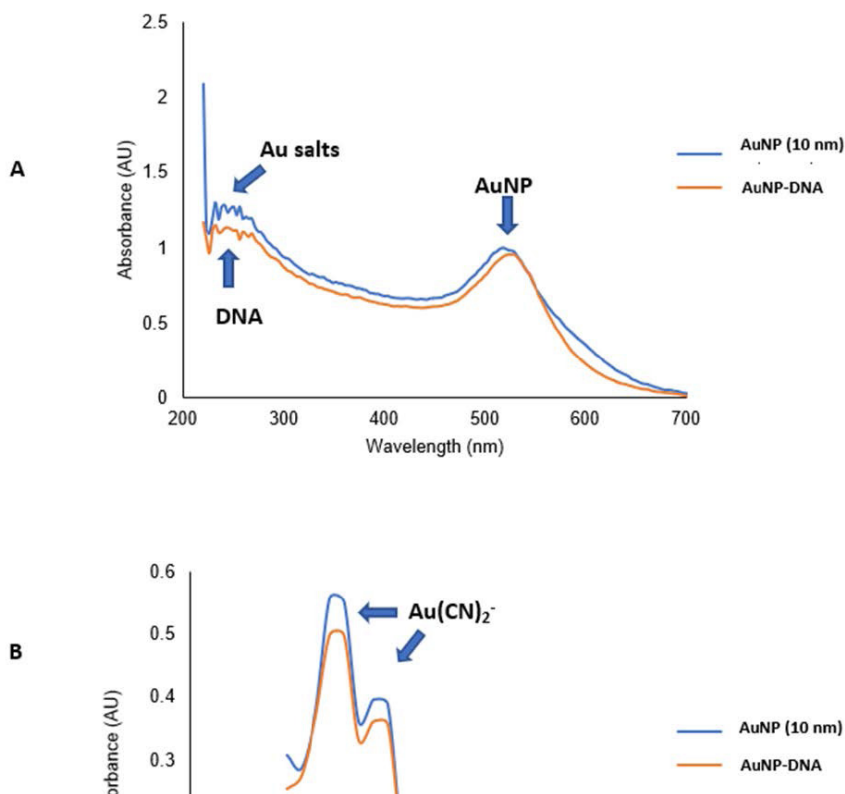


Figure 9. UV-vis spectra of 10 nm AuNP and its resulting AuNP-DNA conjugate (A) before and (B) after decomposition.

The concentrations of DNA molecules were determined based on their absorbances at 260 nm (A_{260}) and extinction coefficient (ϵ) which was equal to $204,100 \text{ M}^{-1}\text{cm}^{-1}$ as provided by IDT. The concentrations of AuNPs were determined based on their absorbances at 520 nm (A_{520}) and the ϵ values which were determined empirically. Table 1 presents the ϵ values and calculated DNA loading of the different sizes of dextrin-capped gold nanoparticles used in this study. The DNA loading is expressed in number of DNA strands per particle of AuNP. A previous study reported a DNA loading of 58 ± 7 DNA strands per particle of 12 nm core size citrate-capped AuNP ($n=9$) (Baldock & Hutchison, 2016).

Table 1. Extinction coefficient and DNA loading of the different sizes of synthesized AuNP.

AuNP size (nm)	ϵ ($10^7 \text{ M}^{-1}\text{cm}^{-1}$)	DNA loading (# of strands)
7	3.77 ± 0.02	9 ± 1 (n=5)
9	6.53 ± 0.71	17 (n=1)
10	9.50 ± 0.19	22 ± 2 (n=16)

Factors affecting functionalization

This study was able to identify three factors that affect the DNA-functionalization of dextrin-capped gold nanoparticles. Firstly, the stability of the colloidal gold is a prerequisite for producing a well-functionalized AuNP. Stable colloidal gold can produce stable AuNP-DNA conjugate while unstable one cannot. As shown in Figure 10, stable colloidal gold (labeled M) produced stable AuNP-DNA conjugate while unstable colloidal gold (labeled X) produced aggregated functionalization product. Trial X was considered an unstable colloidal gold because few days after synthesis, color separation (indicated by the arrow) was observed in the colloidal gold upon standing. Few more days after, black precipitates collected at the bottom of the tube containing AuNP trial X.

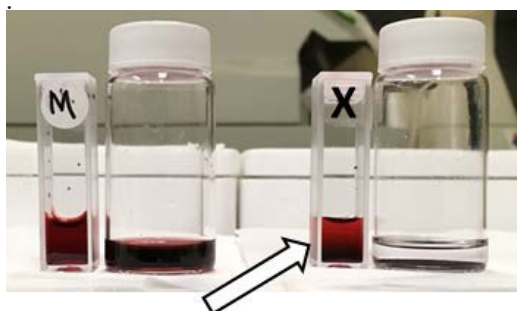


Figure 10. Cuvettes with AuNPs labelled M and X and the resulting functionalization mixture in EPA vials. Trial M produced stable AuNP-DNA conjugate while trial X produced aggregated functionalization products.

Secondly, functionalization was limited to 2X concentrated AuNP precursors to produce stable AuNP-DNA conjugate. Table 2 shows the results

of functionalization experiments using constant amount of DNA at varied concentrations of 10 nm AuNP core size. The 1X and 2X concentrated AuNPs produced stable conjugates while 3X and 4X concentrated AuNP precursors produced aggregated functionalization products.

Table 2. The effect of AuNP concentration on the functionalization of 10 nm AuNP.

AuNP sample	AuNP conc.	Remarks on functionalization product
AA	1x	Stable, colored red
AA	2x	Stable, colored red
AA	3x	Aggregated, light red liquid with black ppt.
AA	4x	Aggregated, black ppt. after 6 days

Thirdly, the size of gold nanoparticles affects DNA-functionalization. Functionalization experiments were performed using 19, 10, 9, and 7 nm core sizes of the dextrin-capped AuNPs. All of the trials used constant 50 μ L of 100 μ M DNA and 1 mL of AuNP at varied concentrations (1X, 2X, 3X, and 4X). Figure 11 shows the post functionalization mixtures of 19, 10, 9, and 7 nm sizes using 2X concentrated AuNP. Based on color validation, 10, 9, and 7 nm AuNPs produced stable AuNP-DNA conjugates while 19 nm AuNP did not. As shown in Figure 11, signs of aggregations are evident in the two trials of 19 nm AuNPs.

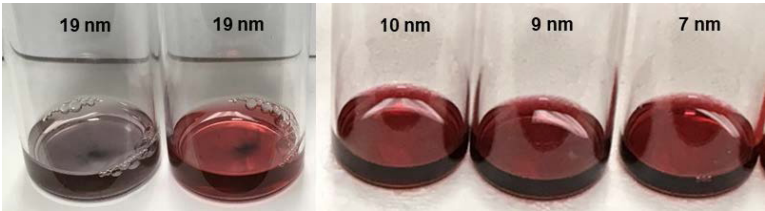


Figure 11. Photo images of post functionalization mixtures at varied sizes of AuNPs as labeled.

CONCLUSION

Dextrin-capped AuNPs were functionalized with DNA oligonucleotides using the salt-aging method and produced stable AuNP-DNA conjugates. Well-functionalized AuNPs retained the characteristic colloidal red color and exhibited bathochromic shifts on their size-dependent SPR bands. AuNPs with average core sizes of 7, 9, and 10 nm were successfully conjugated with

single-stranded 5'-thiolated 20-base DNA oligonucleotide. The DNA loading was found to be 9 ± 1 , 17 , and 22 ± 2 DNA strands per particle of the 7, 9, and 10 nm AuNPs, respectively. The DNA functionalization was affected by the stability, concentration, and size of the nano gold.

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There's Magic in Modular Arithmetic!

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Department of Mathematics

Mathematics indeed has been giving us wonders from the start! You can see its footprints wherever you go. It has also been assisting other fields, such as the applied sciences, in deducing comprehensive relationships through numbers and patterns.

At current times, one interesting topic is the modular arithmetic. Since modulo arithmetic can be considered as finding residues, countless applications are possible. Finding residues would mean this:

28 *modulo* 5 is 3 since the residue of 28 when divided by 5 is 3.

There are simple usages or day-to-day applications of modular arithmetic that others might not know about, like the conversion of military time and standard time. Military time can be applied with *modulo* 12 to the hours portion so one can get its corresponding standard time. If we have 19:00 as the military time, then we consider

19 *modulo* 12 is 7 since the residue of 19 when divided by 12 is 7

consequently, we take 7:00pm as its corresponding standard time. Simple yet convenient computations! As for more complex direct applications of modular arithmetic, we definitely can tag Coding and Cryptography to that.

Yet, this time, let's deviate the discussion to a mind trick, specifically card trick, that is explained mathematically, using modular arithmetic.

Note that mind tricks provide avenues for exercising one's analytical skills, consequently, knowing how to organize one's thoughts— an indirect application of mathematics. But yes, card tricks will always be perceived as a “magic trick” if one cannot explain how perform it.

Let's have my personal experience in the recent *Centre International de Mathématiques Pures et Appliquées* school (CIMPA) I attended in this year. One of the lecturers gave me a card trick using random 27 cards from a deck of 52 cards, as a motivation to his talk about Quantum Algebra and Poisson Algebra. He asked me to choose one card from that pool of 27 cards then made me to do these:

1. Insert back the card I chose while not letting him know what that card is.
2. Shuffle the 27 cards until I'm satisfied with how the cards are arranged.

After these, he got the 27 cards back and started distributing the 27 cards equally into three groups. He made me point the group of cards that has the card I chose. And, he asked for a random positive integer from me; I said 14. He then arranged back the cards, distributed again the 27 cards equally into three groups, and asked me again what group of cards contained the card I chose. So, I pointed the pile of cards that contained the card I chose. For the third time (and last time) he collected back the 27 cards then distributed them into, still, three equal groups and let me point, again, the group where my card was. When he arranged all the 27 cards back this time, he asked again the positive integer I chose. I reminded him it's 14. He then started counting; when he reached the 14th card, it was the card I chose! Ten of Diamonds! Curious enough, I then tried to figure out the algorithm using the concept of modular arithmetic and was able to decode it, eventually.

This paper is then focused on providing solution to that 27-card trick with the aid of the concepts on modular arithmetic. Examples, illustrations, and generalizations will be shown to let the reader follow and apply the tricks. Specifically, this algorithm will answer the question,

How can one identify a random drawn card from a pool of 27 cards, and will be even placed at a specific position that was predetermined?

We shall recall the definition of $a \equiv b \pmod{c}$ (Effinger & Mullen, 2022). That is, we say that $a \equiv b \pmod{c}$, read as “ a is congruent to b modulo c ” if for a positive integer c and $a, b \in \mathbb{Z}$, we have $c \mid (a - b)$. Noted that $c \mid (a - b)$ from the definition of divisibility, implies that there exists an integer $x \in \mathbb{Z}$ such that $c = (a - b)(x)$. To illustrate the definition of divisibility, consider these:

$3 \mid 15$ because there exists an integer, in this case, 5, such that $15 = 3(5)$.

Similarly,

$$25 \mid 175 \text{ since } 175 = 25(7).$$

Also, $5 \nmid 12$ can be read as 5 does not divide 12 or 12 is not divisible by 5, knowing that there does not exist an integer x such that $12 = 5(x)$. Note that the set of integers, $\mathbb{Z}$, is the set $\{\dots, -4, -3, -2, -1, 0, 1, 2, \dots\}$.

Relating this to the concept of modular arithmetic, let's have these:

$$12 \equiv 2 \pmod{5} \text{ because } 5 \mid (12 - 2), \text{ i.e., } 5 \mid 10 \text{ with } 10 = 5(2).$$

$$12 \equiv 12 \pmod{26} \text{ since } 26 \mid (12 - 12), \text{ i.e., } 26 \mid 0 \text{ knowing that } 0 = 26(0).$$

Moreover, $45 \equiv 0 \pmod{3}$ considering that $3 \mid (45 - 0)$ or $3 \mid 45$. With this, one can deduce that, by inspection, the b in $a \equiv b \pmod{c}$ is a residue when a is being divided by c .

Finally, when we say equivalence classes, we are considering the integers that are congruent eventually to the same residue (Lewinter & Meyer, 2016). Like, with $12 \equiv 2 \pmod{5}$, since 17 and 22 are both congruent to 2 modulo 5 as well, we have

$$22 \equiv 17 \equiv 12 \equiv 2 \pmod{5}$$

that is, 12, 17, and 22 belong to the same equivalence class of 2.

These concepts are the key topics that one should know to answer our ultimate question in this paper. That is, *how can one identify a random drawn card from a pool of 27 cards, and will be even placed at a specific position that was predetermined?*

Let us have the routine of the trick that was given in CIMPA school.

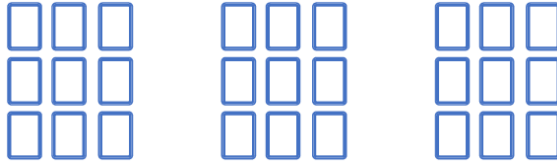
1. Choose one card from the pool of 27 cards.
2. Insert back the chosen card while not letting the performer know what the chosen card is.

3. Shuffle the 27 cards until satisfied with how the cards are arranged.
4. The performer of the trick will distribute the 27 shuffled cards evenly to three groups.
5. S/He will ask to point the group that contains the chosen card. Once that group is identified, s/he will ask for a random positive integer.
6. S/He will collect all the 27 cards back and redistribute them to three groups.
7. The second time, s/he will ask to identify the group that contains the chosen card.
8. S/he will get the 27 cards and redistribute them to three groups.
9. For the third time (and last), s/he will ask what group of cards has the chosen card.
10. This time, the performer will ask again what the positive number that was chosen randomly at the start.
11. Counting from the first card in the arrangement, the chosen card is positioned at that random positive integer!

Consider this simplified version:

If one points the group that contains the chosen card, then we only take that group that has the chosen card, disregard the other groups, and redistribute that group that has the chosen card into three groups.

Notice that when 27 cards are divided equally into three groups, certainly, each group has 9 cards. When one chooses the group that contains the chosen card, while discarding the other groups, we can distribute evenly these 9 cards into three groups, that is, each group now has 3 cards. Yes, at this third time, these 3 cards when equally distributed to three groups, this will give us the chosen card, once one would point the group that has it. Here is the illustration to the simplified version of the trick:



First Distribution (with the initial 27 cards)



Second Distribution (using the group of 9 cards that has the chosen card)



Third Distribution (using the group of 3 that has the chosen card)

This idea paves way to decoding the original trick [in CIMPA school] because it means that at the third time of distributing the 27 cards, we will be able, certainly, to not just guess the card but to also confidently identify it. But, yes, the original trick is indeed *that tricky* because we do not disregard the other groups unlike what we did with the simplified version; we need to collect all the 27 cards back and redistribute them, every time. The cherry on top of this original trick? The chosen card should be sitting at the position of the positive integer that was also randomly chosen at the start of the trick. So, this is the time that we will use math in it, specifically, the concept of modular arithmetic.

Note that modular arithmetic is deduced from Division Algorithm. Using Division Algorithm (Lewinter & Meyer, 2016), when we divide a number a by, say, x , the cardinality of our distinct residues will always be equal to x but the distinct residues are $0, 1, 2, \dots, x - 1$. Let's consider $a \equiv b \pmod{6}$. Notice that b or the residues can be $0, 1, 2, \dots, x - 1$ or $0, 1, 2, 3, 4, 5$. Note that we have $x = 6$ in this case. Here is our illustration:

$$40 \equiv 4 \pmod{6}$$

$$39 \equiv 3 \pmod{6}$$

$$38 \equiv 2 \pmod{6}$$

$$37 \equiv 1 \pmod{6}$$

$36 \equiv 0 \pmod 6$
 $35 \equiv 5 \pmod 6$
 $34 \equiv 4 \pmod 6$
 $33 \equiv 3 \pmod 6$
 $32 \equiv 2 \pmod 6$
 $31 \equiv 1 \pmod 6$
 $30 \equiv 0 \pmod 6$
 $29 \equiv 5 \pmod 6$
 $28 \equiv 4 \pmod 6$
 $27 \equiv 3 \pmod 6$

The distinct residues (0,1, 2,3,4,5) are now considered as our congruence classes. Considering that we have

$40 \equiv 34 \equiv 28 \equiv 4 \pmod 6$ and $39 \equiv 33 \equiv 27 \equiv 3 \pmod 6$

we can deduce that 40, 34, 28 belong to the same equivalence class, which is the equivalence class of 4. Similarly, since 39, 33, and 27 are integers in modulo 6 that have the same residue when these numbers are divided by 6, then they belong to the same congruence class, specifically, equivalence class of 3 in this case.

1	2	0
1	2	3
4	5	6
7	8	9
10	11	12
13	14	15
16	17	18
19	20	21
22	23	24
25	26	27

Applying these concepts to the 27 cards that are to be distributed to three groups, we have the congruence classes (0,1,2) and these are the

groupings we can get with the positive integers that are lesser or equal to 27:

Let's now add, to this context, the fact that 27 is a perfect cube, i.e., $27 = 3^3$. With this, we can have another layer in our groupings that relates 27 as a perfect cube to its congruence classes. That is, let us take a look at the integer powers of 3 that will give us integers lesser than 27. Hence, we consider $3^0 = 1$, $3^1 = 3$, and $3^2 = 9$. With this, we can actually express each positive integer that is lesser or equal to 27, as the sum of these exponentiated terms ($3^0, 3^1, 3^2$). Notice that the congruence classes and the exponents are the same; we have 0, 1, 2. So, if we take 17 as an integer lesser than 27, we have

$$17 = 2(3^0) + 2(3^1) + 1(3^2) = 2(1) + 2(3) + 1(9) = 2 + 6 + 9.$$

Hence, we can have the layers, 0, 1, 2, as groupings in arranging back the cards. Specifically, considering the collected 27 cards (undistributed), we take the code 0 for the top group, 1 for the middle group, and 2 as the bottom group. Also, note that there's no such thing as the "0th" card since we count the cards starting at 1, i.e., we definitely start counting at the 1st card. Thus, whenever a random positive integer will be given as the predetermined position of the chosen card, always subtract 1 from that positive integer. That subtracted [by 1] number is the one that needs to be expressed as the sum of the given exponentiated terms. Now, we are ready to roll these concepts into one algorithm.

Let us now wrap all these ideas up and start generating our algorithm! Say, my chosen card is Ace of Spades and my random positive number is 23. That is, after the third distribution, when we count 23 cards (face down) from the top, we need to have the Ace of Spades to be specifically that 23rd card. As a general rule, whenever we distribute the 27 cards (undistributed cards should face down), let's have one card at a time (distributed card should face up). Also, the manner of distribution should be from left to right (of the performer). Thus, if my card happens to be the 16th card in the first distribution, we have this:

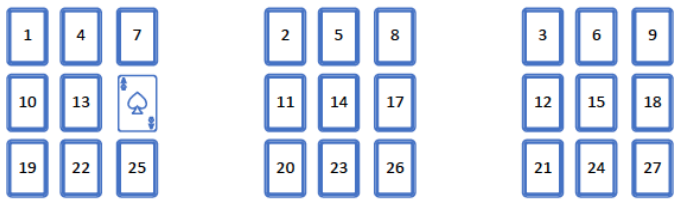


Figure 1. Arrangement of Cards Distribution

Note that we'll be piling the cards (faces up) upon each distribution of the collected 27 cards. Hence it shall look like this:

25	26	27
22	23	24
19	20	21
16	17	18
13	14	15
10	11	12
7	8	9
4	5	6
1	2	3

Figure 2. Arrangement of Piled Cards when Distributed

As mentioned, what we will be computing as the sum, expressed using the exponentiated terms, would be the chosen positive integer minus 1. That is, $23 - 1 = 22$. So we have this,

$$22 = 1(3^0) + 1(3^1) + 2(3^2) = 1(1) + 1(3) + 2(9) = 1 + 3 + 18.$$

The coefficients of the exponentiated terms will be the positions of the group that contains the card, whenever we collect the 27 cards back after each distribution. Thus, considering that 22, the coefficients exponentiated terms are 1, 1, and 2, for 3^0 , 3^1 , and 3^2 , respectively. As noted, we have the corresponding codes for the positions, i.e., 0 for the top group, 1 for the middle group, and 2 as the bottom group. Since we have the positions 1-1-2 for 22, we'll be placing the identified group that has the chosen card, to middle-middle-bottom positions. Note that from the first distribution, our

chosen card, Ace of Spades, is at the leftmost group and it's the 4th card (from the top) of its group. So, when we now collect the 27 cards back (faces down), we need to put that identified group (leftmost group in the first distribution) that contains the chosen card at the middle. We only focus the positioning of the identified group that contains the chosen card. Thus, the other groups can be put in any order, top or bottom at this moment since middle portion is already for the identified group. Hence, the arrangement (collected and undistributed) will now look like this for the second distribution:

26	25	27
23	22	24
20	19	21
17	16	18
14	13	15
11	10	12
8	7	9
5	4	6
2	1	3

Figure 3. *Arrangement of the Collected Cards (Faces Down) after the First Distribution*

Now, for the second distribution, our card will be the 13th card to be distributed (from the topmost card). Why? Having the identified group at the middle, we have a group at its upper portion that has 9 cards, and, since our chosen card is the 4th card from the top of its group, consequently, $9 + 4 = 13$. Thus, knowing that our chosen card will be the 13th card to be distributed hence it is still at the leftmost group. (Refer to Figure 1 to see where the 13th card will be once the 27 cards are distributed again to three groups.)

Now that it's identified to be at the leftmost group, with the code 1-1-2, we'll still put the identified group to the middle upon collecting back the 27 cards. This time, Figure 2 shows us that our chosen card that is now at the 13th position, is the 5th card (from the top) of its group. Thus, when these 27 cards are collected back, our card is now the 14th card to be distributed. That is, using the same argument, having a group at its upper part, we have $9 + 5 = 14$. Hence, our card now is at the middle group (based from Figure 1)

and the 5th card from the top of its group (based from Figure 2). When 27 cards are collected back, we will have the identified group that contains the chosen card now at the bottom part because of the code 1-1-2. Thus, with two groups [having 9 cards each group] at the upper part of our chosen card, and that, our chosen card is 5th from the top in its group, we have $9 + 9 + 5 = 23$. Indeed, our card is positioned as the 23rd card when we will be counting from the top!

Let us now generalize the solution as to why our algorithm works. As was initially discussed in the simplified version of the given trick, the bottom-most card after the third distribution will always be the chosen card. Hence, the trick is about inserting that chosen card in the position that is based from the random positive integer. Clearly, all the possible positive integers that are lesser or equal to 27 can be considered since all of them belong in the congruence classes. This implies that, each positive integer, as well, that are lesser than 27, can be expressed as the sum of the exponentiated terms. And, technically, their coefficients as the codes for positions are distinct. Here:

$$\begin{aligned}
 1 &= 1(3^0) + 0(31) + 0(32) = 1(1) + 0(3) + 0(9) = 1 + 0 + 0. \\
 2 &= 2(3^0) + 0(31) + 0(32) = 2(1) + 0(3) + 0(9) = 2 + 0 + 0. \\
 3 &= 0(3^0) + 1(31) + 0(32) = 0(1) + 1(3) + 0(9) = 0 + 3 + 0. \\
 4 &= 1(3^0) + 1(31) + 0(32) = 1(1) + 1(3) + 0(9) = 1 + 3 + 0. \\
 5 &= 2(3^0) + 1(31) + 0(32) = 2(1) + 1(3) + 0(9) = 2 + 3 + 0. \\
 6 &= 0(3^0) + 2(31) + 0(32) = 0(1) + 2(3) + 0(9) = 0 + 6 + 0. \\
 7 &= 1(3^0) + 2(31) + 0(32) = 1(1) + 2(3) + 0(9) = 1 + 6 + 0. \\
 18 &= 0(3^0) + 0(31) + 2(32) = 0(1) + 0(3) + 2(9) = 0 + 0 + 18. \\
 9 &= 0(3^0) + 0(31) + 1(32) = 0(1) + 0(3) + 1(9) = 0 + 0 + 9. \\
 10 &= 1(3^0) + 0(31) + 1(32) = 1(1) + 0(3) + 1(9) = 1 + 0 + 9. \\
 11 &= 2(3^0) + 0(31) + 1(32) = 2(1) + 0(3) + 1(9) = 2 + 0 + 9. \\
 12 &= 0(3^0) + 1(31) + 1(32) = 0(1) + 1(3) + 1(9) = 0 + 3 + 9. \\
 13 &= 1(3^0) + 1(31) + 1(32) = 1(1) + 1(3) + 1(9) = 1 + 3 + 9. \\
 14 &= 2(3^0) + 1(31) + 1(32) = 2(1) + 1(3) + 1(9) = 2 + 3 + 9. \\
 15 &= 0(3^0) + 2(31) + 1(32) = 0(1) + 2(3) + 1(9) = 0 + 6 + 9. \\
 16 &= 1(3^0) + 2(31) + 1(32) = 1(1) + 2(3) + 1(9) = 1 + 6 + 9.
 \end{aligned}$$

$$17 = 2(3^0) + 2(31) + 1(32) = 2(1) + 2(3) + 1(9) = 2 + 6 + 9.$$

$$18 = 0(3^0) + 0(31) + 2(32) = 0(1) + 0(3) + 2(9) = 0 + 0 + 18.$$

$$19 = 1(3^0) + 0(31) + 2(32) = 1(1) + 0(3) + 2(9) = 1 + 0 + 18.$$

$$20 = 2(3^0) + 0(31) + 2(32) = 2(1) + 0(3) + 2(9) = 2 + 0 + 18.$$

$$21 = 0(3^0) + 1(31) + 2(32) = 0(1) + 1(3) + 2(9) = 0 + 3 + 18.$$

$$22 = 1(3^0) + 1(31) + 2(32) = 1(1) + 1(3) + 2(9) = 1 + 3 + 18.$$

$$23 = 2(3^0) + 1(31) + 2(32) = 2(1) + 1(3) + 2(9) = 2 + 3 + 18.$$

$$24 = 0(3^0) + 2(31) + 2(32) = 0(1) + 2(3) + 2(9) = 0 + 6 + 18.$$

$$25 = 1(3^0) + 2(31) + 2(32) = 1(1) + 2(3) + 2(9) = 1 + 6 + 18.$$

$$26 = 2(3^0) + 2(31) + 2(32) = 2(1) + 2(3) + 2(9) = 2 + 6 + 18.$$

Notice that we do not have to consider the sum of exponentiated terms for 27. This is because what we need to compute is that positive integer subtracted by 1. Hence, if one would choose 27 as its positive integer, that is, s/he wants that the chosen card will be the 27th card, what we need to compute is 26 (that, 27-1). This time, as for the codes, we have

1: 1-0-0

2: 2-0-0

3: 0-1-0

4: 1-1-0

5: 2-1-0

6: 0-1-0

7: 1-1-0

8: 2-1-0

9: 0-0-1

10: 1-0-1

11: 2-0-1

12: 0-1-1

13: 1-1-1

14: 2-1-1

15: 0-2-1

16: 1-2-1

17: 2-2-1

18: 0-0-2

19: 1-0-2

20: 2-0-2

21: 0-1-2

22: 1-1-2

23: 2-1-2

24: 0-2-2

25: 1-2-2

26: 2-2-2

See the relationship between the equivalence classes, 0, 1, 2, and the exponentiated terms' coefficients? Now, we take some labels so we will be guided in the algorithm we built.

Let x be the chosen card and y be the random positive integer. Here are the steps:

1. Compute $y - 1$ and express it as a sum of $3^0 = 1$, $3^1 = 3$, and $3^2 = 9$.
2. Determine the coefficients of $3^0 = 1$, $3^1 = 3$, and $3^2 = 9$ since the coefficients would be the positions of the group that contains x . Note that the coefficients are the same with the congruence classes hence they will only be integers from 0 to 3.
3. Take note of the coefficients [in order] for they will be the basis for the code of positions, namely: 0 for the top group, 1 for the middle group, and 2 as the bottom group.

One might ask if is this applicable when one chooses an integer greater than 27. Certainly, the answer to that is yes. As what we have shown earlier in the case of $a \equiv b \pmod{6}$, all integers will belong eventually to all the existing congruence classes. So, if the chosen positive integer is greater than 27, then all we need to do is apply modulo 27 to it to get the residue that is definitely lesser than 27. So, if one would choose 38, and 38 is congruent to 11 modulo 27, then 38 is considered to be 11. Then, we proceed with the same algorithm. That is, $11-1=10$, so you compute the for the coefficients of the exponentiated terms when 10 is expressed as the sum of them. Consequently, when you will

be counting the cards to reveal the chosen card, simply repeat with the cycle of the arranged cards on your hands until you reach that chosen positive integer greater than 27; in this case, 38.

Certainly, modular arithmetic let us play with integers in a way that we can lessen the numbers to think of. This is indeed possible since we can inject the concept of congruence classes. Therefore, numerous tricks can be made when one wants to shuffle some elements and put some restrictions on them. Hence, this 27-card trick can certainly be a basis to the extension of other perfect cubes or perfect quadrupled. In this manner, another layer of tricks will be added and interesting results can be deducted. There is a chance that the algorithm in this 27 cards trick can be related to a pattern of some elements in given field. Hopefully by that time, when one asks, *Is it magic?* I hope you would be confident to say that, *It's just mathematics!*

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A Review of “Linguistic Landscapes in South-East Asia: The Politics of Language and Public Signage”

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Public street signs, informational displays, billboards, emergency and warning signs, labels, and establishment name boards, among others, might seem mundane to a local pedestrian on a regular day, but the presence of these signages speaks volumes on the socioeconomic, political, and cultural status of an area. Their language use, design, and placement reflect a community’s retention of its identity or the influences of education, population mobility, globalization, or a history of foreign contact and colonization (Gorter, 2006). The landscape created by these signages offers insights into the language policies that take place in the area, the identity of the members of the community, and the power relationships among speakers. Hence, in the book *Linguistic Landscapes in South-East Asia: The Politics of Language and Public Signage*, edited by Seyed Hadi Mirvahedi, contributing authors present a scholarly discussion of the linguistic landscape (LL) of select areas in East and Southeast Asia. Published in 2022, the book contains the works of researchers who conducted observations, surveys, and analyses of photographs, public sign boards, and other artifacts that provided social, cultural, and linguistic dynamics in the different South-East Asian contexts. This review discusses the aims of the book and how those were realized, the book’s structure, the presentation of data, and its overall merit as a contribution to the emerging field of linguistic landscape and its possible implications to a locality in the Philippines.

As a sociolinguistic research field, LL investigates the use and visibility of languages in areas or spaces that eventually turn those into meaningful and navigable places. This involves the analysis of billboards, storefronts, advertisements, signs on public transportation and stations, recreational space displays, emergency and warning signs, and other signages in public environments. With the primary goal of examining the diversity, multilingualism, and language planning and policies in under-researched parts of the region, the book is a collection of an introduction to the emerging LL investigation in South-East Asia, eight chapters which are situated in Vietnam, Taiwan, Singapore, Malaysia, the Philippines, Hong Kong, China, and Indonesia.. It is a compelling collection of research reports with the unifying aim of delving into the linguistic landscapes that cover a wide array of contexts. In the given setting, most places where the studies were conducted share similar features – former colonies, developing economies, and culturally diverse populations. Due to these characteristics, it is apt to see how languages play a part in establishing each setting's landscape.

The chapters are grouped into three major units in the book's main body. First, the *Globalization and Mobility* unit discusses the role of mobility and the interaction between the local population and the people coming in due to globalization. The first chapter by Tran talks about the geosemiotics in the context of Hanoi, Vietnam. With an emphasis on the role of language in nation-building and the creation and resolution of social and ideological conflicts, this study reveals how people in Hanoi put effort into creating a glocalized environment that merges globalization and national authenticity. This authenticity is shown through the maintenance of the Vietnamese language, local designs, and symbols (logos and the Vietnamese flag) in business establishments' signs in the city. Meanwhile, the second chapter by Chen focuses on the Taiwanese context and a geosemiotic analysis of its two major cities: Taipei and Kaohsiung. Given that globalization is more evident in urbanized cities, Taipei was found to have more monolingual English signs, while Kaohsiung has Mandarin-dominant signs. Nevertheless, both cities' official and nonofficial public signs dominate in bilingual Chinese-English. The dominance of bilingual signs shows how the government

and private establishments see English as a tool for globalization and international relations while still adhering to the state's language policy at the expense of other minoritized local languages. Next, the second unit highlights minority languages. Chapter Three by Charmaine Ng looks into the multilingual reality in Singapore's public schools. English and Chinese dominate the schools' signages, students' work, and instructional materials, while Malay and Tamil are seen less. English has dominated the school signs since it is considered a *lingua franca*, a language to prepare students for social and economic mobility. Ong and Ben-Said's contribution in the fourth chapter discusses the LL in Penang, Malaysia. As a language policy, Bahasa Melayu must be given priority in public signage regarding font size, color, and position. Although such a policy exists, English and Mandarin still proliferate the public signage in Penang, and many grassroots authored signs have more of these languages than Bahasa Melayu and other local languages. Implementing the language policy in public signs had been lenient due to political reasons – people in the position pleasing the population for votes and popularity. The last chapter for this unit is Bernardo-Hinesley and Gubitosi's investigation of the status of Cavite Chabacano, an endangered Creole language in the Philippines. Due to limited resources in teacher training and materials allocation to this language, Cavite Chabacano has not been used as a medium of instruction for mother-tongue classes. Because of the little attention given to this, an effort was made to study its representation in the public sphere. Despite the people's positive attitude towards the Creole variety, signs are still dominant in Filipino and English. At the same time, the Cavite Chabacano has remained to be spoken rather than written. The third unit centers on *Constructing, Negotiating, and Contesting Identities*. The chapters delve into the community's linguistic practices in public spaces that reveal and maintain their identities in the ever-changing globalized settings. Chapter Six by Lam is about Hong Kong's display of its people's identity in a protest banner called the Umbrella Movement. Used as a political and protest tool, the banner, with the umbrella design integrated into the text, has made its way to other platforms, such as social media. Through semiotic analysis of protest materials, the researcher examined how the "transgressive signs"

were used to understand the identity from the perspective of the Hong Kong people and their stand on social and political events. The seventh chapter by Li and Yang stresses the identity manifested in signs in a Shanghai airport. Aiming to achieve global status, Shanghai has made multilingual public airport signs where people worldwide are welcomed and accommodated. Despite that, they maintained their identity by making Chinese characters significantly larger and positioned emphatically, with English transcriptions smaller and downplayed. With this, they are creating the Chinese dream of national revival and global integration. Lastly, Chapter eight by Yannuar highlights identity construction in Indonesia through translanguaging. This study explores the translanguaging practices on football banners in the city of Malang. While Indonesian (as the *lingua franca*) and English dominate the public spaces, the people's efforts to use Walikan (reversed Javanese language used as slang in informal settings) on their football support banners create a revitalization of the decreasing status of Javanese. These investigations present how people in South-East Asia put effort into using language to create and maintain the identities that eventually make up the linguistic landscape of their places.

This LL study collection is targeted towards several cohorts in the East and Southeast Asian region. First, urban planners and policymakers may use the information from the book to plan, propose, and implement language policies in public spaces. They may develop strategies that cater to the linguistic needs of the diversifying population in cities and urban areas. Leaders and developers of the community must be able to use the languages in public signages that are essential for public information and the preservation of local heritage and identity. Second, the book content can also be helpful for school administrators and language educators. As a sociolinguistic inquiry, LL is an academic field where the school can utilize and adapt the curriculum and language policies on campus. As microcosms of society, schools and universities have an important role in providing students insights into how valuable the appearance and dynamics of certain languages around the campus are. Third, future researchers and scholars of sociolinguistics may come up with further inquiries, observations, and analyses on how LL data

can be valuable in the more diversified community and a specific course of action or recommendation on how to use the data practically.

While the individual studies offer rich discussions of LL in particular places and contexts, they can improve on suggesting practical applications of how data can be used in language planning and policy-making. Generally, each study's main idea is to show what language/s dominate the public landscape, what languages are subdued or minoritized, and explain possible reasons for the state of such. Meanwhile, some studies have general recommendations following their discussion. For one, Ng enumerated how the data "sheds light" on the school's bilingual curriculum planning and pedagogy and polish the syllabi and technology use in the classroom that would prepare students for "Singapore's multilingual reality." (p.83). In another study, Ong and Ben-Said claimed there were inconsistencies in Penang's language policy and the actual presence of language in their landscape. With the other studies, these conclusions may be a source for readers to think about what problems exist in their contexts and reflect on how these are addressed using the data. Future researchers can give more explicit statements of courses of action to answer some questions from the book. Such inquiries include the following: *What can be modified in the syllabus to better bilingual language instruction in schools? How should the government address the mismatch between their language policy and the locals' language practices? Given that certain languages, such as English and the national language, dominate the LL of a place, what can be done to strengthen the presence of other local languages?* These questions have already been posed in the studies, and further examination might look into more specific recommendations and practical applications in the specified contexts. In addition to analyzing written and printed discourse, interviews may add depth to the decisions of stakeholders by considering the reasons and motivations of language policy makers and implementers, business owners, curriculum writers and educators in their linguistic choices and semiotic decisions.

Lastly, LL investigations of the City of Dumaguete in the Philippines can be a valuable contribution to understanding the language practices in the city and developing relevant language policies in the future. As the city

continues to change and grow, it is essential to look into the interaction of English, the local language, and other tongues that might come into play. As a university town where many students come from all over the country, the city's younger population can affect the situation of languages spoken and seen in its landscape. In addition, more foreign nationals and expatriates settle in the city due to marriage, business, and retirement. Forbes named Dumaguete City one of the world's best retirement sites in 2015 (McCarthy, 2015). It was also acknowledged as the city with the second-highest English proficiency in the country, just a point behind Baguio City in 2023 (Marcelo, 2023). These factors (and more) contribute to its changing linguistic landscape; hence, it is relevant that a thorough LL examination be conducted in the city so to assess the condition of its language practices. Amid globalization and continuous economic and population growth, looking at language that promotes diversity and cultural plurality and preserves local heritage and identity is necessary.

In conclusion, this book is an appreciable attempt to collate linguistic landscape studies in the under-researched areas in the East and Southeast Asia. The collection of these contexts grouped into three significant aspects of LL showcased the dynamics of language, policies, and people. The individual research articles are also written well, and the research process is clearly defined. Despite that, including more qualitative data sources, and the implications and practical course of action given the results and findings can be maximized in future studies. Still, it is a promising collection to introduce to the academe the status of the LL in some areas and, later on, be able to cover more aspects, fill more gaps, and suggest more courses of action in the volumes to come.

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