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Editor's Notes

“The heart and soul of good writing is research; you should write not what you know but what you can find about.”

-Robert J. Sawyer

“What is research but a blind date with knowledge?”

-Will Harvey

Research is always driven by curiosity and the perennial need to revise knowledge. Hence, a good investigation is prompted by queries whose answers are too good not to be shared. For many years, the Silliman Journal has been an avenue for scholars to publicize their findings and spark intelligent discourses about them. Welcome to the second issue of Silliman University's official multi-disciplinary journal!

In this issue, seven research articles are featured. The first three articles relate to the three important components of any academic institution: Instruction, Research, and Extension. They are followed by a visual reading of COVID-19 posters and two articles examining the effects of government and non-government organizations' activities. The last article in Filipino delves into one of the leading causes of death globally.

In her article, Beulah Rose R. Torres explores the quality of the culture of a Philippine private higher education institution by looking into its accreditation-related activities. By designing a qualitative study that banks on a self-study method, Torres provides an opportunity for academic leaders to reflect on their practices in preparing for site visits of accreditors.

Noticing a gap in research management in basic education, Karl Erickson Eborra investigates teacher/research coordinators' perceptions of the role, functions, and responsibilities of school-level research committee (SRC), which is absent in the Research Management Guidelines (RMG) of the Department of Education. His findings provide a basis for developing a policy note justifying the importance of SRC in the research management cycle;

thus, it has to be included in the Department of Education's RMG. Extension is an essential component of education. Considered learner-centered, it allows the enrichment of learning by immersing students in a different learning culture outside of school.

In their article, Emmanuel M. Preña and Cherrylyn P. Labayo share how Kirkpatrick's Evaluation Model can be used to evaluate a higher education institution's teachers' training extension program. When the COVID-19 pandemic started, the Department of Health released a number of posters.

In their article, Joseph E. Padilla and Corazon A. Padilla demonstrate a multimodal discourse analysis of selected COVID-19 Vaccination Campaign posters. Using Kress and Van Leeuwen's Grammar of Visual Design (2006), they explore the meaning potential of the chosen texts.

Jan Antoni A. Credo's article acknowledges the role of civic society organizations. In his paper, the co-production approach is used to examine how PAGBAG-O might reduce poverty by providing end users and customers with better public services.

In their paper, John Jonas F. Castuciano, Rheniel Dayrit, and Rodelio F. Subade acknowledge the value of creating marine protected areas (MPAs) to preserve marine biodiversity and solve the diminishing marine resources. They further attempted to determine the MPA's economic benefits and costs in a locality in the Philippines. The last full article is a qualitative study by Cheyene Franchesca M. Go, Francis Roy S. Gonzales, Millena Maia T. Gonzales, Sweetheart Angela C. Gonzales, Mari Anne Estefani G. Guerra, Joyce Anne Marie F. Guerrero, J-Ross E. Guillermo, Nelsie Faith M. Gumapos, and Ian Mark P. Nibalvos. In the paper, they further explore the concept of high blood by examining its meaning and etymology, among others.

In addition to these seven articles is a brief article on Silliman University's efforts to sustain community extension programs amidst the COVID-19 pandemic. Novee E. Maestrecampo Jr. shares Silliman's creative and innovative ways to keep the program afloat.

The cover art for this issue is courtesy of the visual artist and poet F. Jordan Carnice, a creative writing graduate of Silliman University's Department of English and Literature. As a visual artist, Carnice has joined many exhibitions that showcased his works

dealing with sexuality and environmental and societal concerns. As a writer, his works have appeared in local, national, and international publications.

The artwork in this issue is called “Good Vibes in the Time of Drowning.” The following is the artist’s statement: “It is no secret that climate change continues to affect communities and entire ecosystems in this world, worsening day after day, that it has been appropriately called the climate crisis. What is initially a negligible concern from several years past is, more than ever, now a highly irreversible end game for everything on the face of this planet. Unfortunately, we are only doing so little, even if we are losing so much. Many massive corporations, world leaders, and other influential individuals who have real power to do actual change seemingly treat this issue as a placeholder for public support to only progress themselves and not the environment. In short, the earth and the last of us are drowning in more ways than one. The artwork hopes to imagine that panic, rage, even grief, and mourning, even in the middle of man’s constant desire for comfort and merrymaking, could be essential in forming solutions that push for immediate action. ”

Warlito S. Caturay Jr., PhD
Editor

The Accreditation Activities of a Private HEI that Bind and Enhance the Structural/Managerial and Cultural/Psychological Elements of Quality Culture

Beulah Rose R. Torres

Silliman University, Dumaguete City, Philippines

Abstract

Accreditation is associated with quality assurance for continuous improvement. Thus, it is essential to ensure that a quality culture that gives concrete expression to quality is embedded in higher education institutions (HEIs), especially those pursuing accreditation. The landmark European University Association (EUA) approach to quality culture (QC) came up with a QC definition that pictures the two QC elements: structural/managerial and psychological/cultural, that work in synergy to nurture QC. Based on this QC approach, this study attempted to understand a Philippine private higher education institution (Pphei henceforth) quality culture through its accreditation-related activities in preparation for the on-site visit of an accrediting agency. The study specifically answered the following questions, with a single Pphei as the research site and its education managers as study participants: What are its preparatory accreditation-related activities? What are its processes and tools? A qualitative, self-study research method allowed education managers to reflect on and report their practices. The findings revealed activities, processes, and tools demonstrating shared values and quality commitment. However, the interplay between the university's structural/managerial and cultural/psychological elements of QC is strongly felt in limited departments and, therefore, must be expanded to include other units to compound the enhancement of its quality culture.

Keywords: quality culture, accreditation, university, higher education institution (HEIs), Philippines

Introduction

Due to the proliferation of higher education institutions in diverse settings catering to the multiple, sometimes volatile interests of stakeholders, quality has become a buzzword. Therefore, universities must ensure that students get their money's worth and that the quality of their program meets acceptable standards. From this perspective, the concept of quality culture is critical because, according to Rapp, president of the European Universities Association (Sursock, 2011, p. 6), quality culture "is the most effective and meaningful way that quality assurance mechanisms can ensure and improve quality levels and support a dynamic of change in universities." As a voluntary evaluation process, programmatic accreditation in the context of quality culture has not yet been examined within Philippine colleges and universities using a western model.

Although Tabora (2018), a Filipino Jesuit educator who served as president of a Philippine accrediting agency and in various Philippine universities, mentioned in his blogs the term quality culture in connection to the term quality assurance, the specific mechanics of his suggested framework are still in the making. On a broader scale, however, several studies have attempted to define QC (e.g., Berings, 2010); or classify QC types (e.g., Harvey & Stensaker, 2008) within the cultural theory framework. For example, some relate quality culture to total quality management (e.g., Hildebrandt, 1991; Jancikova, 2009). Others look at QC from a dialectical perspective, e.g., Cameron & Quinn, 1999; Harvey & Stensaker, 2008; Johnson, 1992; Kolsaker, 2008, as cited in Berings & Grieten (2012). Bendermacher et al. (2017), on the other hand, view QC in terms of factors that promote or inhibit it. While these studies have different definitions of QC, this concept is not extensive.

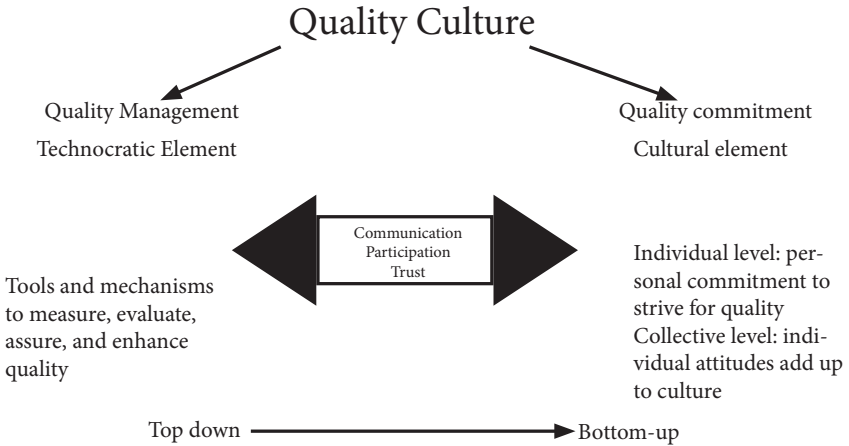
This situation substantiates the claim that quality culture is not widely appreciated, except among a group of European universities. In 2002, the European University Association (EUA) launched the Quality Culture Project, primarily aimed at improving quality levels (Quality Culture in European Universities, 2006). Although the participants recognized that QC is essential in enhancing quality le-

vels, they also surmised that QC among universities was indeed ‘taken for granted.’ Nevertheless, it was during the pursuit of the EUA’s project that the participants came up with a definition of QC which, since then, became the often-quoted QC approach (e.g., by Sattler & Sonntag, 2018; Bendermacher et al., 2017) to QC, as follows:

An organisational culture that intends to enhance quality permanently and is characterised by two distinct elements: on the one hand, a cultural/psychological element of shared values, beliefs, expectations, and commitment towards quality, and on the other hand, a structural/managerial element with defined processes that enhance quality and aim at coordinating individual efforts (Quality Culture in European Universities, 2006, p. 10).

This approach implies that QC involves shared notions of quality between the two elements (structural/managerial and cultural /psychological) that cannot be regarded as independent from each other (Quality Culture in European Universities, 2006, p. 20). In particular, the synergy of both elements, not their autonomous actions, nurtures QC. The educational managers ‘with defined processes, for instance, coordinate and direct individual faculty efforts. Facilitating this collaborative endeavor are ‘communication,’ ‘participation,’ and ‘trust.’ The European Universities further explain that the interplay of these elements demonstrates the culture of quality of an organization and ‘requires a balance between top-down and bottom-up approaches’ (Quality Culture in European Universities, 2006, p. 20). Sursock (2011) also explains that the concept of quality culture is, therefore ‘understood here as comprising two distinct sets of elements: “shared values, beliefs, expectations and commitments toward quality” and “a structural/managerial element with defined processes that enhance quality and aim at coordinating efforts.” He likewise emphasized the five (5) conditions that lead to effective quality culture: quality assurance instruments, clear accountability lines, engagement with the university community, investment through staff development, and institutional autonomy(p. 9).

Figure 1
European University Association (2006) Approach to Quality Culture



In the Philippines, QC narratives and practices are often associated with the concepts of quality assurance and accreditation (e.g., Ching, 2013; Conchada & Tiongco, 2015, Tabora, 2018), but there are no available local studies explicitly expounding on quality culture concerning accreditation, which was the focus of this study. The assumption was that by looking at this window, more quality-related events could be viewed and, therefore, may provide robust data in examining discussions about quality culture. For example, Desveaux et al. (2015) stated that accreditation can influence quality in Canada’s health care context. Tabora (2018) adds that “. . . accreditation is the most rigorous of quality assurance activities.” In other words, identifying the HEI activities leading to the readiness for accreditors’ on-site visits and what the college or department managers do with their faculty may clarify one’s understanding of the elements of quality culture.

The FAAP and CHED recognize three (3) accrediting bodies for Philippine private colleges and universities: PAASCU, ACSCU-ACI, and PACUCOA*. Across these three accrediting bodies, this is how accreditation occurs: The HEIs invite independent accrediting

bodies to examine the level of quality of the different aspects of their operations in specific programs. The purpose of accreditation is to grant certification that an institution's program meets acceptable educational standards. As a process, part of its requirement is to visit the programs on-site to interview the students, faculty, and stakeholders about the evaluation areas reflected in their self-survey instrument for undergraduate programs: Purposes and Objectives, Faculty, Instruction, Library, Laboratories, Physical Plant, Student Services, Administration, and School and Community (Gonzalez, 2010). The aim is to check if the program ratings of the self-survey and other documents align with what they see. The on-site visit results determine whether the HEI's quality level remains, increases, or decreases

On-site visits are part of certifying the university's quality level. After the assessment visit, the accreditors, through the FAAP, grant the university a certificate bearing the accreditation level it earned, for example, Level 1, Level 2, Level 3, or Level 4 (the highest). Aside from the certificate, the agency hands in a compliance report for each area assessed. This report also referred to as the accreditors' observation summary, reflects deficiencies that reflect the areas in the university in which quality culture has to be nurtured. How the university responds to these deficiencies is another way to track quality culture. Thus, this study specifically answered the following questions about a single Pphei: What are its preparatory accreditation-related activities? What are its processes and tools?

The two elements of QC in the EUA approach fit the aims of this study. In Figure 2, the EUA's structural/managerial element frames the activities performed by the QA office and the deans' offices. At the same time, the individual and collective represent the cultural/psychological elements of the faculty working under the deans' offices.

In the context of the university in this study, the specific activities undertaken by the structural/managerial dimension are 1) the actions taken by the programs relevant to the recommendations of the accrediting agency during their most recent visit; 2) the educational managers' activities leading to the completion of the self-survey report, and 3) the production of the required exhibits. If appropriate, the QA office oversees these activities.

Looking into Pphei's activities to examine the synergy

of the elements of QC is also consistent with the social practice approach that views practices in light of what people do. Rahnema (2020), for example, quoted Saunders (2011, p. 93), who says that practices are associated with: “whatever it is that people do as a response to a policy, an intervention, opportunity or initiative . . .” for example, quoted Saunders (2011, p. 93), who says that practices are associated with: “whatever it is that people do as a response to a policy, an intervention, opportunity or initiative . . .”

However, looking at these two (2) QC elements in the big picture of how this Pphei handles accreditation is necessary. Roughly, QC emanates from the university’s Office of the President, which invites an accrediting body to examine the quality of its programs. Once this is in place, the flow of communication within the university commences. The VPAA communicates with the QA office to meet the requirements of the accrediting body. The latter corresponds with the program heads, who pass the information to their respective faculty. The frequent interplay between management offices and faculty demonstrated ‘adequate communication,’ which Bendermacher et al. (2017) say is a prerequisite to diffuse quality strategies and policies.’

Methods

Research Goal

The general aim of this study was to determine if there is synergy between the structural/managerial and cultural/psychological elements of a Pphei as a manifestation of the presence and development of QC. Hence, it was essential to determine its specific accreditation-related activities and the processes and tools to prepare for an accreditation visit.

Participants & Data Collection

To attain the objectives of this study, I focused on a group of university deans/chairpersons of Pphei, specifically their activities along with their respective faculty, in preparation for onsite

accreditation in 2021/2022. Since the accreditation office that I head works hand in hand with these program managers and plays a substantial part in the process, I also incorporated data from my personal experience. However, I was careful that the discussion of results using office data is directly related to data collected from program managers, in addition to pertinent documents such as the accrediting agency's self-survey instrument and the accreditors' recommendations based on their previous visit. Thus, there were two sets of participants in this study: the director of the office in charge of accreditation (OA hereafter) and the university program heads (N=29) from whom data for the structural/managerial QC elements were drawn. Table 1 shows the participants and programs that will be accredited (with corresponding level of accreditation), namely: Bachelor of Arts (IV), Bachelor of Mass Communication (IV), Bachelor of Science (IV); Bachelor of Science in Psychology (IV); Bachelor of Elementary Education (IV), Bachelor of Secondary Education (IV), Nutrition and Dietetics (II), Computer Studies Program (II), Information System Program (II), Information Technology Program (II), Medical Technology Program (II), Bachelor of Science in Nursing (IV), and Grade School Program (II).

A self-study research method was used to determine the accreditation activities and processes involved. Laboskey (2004, p. 1) describes this as "a methodology for studying professional practice settings" as a way for an individual or a group of teachers to investigate and reflect on their teaching practice for continuous improvement. This method is further defined as "the study of one's self, one's actions, one's ideas, as well as the 'not self'" (p. 238). Although White and Jarvis (2020) argue that this is still a developing research method and that its use is limited to teacher education practitioners across Europe, the self-study method was utilized in this study because it has the potential to benefit the learning of a group of professionals from an array of disciplines in a specific private higher education in the Philippines, who are engaged in quality-related activities. In this study, this method was used with the assumption that the reports were based on the program heads' self-reflections shared with critical friends in the same group to enhance a quality culture by supporting each other and working together.

Table 1
Study Participants

| College/ Department in which the program is lodged | Number of Participants | Position |
|--|------------------------|-------------------------|
| Office in-charge of accreditation | 2 | Director |
| College of Arts and Sciences | 1 | Dean |
| Biology | 1 | Chairperson |
| English | 1 | Chairperson |
| Filipino | 3 | Chairperson & Faculty |
| Hist. Pol. Sci. | 1 | Chairperson |
| Math | 1 | Chairperson |
| Philosophy | 1 | Chairperson |
| Physics | 2 | Chairperson and Faculty |
| Psychology | 1 | Chairperson |
| Sociology | 1 | Chairperson |
| College of Mass Education | 1 | Dean |
| ICLS | 1 | Dean |
| | 6 | Faculty |
| College of Nursing | 1 | Dean |
| Grade School | 1 | Principal |
| Nutrition and Dietetics | 2 | Chairperson Faculty |
| n=29 | | |

Table 2 shows the three (3) sets of data used to address the research questions.

Table 2
An Overview of Data Resources

| Data Sources | Method of Collection | Research Question | Analysis of Data | Framework of Discussion |
|---|--|---|--|---------------------------------|
| 1. Observation summaries from the accrediting agency | Obtained from the files of the OA | Areas needing improvement among programs to be accredited | Summarized observations across the programs/thermatized/ranked | |
| Reports of program heads/ educational managers engaged in accreditation | Obtained through the OA meeting in which the program heads reported accreditation updates and interacted with each other | Activities and processes/tools utilized | Themitized and then, based on the Lanares grid, presented data in a table with three columns | EUA approach to quality culture |
| OA office director | Office journal entries | Activities and processes/tools utilized | Themitized and then based on Lanares grid, presented in a table with two columns | |

The first set of data, which is part of the accrediting agency's communication to the Pphei, that is, after its visit in 2015, was taken from the OA office files. The second set was taken during one of the OA's regular accreditation meetings in 2019. The study participants were asked a set of questions to guide their reports. Informed consent was obtained from all participants I included in the study. Upon submitting the reports' hard copy to the OA, the study focused only on the responses to this question: What activities have you undertaken to prepare for accreditation? The OA also answered the same question, which was the basis for collecting the 3rd data.

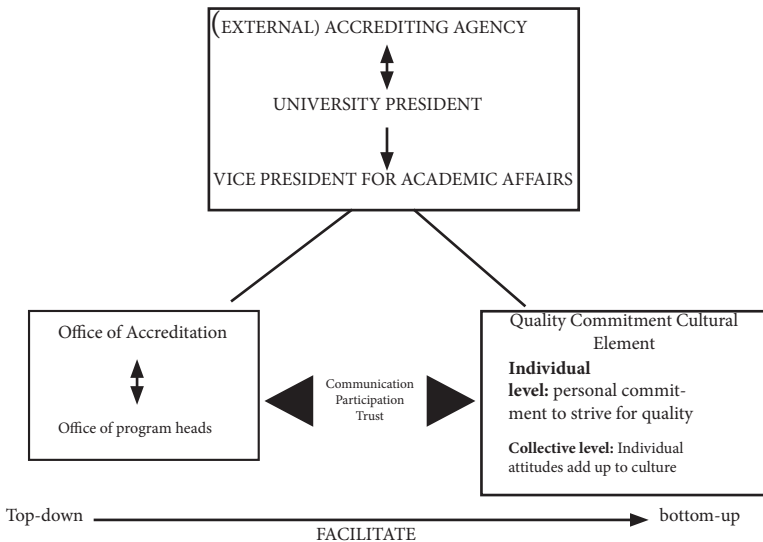
Analyzing of Data

For the first set of data, the accreditors' observations were themitized according to the parameters of the self-survey instrument

of the accrediting agency. The results were ranked according to the area that needs the most improvement. For the second set of data, the QA read the responses 3-5 times on an overall basis. Words and phrases in a sentence that answered the main research question were highlighted, as these became the unit of analysis. The grid (Lanares, 2009) was used to display the meaning units for both the description of the QA office and the collective responses of the program leadership and faculty. The meaning units in this grid demonstrate ‘what they do’ to prepare for accreditation. The office was careful that the meaning units retain ‘the context necessary to derive meaning from the data,’ as Roller and Lavrakas (2015) described.

Similar meaning units were grouped to form the categories. Then for each type, a theme was generated. The third set of data was taken from the 2019 office journal; the same method was used to process the data.

Figure 2
The Configuration of the Quality Culture of a Philippine Private Higher Education Institution (based on the EUA Approach to Quality Culture, 2006)



Inspired by the EUA approach (Figure 1), I interpreted the activities reported by the program heads based on the configuration of the elements of quality culture of the Pphei, as shown in Figure 2 above.

This study addressed the following questions about the Pphei's preparatory 'accreditation visit' activities: What are its preparatory accreditation-related activities? What are its processes and tools? These questions assume that participants' responses were related to the accreditation areas that need improvement the most: physical facilities, library services, faculty training, research development; revision of syllabi; administration; faculty hiring, and curriculum (OA office data, 2015). The focus of this study was on what the programs specifically did to address the recommendations of the accreditors was the interest of this study.

On the elements of QC in the Pphei Figure 2 shows that the elements of QC in this Pphei are observable in the interplay between the OA office and the deans' (chairs') office. These offices embody the structural/managerial dimension (represented by the following: the university president, VPAA, Office of Accreditation [OA], and Offices of the program heads); and 2) cultural/psychological dimension (represented by the individual managers of the said offices, and their respective faculty and staff involved in the accreditation activities). The collective level (see the box on the right side of Figure 2) represents the individual interchanges between the office managers and their staff and faculty. On the other hand, Table 3 shows the program heads' activities fall under seven themes: strategic planning, taking action, updating and aligning policies, capacity building, negotiating, involving stakeholders, and tracing graduates/student recruitment.

Table 3

Reported Activities of the Deans and Chairpersons, Tasks, and Leadership Roles

| Meaning Units of the reported activities conducted one year prior to the onsite visit in 2020/2021 | Emergent themes showing the TASKS | Leadership Roles attached to the activity |
|--|--|---|
| <ul style="list-style-type: none"> • Meetings among faculty, coordinators, and community partners • Scheduling of accreditation-related activities • Writing of requests • Activation/ Creation of committees, e.g. research groups • Formation of groups, clusters to address for various concerns • Budgeting and submission of budgetary requirements | 1. Strategic Planning | Strategist |
| <ul style="list-style-type: none"> • Identification and collection/ generation of documents as evidence of compliance e.g. gathering, collating, compiling (relevant accreditation-related data) • Following up (the faculty and concerned offices) | 2. Taking Action (to comply) | Researcher |
| <ul style="list-style-type: none"> • Purchase of new books • Creation/ Revision of handbooks • Syllabus revision e.g. making changes according to outcomes-based-education (OBE) principles, integrating service learning in subject and or program | 3. Updating and aligning classroom policies with national/ regional policies | Analyst |
| <ul style="list-style-type: none"> • Workshops for curriculum revision • Workshop for research writing • Faculty (trainings, seminars, conferences) then evaluating these activities; taking advanced degrees, e.g. , towards master's of doctorate degrees • Renewal of Professional Membership | 4. Capacity Building | Trainer |
| <ul style="list-style-type: none"> • Follow up the Buildings and Ground (incharge of the renovation of physical facilities) several times | 5. Negotiating with concerned units within the university | Negotiator |
| <ul style="list-style-type: none"> • Community visits to be able to evaluate projects, renew Memorandum of Understanding (MOU), schedule community engagement • Social orientation with partner community, signing of MOU with partner community, writing formative evaluation study, and making proper documentation | 6. Involving the stakeholders' with quality assurance | Community Servant |
| <ul style="list-style-type: none"> • Consolidating data of SU graduates in a certain period • Student recruitment | 7. Tracing alumni; Recruiting students for the program | Graduate Tracer (Student Recruiter) |

Table 4, on the other hand, shows the activities conducted by the

director of the accreditation office and the implied leadership roles

Table 4

Tasks of the Accreditation Office and Its Corresponding Leadership Roles

| Specific Tasks | ROLES of QA |
|--|--------------|
| Serves as a conduit between accreditors, university administration, and faculty interaction | Mediator |
| Sorts and classifies accreditor's recommendations across programs | Data Sorter |
| Thematizes data and displays on matrix/chart for easy visualization | Researcher |
| Using these data, organizes information dissemination/ orientation for concerned programs about the accreditor's comments | Organizer |
| Does action planning to strategize for ways to address accreditors' concerns e.g. facilitates the revision of instrument to rate teacher performance | Strategist |
| Schedules follow-up sessions with programs and other units (e.g. research, extension, build-ings and grounds) in preparing for accreditation | Supervisor |
| Assists and guides program in-charge if needed and if necessary through face-to-face or virtual sessions | Mentor |
| Evaluates results of OA's initiatives | Evaluator |
| Communicates results to the admin and concerned programs | Communicator |

On the Processes and Tools Evident in the QC Elements' Activi-ties

The EUA approach assumes that processes promote quality culture (Sursock, 2011, p. 9). From the participants' responses, some methods are observable: 1) a mix of several quality instruments, two clear accountability lines, and clarifying responsibilities at all levels, 3) quality assurance is not imposed; 4) investment in people through staff development; and 5) institutional autonomy. These processes may not match the examples presented by Sursock (2011). However, they may be applicable at this Pphei and may be regarded as promoters of quality culture.

Discussion

The reported management activities (Tables 3 and 4) are expected. A column on leadership roles was added to both Table 3 and Table 4 to demonstrate that these activities can be

translated into leadership roles that are expected for goal development, professional development, or motivation (Esia-Donkoh & Baffoe, 2018). The roles that the Pphei play align with the realist view of Bendermacher et al. (2017), which states that “effective leaders are considered to be those able to fulfill multiple roles, i.e., motivator, vision setter, task masters and analyzer. (Smart, 2003; Osseo-Asare & Pieris, 2007)” In the case of this Pphei, leaders have the potential to develop a set of shared beliefs about accreditation, model the nature of quality that accreditors envision, and set the priority that the program should focus with.

However, leadership type also counts. For example, “(L)eadership styles focusing on creating a culture of collegiality and consultation are preferred over styles addressing quality issues through inspection and control” (Davies et al., 2007; Osseo-Asare et al., 2005, as cited in Bendermacher et al., 2017). Overall, whatever leadership style is adopted, Bendermacher et al. (2017) remind us that “(L)eaders play an important role in the communication climate within the organization, as they can spread messages as well as specific expectations and instructions concerning responsibilities and tasks both vertically and horizontally” (Flumerfelt & Banachowski 2011; Sahney et al. 2010; Sakthivel & Raju 2006).

From the synergy that is evident in the tasks and roles of the OA director and program heads and from the cooperation and collaboration of the faculty, it can be said that in this accreditation pursuit, “shared values, beliefs, expectations, and commitments toward quality’ are present, and may have been present long before 2019 considering the current levels of accreditation that the programs already obtained, for example, Level 2, Level 3, Level 4.

On Processes and Tools

These findings suggest that quality culture processes are observable in this Pphei. These processes include: 1) A mix of several quality instruments; 2) clear accountability lines and clarifying responsibilities at all levels; 3) quality assurance is not imposed; 4) investment in people through staff development and 5) institutional autonomy

First, although there is only one self-survey instrument which the accrediting agency requires the Pphei to answer as part of the accreditation procedure, this instrument could not be completed without employing other survey instruments (to be able to provide data and thereby complete the survey), for example, the different evaluation tools for teacher performance and service-learning activities of this Pphei.

Second, the process of accreditation has clear accountability lines. Figure 2 shows that the process starts with the senior management requesting the accrediting agency for certification. The agency's approval followed this. The president informs the VPAA, who then passes the information to the OA, which consequently connects with program heads for their program faculty to act on. The feedback loop follows the same links until it reaches the senior management, who signs the documents for on-site visit approval. Third, not all programs of this institution go through accreditation, which shows that quality assurance from an external accrediting agency, for instance, is not imposed. In this study, only 14 out of the 90 programs were involved in the 2021/2022 season accreditation. Fourth, staff development is part of this process. In Table 3, the program heads reported that training was conducted to address the accreditors' recommendations. Finally, owing to the autonomous status periodically granted to the university, activities toward accreditation are not closely managed and monitored by senior management, thereby giving middle educational managers avenues for creativity and autonomy. For example, the OA and program offices adopted strategies at their level without VPAA approval.

Conclusion

For this Pphei, quality culture looks like a shared behavior in a chain linking the top senior management to its faculty. However, the development and enhancement of QC are felt most strongly in the interplay between middle managers and faculty. The reported accreditation activities transpired for three (3) reasons: the endorsement and support of senior leadership (the president and vice president for academic affairs) and the synergy of the offices

of the QA and the program heads (management) propelled by their leadership roles, and the shared goals of both the individual and collective levels within each program's cultural environment. These findings illuminate the Pphei's strategic and dynamic quality-assured activities propelled by conditions leading to the attainment of administrative processes that may have been effective over the years, the fact that 11 out of the 14 programs have already obtained a level 4 status (the highest). More importantly, the activities demonstrate shared values, beliefs, expectations, and commitment toward quality.

The reported activities, however, show that without the involvement of other offices mentioned in Figure 3, such as research, community engagement, library, and physical facilities, it is impossible to complete the accreditors' recommendations. Thus, even if the EUA approach helps to analyze a QC, the EUA approach must be extended to include other offices that can directly address accreditors' recommendations. Organization-wide continuous improvement must be shared. QC-focused activities must expand beyond the quality-related roles of departments where QC is strongly felt.

Recommendations

What is missing in the reported preparation for accreditation is student participation and involvement through feedback, e.g., faculty-student exchange of information and experiences, as suggested by Sursock (2011). The realist review of Bendermacher et al. (2017) necessitates the direct participation of students in developing quality culture. The student role is vital because this sector can strongly validate quality culture outcomes. Moreover, what is not also shown by the data are the opposing values that underpin QC (Berings & Grieten, 2012), such as managerialism versus professionalism or collectivism versus individualism. While it is essential to recognize the dialectical nature of QC, its presence in the reported activities is missing.

Another caveat is that if the shared quality culture is not directly translated into improving teaching and learning, their preparatory activities for accreditation may be meaningless. Finally, since the epicenter of the preparatory activities for accreditation

lies in the accreditation and program offices and therefore may not 'permanently' enhance quality (EUA, 2026), collective quality behaviors and mindsets integrated multilaterally across this Pphei, and in the context of regional and global standards, should be considered by this Pphei to advance the development of quality culture further.

Limitations

Data collection did not determine the reasons for the collaborative effort to participate in the accreditation process. Thus, it could not be determined whether the synergy between the two elements of quality culture resulted from the culture of compliance anchored on quality as a core value or the fear of non-compliance, which contradicts constant and continuous improvement. Further research to address these issues is required.

*Federation of Accrediting Agencies of the Philippines (FAAP) was established in 1977 and is authorized by the Philippine Commission on Higher Education (CHED) to certify the quality levels of accredited programs at the tertiary level to grant progressive deregulation and other benefits (Conchada & Tiongco, 2015).

PAASCU (Gonzales, 2010) is a 'private voluntary accreditation that provides the opportunity for an educational institution to attain standards above those prescribed as minimum requirements by the government' (What is accreditation?). PAASCU assesses an institution by matching the institution's vision, mission, and goals with the institution's actual practice in nine (9) areas: purposes and objectives, school and community, faculty, instruction, library, laboratories, physical plant, student services, and administration.

ACSCU-ACI- Association of Colleges, Schools and Universities- Accrediting Agency, Incorporated (Conchada & Tiongco, 2015)

PACUCOA - Philippine Association of Colleges and Universities Commission on Accreditation (PACUCOA) is a private accrediting agency that formally recognizes an educational institution by attesting that its academic program maintains excellent standards in its educational operations in the context of its aims and objectives

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(Ching, 2013; <https://www.pacucoa.com/about>).

Conflict of Interest Statement

The author declares that there is no conflict of interest.

Data Access Statement

Supporting or supplementary data associated with this article are available on request. Please contact oi@edu.su.ph

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The Roles, Functions, and Responsibilities of the School-Level Research Committee (SRC) in DepEd IV-A Calabarzon: Basis for a Research Management Policy Note

Karl Erickson Eborá

Schools Division Office of Rizal, Taytay, Rizal, Philippines

Abstract

The School Level Research Committee (SRC) is the only research committee not included in the Research Management Guidelines (RMG) of the Department of Education. This creates a gap in the management of research in basic education as there is no link between the other research committees, such as the Regional Research Committee, Schools Division Research Committee, and the teacher-researchers. Using quantitative research design, the researcher tried to determine the SRC in DepEd Region IV-A CALABARZON by identifying the teacher/research coordinators' perception of the importance and the extent of the practice of the roles and functions in the research management cycle, managing funds, special provisions, research partnerships, and monitoring and evaluation of the SRC despite the absence of a national policy. The study employed purposive sampling to determine the number of teachers/ research coordinators included in the study, totaling 193. These 193 respondents came from schools with teachers who have approved research under the Basic Education Research Fund (BERF). These teachers/ research coordinators were asked to answer the research instrument in the form of a survey questionnaire. Results of the study showed that the respondents perceived that the roles of the SRC are essential. In terms of practicing their roles, it was found that the SRC practiced to a great extent its roles in the research management cycle, funds management, special provisions, and monitoring and evaluation but practiced to a moderate extent its roles under partnerships. The study results were used as inputs in crafting a policy note that justifies the need to include the

SRC in the RMG policy of the Department of Education.

Keywords - basic education, policy note, quantitative research, Research management, Research Management Guidelines, Schools Research Committee, Research

Introduction

The Department of Education released DepEd Order No. 16, s. 2017 or the Research Management Guidelines (RMG). The RMG aims to strengthen the culture of research in basic education by providing directions in managing research initiatives at the different levels of governance and by improving support mechanisms for research such as funding, partnerships, and capacity building. The scope of the policy also covers instructions for eligible DepEd employees in availing of research funds.

To better implement the aims and the scope of the RMG, different research committees were set up at the different levels of governance. This establishment of research committees is an excellent move to ensure that research management is on the right track. According to Ayala and Garcia (2013), producing quality research and sustaining a research culture does not happen in a vacuum. For a research culture to thrive, it needs a free flow of information, an honest and analytical exchange of ideas, and supportive policy and administrative structures (National Higher Education Research Agenda-2, 2009-2018). This only means that research management requires the workforce to organize, manage, and lead (Project Management Institute, 2013) research initiatives and the furtherance of research culture.

Relatedly, the RMG identified the research committees, their functions, and the members of each committee. At the National Level, there is the National Research Committee (NRC); at the regional level, there is the Regional Research Committee (RRC); and in the Schools Division, there is the Schools Division Research Committee (SDRC) (DepEd Order 43 s. 2015). The NRC is expected to approve research proposals from bureaus, services, and those endorsed by the Regional Research Committee, which cover two

(2) or more regions. For RRC, they are projected to evaluate and approve research proposals and their related research initiatives for the region and schools divisions, particularly proposals to be funded under the BERF or any other fund lodged in the region. For SDRC, the committee is expected to evaluate and approve research proposals and other related research initiatives from the schools and community learning centers to be funded by the BERF (Basic Education Sector, 2017). All these committees are tasked to perform research initiatives such as spearheading the call for proposals, evaluation of research, approval and granting of available funds for research proposals, forging partnerships for research, and dissemination of results (DepEd Order No. 16, s. 2017).

Indeed, research committees are crucial in the implementation of research initiatives. As the years progress, the roles of the research committees also become more complex and intricate. According to Erno-Kjohlhede (2000), research management is full of uncertainty and complexity. Hence, strategies should move to greater consistency across the sector, identify and translate good practice, and harmonize the community so that training and development can be provided to a clearly defined and easily understood community (Green & Langley, 2009).

One of the objectives of the RMG is to provide a common direction in the management of research at the different levels of governance. The policy also harmonizes the research committees, their roles, and functions, as well as the members of the NRC, RRC, and SDRC to serve the teacher-researchers better. However, among the research committees enumerated in the RMG, the research committee in schools was not included in the policy. This creates a gap in the research management as there is no link between the other levels of governance (NRC, RRC, SDRC) and the teacher-researchers regarding the research management.

The situation is also inconsistent with the provisions of RA 9155 or the Governance of Basic Education Act of 2001, which underscored that the levels of governance in basic education are the national, regional, divisions, schools, and learning centers (district level is now part of the Schools Division Office). The law emphasizes the principle of shared governance, which recognizes that every

unit in the education bureaucracy has a particular role, task, and responsibility inherent in the office and for which it is principally accountable for outcomes. Yet, the RMG policy did not include the school level among the research committees, which created a gap in the research management process.

Relatedly, since DepEd recognizes the significant roles of research in the policy development process, the non-inclusion of the school-level committees in the RMG has a substantial impact on the policy development of the Department, specifically in employing a “systematic set of activities leading to the development of DepEd policies” (DepEd Order No. 13, s. 2015, p.2). This is attributed to the idea that at the school level, the committee is in charge of initiating, implementing, and overseeing research activities in the school. Their exclusion could mean that no committee will enforce the various activities, disseminate policies, and provide feedback related to research from the learning centers.

Moreover, the exclusion of the school in the RMG impacts the functions of the school head. A provision of RA 9155 states that the roles of the school head include being an instructional leader and administrative manager. As an instructional leader, he shall form a team with the teachers to deliver quality educational programs, projects, and services. Since research results are used to improve practices, a team must manage all the research initiatives in schools. With the absence of the research committee at the school level in the RMG, this function of the school has also been compromised.

With the above being said, there is a need to establish a research committee at the school level because they are critical to the research strategy-making process (Johnson, 2013). However, establishing the school-level research committee will require the definition of new roles and responsibilities to institutionalize research in the Department of Education (Basic Education Sector Transformation 2017). According to Kennett (2014), identifying the committee’s various tasks helps researchers and research managers assess how to deploy the resources over the available period. He also stressed that the primary control on how fast work can progress comes from the availability of people and how their efforts can be assigned across the necessary work. As research managers, the

performing their functions in formulating, developing, supporting, monitoring, evaluating, and promoting the research and research-degree activity of the school (Derrick & Nickson, 2014).

Despite the non-inclusion of the school-level research committee in the RMG that resulted in the absence of the link of the research management system at the school level to the other research committees, this study tried to determine the responsibilities, roles, and functions of school-level research committee or the SRC in DepEd IV-A CALABARZON. The results of the study were used as inputs to a research management policy note that specifies the roles and functions of the SRC. This policy note would be submitted to the Central Office and would serve as a recommendation to include the SRC in the RMG. Specifically, it aims to answer the following questions:

1. What is the level of importance of the roles of the school-level research committee (SRC) as perceived by respondents?
2. To what extent did the school-level research committee (SRC) perform its functions in terms of:
 - a. Research management cycle,
 - b. managing funds,
 - c. special provisions,
 - d. research partnerships, and
 - e. Monitoring and evaluation?

Literature Review

RA 9155 highlights that the State shall encourage local initiatives for improving the quality of basic education and for the improvement of schools learning centers and to provide how these improvements may be achieved and sustained. As a response, DepEd is mandated to “undertake national educational research and studies,” from which it can become part of the basis for necessary reforms and inputs (DepEd Order No. 43, s. 2015). The Department emphasizes research because it sees it as a continuous improvement tool. Through research, lessons from the past can be drawn, and existing education programs can be improved. Thus, DepEd strived to institute research and its utilization in policy and

program development and promote evidence-based policy formulation supported by research studies (DepEd Order No. 16, s. 2017).

Considering the above, the Department sustains its progressive orientation by ensuring that its actions are informed by sound and relevant evidence from research (DepEd Order No. 39, s. 2016). DepEd thrives that all its decision is the research-based, the same reason why the agency tries to develop a culture of research. However, experts assert that the process and management of research are complex and intricate (Erno-Kjohede, 2000). This is attributed to the advancement of research methodology and other improvements in research management. According to Riol and Thuillier (2016), new research funding methods have generated a strong demand for management procedures that hold research institutes accountable for meeting their obligations, maintaining their reputation, and remaining competitive in terms of their productivity. Because of the many complex processes ascribed to research management, the Research Office's functions and the demands on staff working in Research Management have become increasingly varied (Green & Langley, 2009).

Due to the various tasks and processes in research, there is a clamor for establishing research committees. Green and Langley (2009) defined a research committee as a group that monitors an institution's research activity and may also establish and monitor the Research Strategy. Moreover, the Research Committee was critical to the strategy-making process and was responsible for coordinating activities within academic departments and authorizing the final strategy document. In the Philippine basic education, research committees were set up at each governance level to guide research directions. At the national level, there is the National Research Committee (NRC); at the regional level, there is the Regional Research Committee (RRC); and in the Schools Division, there is the Schools Division Research Committee (SDRC) (DepEd Order No. 16, s. 2017). These research committees manage the research submitted by the teacher-researchers; however, since SRC is not in the RMG, there is a by-passing in the evaluation of research at the school level, which creates a gap in the implementation of the policy as the process skips a level of governance (school). Hence, the

RMG must be reviewed, and SRC must be considered in the policy.

Notably, the research committee at the school level (SRC) is not included among the research committees identified in the RMG. Thus, there is an evident incongruity between government-issued policies. RA 9155 emphasized the principle of shared governance, which recognizes that every unit (Central Office, Regional Office, Schools- Division Office, and Schools) in the education bureaucracy has a particular role, task, and responsibility inherent in the office and for which it is principally accountable for outcomes. Yet, the policy did not include the SRC as research managers, which creates a gap in the Research Management process. Since DepEd recognizes the significant roles of research in the policy development process, the non-inclusion of the SRC in the RMG substantially impacts research management. Looking back, DepEd utilizes participatory methods that consider relevant stakeholders' concerns (DepEd Order No. 13, s. 2015). The schools as the primary sources of research must be included in the procedure while excluding the SRC would mean a deviation from the participatory nature of the policy development in the Department.

While the RMG excludes the SRC in the Research Management Guidelines, leading institutions worldwide recognize the importance of the school-level committees or the SRC. They also enumerated the functions of the committee. The University of Bath (2020) in the United Kingdom and the University of Sussex (2020) have similar views on the roles and responsibilities of the committee of the SRC. Included in the list are the following: (a) the development, promotion, and enhancement of the faculty/ school's research strategy to meet the research objective as articulated in the plan; (b) the identification, monitoring, and promotion of how the faculty/ school can meet current and emerging research opportunities with the particular goals of increasing research income and the quality of research output meeting the other research objective as articulated in the plan; (c) monitoring, review, and improvement of research performance across the faculty/ school including oversight of bids for external funding, including the promotion of multidisciplinary research; analysis of research- related performance indicators, in particular, those used in national research assessment; and

promotion and sharing of good practice in respect of research.

Indeed, the SRC is critical to the strategy-making process (Johnson, 2012) and the implementation of research in an institution. As a result, creating research committees defines new roles and responsibilities in institutionalizing research in the Department of Education (Basic Education Sector Transformation, 2017). According to Kennett (2014), identifying the various tasks helps researchers and research managers assess how to deploy the resources over the available period. He also stressed that the main control on how fast work can progress comes from the availability of people and how their efforts can be assigned across the necessary work. The SRC, as research managers, are leaders tasked to advance and promote research capability by providing guidance and directions on research initiatives through BERA and resolving emerging issues in the management and conduct of research (Basic Education Sector Transformation, 2017).

To perform their functions better, the committee must know their research management roles. As research managers, the SRC are “servant leaders who serve the researchers so they may concentrate on the research”(Derrick & Nickson, 2014). As leaders, they must understand how to serve the researchers by performing their function in formulating, developing, supporting, monitoring, evaluating and promoting the research and research-degree activity of their institution” (p.27). Hence, as research managers, the SRC are tasked to ensure that their institutions’ research programs are on track and provide researchers with a supportive environment, smooth funding flows assistance in identifying appropriate research partners, and administrative support (Research Africa, 2013).

Considering the roles of the research committee, there is no doubt that the SRC plays a crucial role in promoting the research culture in an organization. Undeniably, the research committee is necessary for advancing research culture in any organization because “the Research Committee makes decisions and sets strategy; it does something” (Green & Langley, 2009). Also, including the SRC in the process will better implement the RMG because all levels of governance, from the Central Office to schools, will have their roles and functions in the research management in DepEd. This is more effective than the current practice wherein the evaluation

of research skips the school level, and the teacher-researchers go directly to the Schools- Division level and other higher offices (Regional and National) for research management.

Materials & Methods

Research Design

The study used the descriptive–normative method research design. This method is called descriptive or normative (Kerlinger, 1973). According to Good and Scates (1954), the term normative survey is sometimes used because surveys are frequently made to ascertain the normal or typical condition for practice or to compare local test results with a state or national norm. The present study examined the practices of the roles, responsibilities, and functions of the school-level research committee (SRC) in Region IV-A CALABARZON, which matches the description of the descriptive-normative survey.

Sampling

The researcher used quota sampling to determine the samples of the study. Quota sampling is a non-probability method in which researchers create a sample involving individuals representing a population. In quota sampling, researchers choose these individuals or respondents according to specific traits or qualities (QuestionPro.com 2020). In this study, the researcher identified the specific traits or qualities of the samples. In this research are the following:

- a. The sample should be teachers/ research coordinators from schools in DepEd IV-A CALABARZON. Since there is no research committee yet in the schools as per RMG, the teacher/ research coordinators serve as the designated ones in charge of managing research activities in the schools;
- b. These teacher/ research coordinators must come from schools with teachers who were recipients/ grantees of the Basic Education Research Fund (BERF) between cycles 2-4. The BERF is the

funding mechanism of DepEd, wherein grant recipients were determined by the research committees such as the RRC and the SDRC. The school-level research committee (SRC) is not included because there is no SRC in the RMG.

In using quota sampling, the researcher employed the following procedures:

a. Figure out the weightage of the group/s.

Using Slovin’s Formula, the researcher determined the size of the sample and the supposed percentage/ proportion per group at a 3% margin of error. Slovin’s Formula is presented below:

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

Where:

n= the size of the sample
N= the size of the population
e= the margin of error

The proportion/ percentage of samples per SDO was also determined. With the help of Slovin’s Formula, a minimum of 61% must serve as samples. To get the proportion/ percentage of samples per group, the researcher used the formula below.

$$\frac{n}{N}$$

Where n= sample size
N= Total population

b. Select an appropriate sample size.

The 61% of the population is the minimum percentage of samples that must be included in this study. However, for this research, the number of samples can exceed as long as the minimum of 61% is met. Hence, 193 teachers/ research coordinators (64%) from CALABARZON were chosen as samples of the study.

Table 1*Breakdown of Respondents*

| Level of Governance | Functions | Population Size | Invited Samples | Percentage | Data Producing samples | Percentage |
|---------------------|---------------------------------|-----------------|-----------------|------------|------------------------|------------|
| School | Teacher / Research Coordinators | 301 | 183 | 61 | 193 | 64 |

c. Conduct surveys according to the quotas defined.

The number of samples identified per group was given the questionnaire/ survey, which was distributed and administered using the Google Form.

Data Collection

This part presents the steps in data collection, which are divided into four parts. This part also includes the construction, validation, seeking permission, and administration of the research instrument and the data-gathering procedures.

Constructing the Survey Questionnaire

The first stage in the development of the instrument was the construction of the questionnaires. The researcher adapted the Research Management Guidelines and other works of literature to come up with the contents of the instrument. The survey questionnaire was composed of two parts: Part I dealt with the importance of the roles and responsibilities of the School level research committee (SRC); and Part II looked at the extent of functions of the school-level research committee in terms of Research management cycle, managing funds, special provisions, research partnerships, and monitoring and evaluation.

Validating the Questionnaire

After constructing the questionnaire, the draft was presented to a group of validators which were practitioners of research

management in basic education. These validators included the Chief of the Policy Research and Development Division (PRD), DepEd Central Office; the Chief of the Policy, Planning, and Research Division (PPRD), DepEd IV-A CALABARZON; Two (2) Public School Principals, and a Master Teacher II. All the validators were involved in research management as members of research committees at their respective governance levels. In the final version of the instrument, the researcher incorporated the suggestions and recommendations of the validators.

Seeking Permission to Administer the Instrument

Since the research is a region-wide study, the approval of the Regional Director of Region IV-A CALABARZON to administer the examination is necessary. Hence, the researcher prepared a letter that the Regional Director approved for the questionnaire distribution. Likewise, the researcher designed a letter to the respondents (RRC, SDRC, SRC members, school heads, teacher- researchers).

Administering the Instrument

The instrument was accessed through Google Forms. Due to the pandemic's national health crisis, the Google Form was the most convenient way to administer the survey. It is also efficient since it presents the data in Excel Form and allows easy data retrieval. In accessing the instrument, the following procedures must be considered:

1. sending of a letter request to the Regional Director;
2. acquiring the Regional Director's approval of the letter of request;
3. notifying the Senior Education Program Specialists(SEPS) or Planning Officer III regarding the letter of request;
4. distributing the letter request and the Google Forms to the respondents; and
5. collating of the responses.

The respondents can access Google Forms by using the online link bit.ly/SRCmembers.

Data Analysis

The data was interpreted and tabulated through the statistical treatments that best fit the required results. Frequency distribution, weighted mean, and ranking were used to interpret the data. Tables were also used in the presentation of the responses.

Data about the perception of the SRC's importance and extent of the SRC's functions in managing funds; special provisions; research partnerships, and monitoring and evaluation were interpreted using weighted mean.

The weighted mean is the single most typical or representative score that characterizes the group's performance. This is a computational average and is defined as the sum of measurements (X) divided by the number of samples.

Results and Discussion

This part presents the results as well as the discussion of these results. Literature and studies were also used to support the results of the paper.

Table 2

Importance of Roles and Responsibilities of the SRC

| Importance of Roles and Responsibilities of the SRC | QD | WM | R |
|--|------|----|---|
| 1. Provides directions on research initiatives through the national and local Basic Education Research Agenda. | 4.10 | I | 3 |
| 2. Provides directions on research initiatives on other identified priority research areas in DepEd | 4.13 | I | 2 |
| 3. Forges partnerships with academic and research institutions, government agencies, and other DepEd offices on education research initiatives and projects. | 3.81 | I | 6 |
| 4. Resolves emerging issues on the management and conduct of research at the school level. | 4.15 | I | 1 |
| 5. Ensures that cost estimates fall under the existing accounting and auditing rules and regulations. | 4.01 | I | 5 |
| 6. Endorses approved school-level proposals to the Division Office for review and inclusion into BERF. | 4.09 | I | 4 |
| General Weighted Mean | 4.05 | I | |

| | | |
|-------------------|-------------------------|-----------------------------|
| Legend: 4.5- 5.00 | Very Important (VI) | QD- Qualitative Description |
| 3.5-4.49 | Important (I) | WM- Weighted Mean |
| 2.5-3.49 | Fairly Important (FI) | R- Rank |
| 1.5-2.49 | Slightly Important (SI) | |
| 1.0-1.49 | Not Important (NI) | |

Table 2 exhibits the importance of the roles and responsibilities of the SRC. The table further shows that the respondents perceived that the roles and responsibilities of the SRC in research management are essential (WM= 4.05). Likewise, their roles such as resolving emerging issues on the management and conduct of research at the school level (WM=4.15, rank 1); providing directions on research initiatives on other identified priority research areas in DepEd (WM= 4.13, rank 2); and providing directions on research initiatives through the national and local Basic Education Research Agenda (WM= 4.10, rank 3) were significant.

It can be gleaned from the results of the current study that the SRC primarily addresses school-research-related concerns and sets the school research directions. Though the RMG did not stipulate the existence of the SRC, several studies and literature affirm that schools must have an existing research committee to perform the abovementioned functions.

Because of the many benefits of having a research committee in an institution, the establishment of a research committee was seconded by Green and Langley (2009). They said that the committee was critical to the strategy-making process and was responsible for coordinating activities within academic departments and authorizing the final strategy document. Likewise, due to the vast and complex roles of research managers, they are recognized as “critical enablers” of research and innovation goals directed at achieving growth, impact, and sustainability (Ivey & Henry 2016).

With the necessity to establish research committees in the different levels of governance- Central Office, Regional Office, Schools Division Office, the RMG is helpful because it already specifies the composition, roles, and functions of the different committees from the National Research Committee of the DepEd Central Office, Regional Research Committee of the Regional Offices, down to the Schools Division Committee of the Division Offices

(DepEd Order 16, s. 2017). Conversely, the ordeal sets in because the RMG did not include the research committee at the school level (SRC) as well as the roles and functions of the committees.

Table 3
Research Management Cycle

| Research Management Cycle | WM | QD | Rank |
|--|------|-----|------|
| In coordination with the SDRC, assists in the wide dissemination of the call for proposals in the school. | 4.27 | PGE | 1 |
| Evaluates the proposals using the criteria and scoring rubrics stipulated in DO No. 16, s. 2017. | 4.23 | PGE | 5 |
| Contacts the teacher-proponent for clarifications. | 4.26 | PGE | 2 |
| Provides comments, if any, to the proposals, for consideration of the proponent before the implementation of the research | 4.21 | PGE | 6 |
| Discusses with the researchers the status of their studies. | 4.19 | PGE | 8 |
| Provides technical assistance to the researchers based on the feedback from the progress monitoring. | 4.25 | PGE | 3.5 |
| Evaluates the modifications made in the research proposal for their approval. | 4.20 | PGE | 7 |
| Grants a researcher requests for an extension provided that there are valid reasons for doing such. | 4.08 | PGE | 11 |
| Assesses and decides the duration of extension that will not exceed one (1) year. | 4.07 | PGE | 12 |
| Collaborate with the researcher, takes measures to ensure the dissemination and utilization of research results in various settings across governance levels | | PGE | 10 |
| Provides a venue to actively disseminate results from completed research studies. | | PGE | 9 |
| Encourages researchers to analyze, consider, and incorporate the results in their practices. | | PGE | 3.5 |
| General Weighted Mean | 4.19 | PGE | |

Legend: 4.5- 5.00 Practiced to a very great extent (PGVE)
 3.5- 4.49 Practiced to a great extent (PGE)
 2.5- 3.49 Practiced to a moderate extent (PME)
 1.5- 2.49 Practiced to the least extent (PLE)
 1.0- 1.49 Practiced poorly (PP)

QD – Qualitative description WM – Weighted mean
 R – Rank

Table 3 displays the extent of the practice of the SRC in terms of the research management cycle.

The table further shows that the SRC practiced, to a great extent, its functions under the research management cycle (GWM= 4.19). Specifically, the committee practiced to a great extent its tasks, such as: assisting in the wide dissemination of the call for proposals in coordination with the SDRC (WM= 4.27, rank 1); contacting the teacher-proponent for clarifications (WM= 4.26, rank 2); providing technical assistance to the researchers based on the feedback from the progress monitoring (WM= 4.25, rank 3.5); and encouraging researchers to analyze, consider, and incorporate the results in their practices (WM= 4.25, rank 3.5).

It can be gleaned from the results that the SRC, in terms of the research management cycle, is primarily concerned with disseminating information and providing technical assistance to the researchers. In DepEd, communication can be a combination of upward and downward. Feedback, policy recommendations, and performance reports generated from the field offices going to the Central Office reflect upward communication. Whereas organizational targets, policy issuances, and memorandum cascaded from a higher office to a lower office signify downward communication of the agency.

Implementing the RMG, being a research management policy, takes a downward form of communication. The rules and regulations specified in the document should be practiced in all levels of governance, from Central Office down to the schools. Hence, the current study results are aligned with the expectations of a downward form of organizational communication wherein the SRC must disseminate research-related information from higher offices such as the Schools Division Office, Regional Office, and Central Office. The committee must also provide technical assistance to teachers from the training provided by the mentioned higher offices.

Meanwhile, several kinds of literature support the findings of the current study. Though the RMG did not stipulate the roles of the SRC, the University of Bath (2020) in the United Kingdom issued a list of roles and responsibilities of the committee. Among the list are the following: (a) the development, promotion, and

enhancement of the faculty/ school's research strategy to meet the research objective as articulated in the plan; (b) the identification, monitoring, and promotion of how the faculty/ school can meet current and emerging research opportunities with the particular goals of increasing research income and the quality of research output meeting the other research objective as articulated in the plan; (c) monitoring, review, and improvement of research performance across the faculty/ school including oversight of bids for external funding, including the promotion of multidisciplinary research; analysis of research- related performance indicators, in particular, those used in national research assessment; and promotion and sharing of good practice in respect of research.

Also, the University of Sussex (2020) released the critical roles of its school research committee. Emphasis is given to the development of activities such as: (a) monitoring the school's progress against the parameters set out by the research committee; (b) receiving and approving department research strategies; (c) facilitating the interaction between departments and schools to promote interdisciplinary research; (d) to manage and the school's engagement with key funding initiatives; and (e) to promote and exchange best practice with the enhancement and management and conduct of research and knowledge exchange activities.

Given the roles of the SRC in the research management cycle, the inclusion of the SRC will help the SDRC to lessen its functions specified in the RMG. Since the school has the first level of accountability in research management (Benner & Sandstrom, 2000), the SRC will greatly help SDRC because there will be a division of labor between the offices. The submitted research to the SDRC will be scrutinized more thoroughly as the schools have already conducted an initial evaluation, ensuring more quality presented research papers. Likewise, the volume of research submitted to the SDRC will be lessened because the SRC has already screened the papers. This interplay between the SRC and the SDRC will make the research management more efficient as the functions are distributed between the offices.

Table 4
Funds Management

| | FUNDS MANAGEMENT- | WM | QD | Rank |
|-----------------------|--|------|-----|------|
| 1 | Ensures that the expenses detailed in the research proposals are appropriate and necessary for research. | 4.00 | PGE | 2 |
| 2 | Ensures that cost estimates fall under the existing accounting and auditing rules and regulations | 4.01 | PGE | 1 |
| 3 | Prepares and submits reports on the utilization of funds to SDO. | 3.88 | PGE | 3 |
| 4 | Requests additional funding requirements from the SDO and another possible funding source. | 3.62 | PGE | 5 |
| 5 | Manages external research funds. | 3.64 | PGE | 4 |
| General Weighted Mean | | 3.83 | PGE | |

Legend: 4.5- 5.00 Practiced to a very great extent (PGVE)
3.5- 4.49 Practiced to a great extent (PGE)
2.5- 3.49 Practiced to a moderate extent (PME)
1.5- 2.49 Practiced to least extent (PLE)
1.0- 1.49 Practiced poorly (PP)

QD – Qualitative description WM – Weighted mean R – Rank

Table 4 exhibits the extent of the practice of the SRC in terms of funds management. The table also shows that the SRC practiced, to a great extent, its role under funds management (GWM=3.83). In particular, the committee practiced to a great extent its functions in ensuring that cost estimates fall under the existing accounting and auditing rules and regulations (WM= 4.01, rank 1); in ensuring that the expenses detailed in the research proposals are appropriate and necessary in the conduct of research (WM= 4.00, rank 2); and in preparing and submitting reports on the utilization of funds to SDO (WM=3.88, rank 3).

RA 9155, otherwise known as the Governance of Basic Education Act of 2001, mandated the schools to administer and manage all personnel, physical, and fiscal resources of the school. In this light, research committees play the roles of financial and fiscal managers when it comes to research management (Basic Education Sector Transformation 2017). Looking at the RMG sets how the committees manage the various research funds. The NRC recommends the release of research funds based on monitoring and evaluation reports, including but not limited to the BERF; the RRC

recommends the release of regional research funds and ensures that cost estimates fall under the existing accounting rules and regulations; while the SDRC ensure that cost estimates fall under the current accounting and auditing rules and regulations which is similar to the roles of the RRC. The functions under fund management will have been more accessible if the SRC is included in the RMG because a multitude of research studies will be submitted to the SDRC in the absence of the RRC. Also, the evaluation of research, which is a basis of fund release, can be a joint responsibility of the SRC and SDRC, which in effect, lessen the responsibilities of the SDRC.

Moreover, as financial and fiscal managers, research committees must be able to evaluate research proposals to ensure that they have complied with the requirements of the funding scheme. Benner and Sandstrom (2000) emphasized that research committees can influence research evaluation. Hence, schools should initiate the review of research proposals as they have the first level of accountability among the levels of governance. According to Kenett (2014), before a proposal can be submitted, there will generally be a need to obtain appropriate certification from the institution. This is because part of the responsibilities of a research director in schools is to establish a process for reviewing manuscripts before their submission to publishing outlets voluntarily submitted by school researchers (University of Glasgow n.d).

Table 5

Special Provisions

| | SPECIAL PROVISIONS | WM | QD | Rank |
|---|---|------|------|------|
| 1 | Observes the highest ethical standards and uphold ethical principles in evaluating and implementing research proposals to protect the learners and communities. | 4.49 | PGE | 3 |
| 2 | Ensures confidentiality in handling the data of respondents. | 4.55 | PGE | 1 |
| 3 | Provides consent forms where necessary | 4.53 | PGE | 2 |
| | General Weighted Mean | 4.52 | PVGE | |

Legend: 4.5- 5.00 Practiced to a very great extent (PGVE)

3.5- 4.49 Practiced to a great extent (PGE)

2.5- 3.49 Practiced to a moderate extent (PME)

1.5- 2.49 Practiced to least extent (PLE)

1.0- 1.49 Practiced poorly (PP)

QD – Qualitative description WM – Weighted mean R – Rank

Table 5 presents the extent of functions of the SRC in terms of special provisions. The table also shows that the SRC practiced functions under special provisions to a very significant extent (GWM= 4.52). Specifically, the committee practiced great time functions in ensuring the confidentiality in handling data of respondents (WM= 4.55, rank 1); providing consent forms where necessary (WM= 4.53, rank 2); and observing the highest ethical standards and upholding ethical principles in evaluating and implementing research proposals to protect the learners and communities (WM= 4.49, rank 3).

School research committees are tasked to manage the research plan effectively and efficiently and ensure that accepted research standards of research and ethical behaviors are met (University of Victoria 2021). School-level research committees, therefore, must adhere to legal mandates such as RA 10173 or the Data Privacy Act of 2012, which specifies that the data covered by the law, which includes personal information to be processed for research purposes, intended for a public benefit, shall be subject to the requirements of applicable laws, regulations, or ethical standard.

Regarding data to be used for research purposes, RA 10173 provides more details on handling the information. According to the law, data collected from parties other than the data subject for research shall be allowed when the personal data is publicly available or has the consent of the data subject for research: Provided that adequate safeguards are in place and no decision directly affecting the data subject shall be made based on the data collected or processed. The rights of the data subject shall be upheld without compromising research integrity.

Considering the abovementioned things, the Basic Education Sector Transformation in 2019 released a module for research managers entitled Evaluating a Research Proposal (ERP). The module discusses how research committees practice their role ethically. The document emphasized that the research committees must see to it that: (a) the confidentiality and anonymity of all respondents and their organizations shall be kept to protect them from possible harm or embarrassment; (b) participation in the research is voluntary, and the respondents would be asked of their consent to participate, where the purposes and expectations of the participants

are outlined clearly; (c) the participating organizations will be given an opportunity for feedback and debriefing and shall also receive a summary report of the essential findings and implications to enhance their professional practice.

Table 6

A Partnership Forged by SRC

| | PARTNERSHIP FORGED BY SRC | WM | QD | R |
|-----------------------|--|------|-----|---|
| 1 | State universities/ colleges and other academic institutions | 3.59 | PME | 1 |
| 2 | Non-Government Organizations (NGOs and Civil Society Organizations (CSO) | 3.49 | PME | 3 |
| 3 | Other Government Agencies/ Local Government Units (LGUs) | 3.58 | PME | 2 |
| 4 | Partnerships with Indigenous Cultural Communities | 3.26 | PME | 4 |
| General Weighted Mean | | 3.48 | PME | |

Legend: 4.5- 5.00 Practiced to a very great extent (PGVE)

3.5- 4.49 Practiced to a great extent (PGE)

2.5- 3.49 Practiced to a moderate extent (PME)

1.5- 2.49 Practiced to least extent (PLE)

1.0- 1.49 Practiced poorly (PP)

QD – Qualitative description WM – Weighted mean

R – Rank

Table 6 shows the extent of the practice of the SRC in terms of a partnership. The table also shows that the SRC practiced to a moderate extent its partnership role (GWM= 3.48). Moreover, the SRC practiced to a moderate extent its partnership with state universities/ colleges and other academic institutions (WM=3.59, rank 1); other Government Agencies/ Local Government Units (LGUs) (WM=3.58, rank 2); and Non- Government Organizations (NGO) and Civil Society Organizations (CSO) (WM=3.49, rank 3).

Literature suggests that institutions must amplify their network and linkages to advance the research culture. However, the figures show that the SRC did not maximize partnership opportunities. This is similar to the findings of the study of Fetalver (2010), that there was an “average” compliance with the minimum standards on research networks and linkages. Thus he recommended that “the system of research networks and linkages should be given

much attention and prioritization be it local, national, or international, because developing the research capacity is taking essentially into consideration the effective means and systems of networking and linkage within and outside the academic community” (p.19). Developing and forging partnerships of schools with stakeholders is also consistent with the law. RA 9155 underscores the primary function of the school in terms of networking and linkages. The law emphasized that schools should “establish school and community networks and encourage the active participation of teacher- organizations, non-academic personnel of public schools, and parents-teachers-community associations” (Section 5, par. (E)10). This is also true when it comes to research management. This is because “linkages and networks are effective tools for successful R&D management” (Mani et al. 2010, p.88).

Table 7
Areas of Partnership with the SRC

| | AREAS OF PARTNERSHIPS FOCUS ON... | WM | QD | R |
|-----------------------|--|------|-----|-----|
| 1 | Capacity building | 4.07 | PGE | 2 |
| 2 | Resource sharing | 3.96 | PGE | 3 |
| 3 | Research grants funding | 3.61 | PME | 4.5 |
| 4 | Research collaboration | 4.11 | PGE | 1 |
| 5 | Consultancy for government and industry research | 3.61 | PME | 4.5 |
| General Weighted Mean | | 3.87 | PGE | |

- Legend: 4.5- 5.00 Practiced to a very great extent (PGVE)
- 3.5- 4.49 Practiced to a great extent (PGE)
- 2.5- 3.49 Practiced to a moderate extent (PME)
- 1.5- 2.49 Practiced to least extent (PLE)
- 1.0- 1.49 Practiced poorly (PP)

QD – Qualitative description WM – Weighted mean R – Rank

Table 7 displays the extent of the practice of the SRC in terms of the areas of partnership. The table further shows that the SRC practiced, to a great extent, its roles under areas of partnership. Mainly, partnership areas will focus on research collaboration (WM= 4.11, rank 1); capacity building (WM= 4.07, rank 2); and resource sharing (WM= 3.96, rank 3).

It can be gleaned from the results that the partnership

focuses on research collaboration, training, and resource sharing. These roles agree with the study of Trindade and Agostinho (2014) about the skills of research managers that include networking capacity, capacity to liaise with the business sector, facilitator, teamwork, flexibility, people-person, soft skills, diplomacy, and conflict management. In the study of Talens (2010), she found that in a private institution, a research network is developed and sustained through external research collaboration with private companies, government institutions, and other universities.

On the other hand, Lumbo and Declaro (2011), in their study entitled *Triumphs and Failures in Managing the IPM Program in Occidental Mindoro: Lessons From the Experience of the Apostolic Vicariate of San Jose Livelihood Movement, Inc.*, proves the many benefits of partnership, particularly in resource sharing. They said that strong linkages with government and non-government organizations made seeking technical and financial assistance easier. The literature only proves that external connections and networking are necessary and part of the roles of the SRC.

Table 8

Monitoring and Evaluation

| | MONITORING AND EVALUATION | WM | QD | R |
|---|---|------|-----|-----|
| 1 | Conducts structured monitoring of the research management in the school. | 4.05 | PGE | 1.5 |
| 2 | Provides feedback for the improvement of the whole policy (RMG). | 4.04 | PGE | 3 |
| 3 | In coordination with the SDRC, it conducts an annual review of the effectiveness and efficiency of the RMG policy in achieving its objectives. | 3.93 | PGE | 4.5 |
| 4 | Feedback from the monitoring and evaluation is reported during the Program Implementation Review (PIR) or Monitoring and Evaluation Adjustment (MEA). | 3.93 | PGE | 4.5 |
| 5 | Provides feedback to the SDRC on approved, ongoing, and completed research. | 4.05 | PGE | 1.5 |
| | General Weighted Mean | 4.00 | PGE | |

Legend: 4.5- 5.00

3.5- 4.49

2.5- 3.49

1.5- 2.49

1.0- 1.49

Practiced to a very great extent (PGVE)

Practiced to a great extent (PGE)

Practiced to a moderate extent (PME)

Practiced to least extent (PLE)

Practiced poorly (PP)

QD – Qualitative description

WM – Weighted mean

R – Rank

Table 8 shows the extent of the practice of the SRC in terms of monitoring and evaluation. The table also displays that the SRC practiced, to a great extent, its roles under monitoring and evaluation (GWM= 4.00). Specifically, the committee practiced to a great extent its functions, such as: conducting structured monitoring of the research management in the school (WM= 4.05, rank 1.5); providing feedback to the SDRC on approved, ongoing, and completed research (WM= 4.05, rank 1.5); and providing feedback for the improvement of the whole policy (RMG) (WM= 4.04, rank 3).

Monitoring and evaluation are crucial aspects of research management. Marigmen and Macadaeg (2010) further explained why monitoring and evaluation are vital in research management. They emphasized that research projects were regularly monitored for proper decision-making. They also said that necessary actions were made based on the monitoring activities' results. They further recommended that monitoring and evaluation mechanisms be sustained to provide timely information about the projects and make the necessary managerial adjustments.

In the study of Beerkens (2013), results suggested that management practices affect research productivity positively. Relatively, monitoring and evaluation are crucial aspects of management, as emphasized in the study of Derrick and Nickson (2014). They said that the manager's role in monitoring research includes ensuring staff cooperate in the research effort, maintaining contact with researchers throughout the project, and checking with researchers before making changes in the program that might affect the research effort.

Conclusion and Recommendation

The non-inclusion of the school-level research committee or the SRC creates a gap in implementing the RMG policy. Its absence also hampers the promotion of the culture of research in basic education. To temporarily fill the gap, schools designated research coordinators who perform the supposed SRC functions. The results of the paper are based on the perceptions of these teachers/ research coordinators about the roles, functions, and responsibilities of the SRC.

It was found that the SRC plays a vital role in the research management process, especially in managing the research activities in the school. Though excluded in the Research Management Guidelines (RMG), the committee has taken the responsibility to ensure that research processes are in place and properly managed. They also provided that in performing their roles, functions, and responsibilities, their actions followed the RMG policy. Thus, the inclusion of the Schools Research Committee (SRC) in the Research Management Guidelines (RMG) to standardize the committee's roles, functions, responsibilities, and expected outputs is imperative.

However, it was found that among the practices of the SRC, partnerships, and linkages were performed less compared to the other areas of research management. This impacts the participatory nature of evidence-based policymaking in the Department of Education. The partnership of the schools with state universities/colleges and other academic institutions, other Government Agencies/ Local Government Units (LGUs), and Non-Government Organizations (NGOs) and Civil Society Organizations (CSO) must be strengthened to help the school not just in research but also in the delivery and implementation of basic education services.

Meanwhile, the low performance in partnerships and linkages can be attributed to the non-inclusion of the SRC in the RMG. Hence, a research management policy note is recommended. This research management policy note will focus on the inclusion of the SRC in the RMG, which highlights the roles and functions, compositions, and partnership and linkages opportunities. Additionally, the SRC's roles, functions, and responsibilities are the areas/ variables identified in the current research under the research management cycle, managing funds, special provisions, partnership and linkages, and monitoring and evaluation. This also serves as a feedback mechanism to determine which among the areas/ variables need technical assistance to implement the RMG better. The results of the study will also serve as inputs to the ongoing review of the Research Management Guidelines (RMG).

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Evaluation of a Science Teachers' Training Extension Program: Lesson Learning and Implications for Program Design

Emmanuel M. Preña

Cherrylyn P. Labayo

*Bicol University Center for Policy Studies and Development,
Legazpi City*

Abstract

This study presented an approach to evaluating a higher education institution's teachers' training extension program (HEI) using the Kirkpatrick evaluation model. The adapted model provided an excellent framework for identifying the strengths and weaknesses of the training process. Findings revealed that the extension program was effective at the model's reaction level (Level 1), as evidenced by a high level of satisfaction. The Level 2 (learning criteria) and Level 3 (behavior) of the model were not successfully documented due to limitations of monitoring data of the extension program. However, the final results (Level 4) were examined using the Qualitative Impact Protocol (QUIP). According to the QUIP findings, the participation of teachers in various training and seminars on science and ICT topics was widely cited as a positive driver of change across the three domains of the training program. Most teachers made positive implicit statements that corresponded to the expected changes that the extension program aims to achieve, but they made no explicit reference to the project. The analysis provided the extension practitioners with a holistic understanding of the preparation, design, and implementation of similar future teachers' training extension programs in HEIs, focusing on the professional development of science teachers.

Keywords: Evaluation; extension; Kirkpatrick model; qualitative impact protocol; training program; science investigatory project, computer literacy

Introduction

Higher education institutions (HEIs) in the Philippines perform three interrelated functions: instruction, research, and extension. Most academic institutions' primary role is to teach. However, for research universities, research can be their primary function. Meanwhile, extension is the third function of HEIs that uses research findings to share new technologies and innovations with extension clients in a community (Quimbo & Sulabo, 2014). As producers of knowledge or hubs of innovations, HEIs are mandated to transfer knowledge or technology to improve the quality of the human life of Filipinos. The Commission on Higher Education [CHED] (2016) broadly defined extension as "the systematic transfer of technology, innovation or information generated by HEIs and its partners to seek solutions to specific developmental concerns" (p. 8). Thus, extension is the community engagement mission for all Filipino universities (Bernardo et al., 2012).

The modalities of delivery of extension programs by HEIs differ. The majority of these are training extension programs in education, health, social service, and livelihood. Like other community interventions, extension programs must be subjected to impact evaluation, which measures the outcomes attributable to an intervention. However, according to the literature, only a few publications look into extension programs' long-term benefits and social impact (Soska & Butterfield, 2013). Furthermore, conducting a reliable evaluation of an extension program presents several challenges. For example, Sermona and colleagues (2020) discovered that one of the challenges faced by Philippine HEIs in evaluating extension programs was the lack of a monitoring and evaluation design. As a result, the majority of the impact studies conducted on community extension programs were heavily reliant on beneficiary perception. Monitoring and evaluation are critical elements for evidence-based policymaking because they provide tools for verifying and improving the quality, efficiency, and effectiveness of policies and programs at various stages of implementation (Gertler et al., 2016).

The purpose of this study was to present a method for evaluating the Legazpi Port District II Extension Assistance Program

for Science and Technology (LEAP for S&T). The Bicol University College of Science implemented this two-year training extension program from 2015 to 2017. The goal of this extension program was to provide support within the college's expertise to the capacity development needs of public science teachers. The program was pursued with the hope that by training teachers, they would become better educators. This will cascade effect on the students and hopefully on the educational institutions and community as a whole. In this light, the extension program focused on the capacity development of primary and secondary school teachers of Legazpi Port District II on (1) participation in science and technology (S&T) fairs, (2) quality of science investigatory projects (SIPs), and (3) computer literacy. Specifically, this study aimed to (1) assess the project's performance in terms of Kirkpatrick's Reaction, Learning, Behavior, and Results Model, (2) analyze differentiated narrative causal statements in the domains of science technology fair, science investigatory projects, and computer literacy; and (3) document lessons learned in evaluating extension efforts for teacher training programs on S&T and ICT to inform the design of future initiatives.

The outcomes of various evaluation studies of extension programs in the Philippine HEIs were usually measured using the conventional Likert scale (see Llenares, 2018; Montalbo, 2016; Salazar, 2020). However, in this study, the outcomes were assessed using the Qualitative Impact Protocol (QUIP), in which the narrative statements of beneficiaries served as evidence of attribution. Thus, this study also contributes to the literature on qualitative evaluation design.

Review of Related Studies and Literature

Teachers' quality is significant in improving the overall quality of education (Peterson, 2000). This demands interventions to improve the teaching skills of teachers so that educational objectives are met, particularly for public schools (Darling-Hammond, 1990; Darling-Hammond et al., 2017). Consequently, this translates to the performance of the students and the achievement of schools. The literature highlighted several interventions to improve the skills of teachers, one of which is the provision of teacher training (UNESCO,

2018a). Therefore, well-trained teachers are essential in achieving student learning outcomes (Seebruck, 2015; Sirait, 2016). Moreover, sustaining the teaching standards competence of teachers may require investment in training and development (Roberto & Madrigal, 2019).

In the Philippines, public schools encourage their students to conduct SIPs utilizing the scientific method through research as an entry to the annual S&T fair. This is organized by the Department of Education (DepEd) to promote S&T consciousness and a culture of innovation among the youth. This yearly event also identifies the most creative and innovative student researchers who will represent the Philippines in international competitions (DepEd Memorandum No. 134 s. 2018). Thus, this yearly event is a nationwide science research competition that begins at the school level and progresses to the division, regional, national, and international levels.

The SIP created by students with the help of their teachers is one of the requirements for a school to participate in the S&T fair. Autieri and colleagues (2016) described this S&T-related material as an instrument for students to make real-world connections and solve societal problems. Sanchez and Rosaroso (2019) documented the journey of secondary schools in SIP instruction through the lens of the teachers. Accordingly, science teachers must be competent to help their students develop practical projects using their critical thinking skills and “out of the box” perspective (see also Aparecio, 2018). Teachers frequently use their finances to conduct experiments and analyses in commercial laboratories because schools lack adequate laboratory facilities. Then, during the competition, science teachers instruct their students on how to disseminate the SIP results appropriately.

Meanwhile, ICT integration is also crucial in teaching. UNESCO (2018a) emphasized the importance of integrating ICT in schools and classrooms to transform pedagogy and empower students. It also suggests that students with high ICT literacy have higher academic achievement and that greater ICT literacy improves school learning outcomes (Lei et al., 2021). In science, ICT supports education in many ways. Databases, spreadsheets, and graphing tools can be used to teach science subjects (Demkanin et al., 2008). Thus, teachers have flexibility in teaching styles, allowing them

to modify their material according to their students' needs and learning styles. Research evidence also pointed to increased motivation, interest, and attention span of students when learning is supported by ICT (University of York Science Education Group, 2002). Similar results were confirmed in employing ICT in physics teaching regarding acquisition of scientific concepts and the growth of scientific knowledge among students (Mohammed, 2013; Wu & Glaser, 2004).

Existing literature on teacher training evaluation indicates varied results. For example, Owston and colleagues (2008) found that science teacher training programs positively influenced teacher attitudes and content knowledge. Ertikanto and colleagues (2017) also asserted that elementary teachers acquired new skills from attending training programs. Teachers who have gained skills from training can help students perform better in their science investigation projects by mentoring them (Aparecio, 2018). However, the results reported no changes in science literacy and teachers' attitudes due to participating in similar training programs (Crall et al., 2013).

On the other hand, training programs in information and communication technology (ICT) positively impact teachers' attitudes and competence (Dela Fuente & Biñas, 2020; Karagiorgi & Charalambous, 2006). However, the competencies gained in ICT training did not significantly improve student learning and achievement (Karagiorgi & Charalambous, 2006). Although the objectives and contexts of teacher training programs vary in the literature, evaluation can be an effective tool for determining whether or not the intended goals were met and ensuring greater relevance to learners' work roles (Nemec, 2018).

The final stage of every training is an evaluation which measures the outcomes based on objectives. However, this aspect of the training process is frequently neglected (Giangreco et al., 2009). Most of the reasons in the literature why evaluation was being ignored were the lack of awareness of or access to methods and tools for the evaluation process (Mdhlalose, 2020; Eseryel, 2002). The failure of evaluation has also been linked to a lack of understanding of the requirement for a reliable evaluation (Berge, 2008) and purposely limiting evaluations to simple satisfaction

metrics (Nemec, 2018). However, assessing training effectiveness does not need to be treated as a complex process (Praslova, 2010).

Recognizing the need for the teacher training program necessitates a credible evaluation to determine its effectiveness and future improvements. Therefore, an evaluation process can be successfully carried out using an appropriate methodology. Kirkpatrick's four-level model is considered the most widely used training evaluation framework that is straightforward, systematic, and practical (Kirkpatrick, 1976; Saad et al., 2013; Praslova, 2010). This model consists of four evaluation levels: Level 1-Reaction, Level 2-Learning, Level 3-Behaviour, and Level 4-Results.

Reaction refers to participants' perceptions of training after completing it (Kirkpatrick, 1976; Kirkpatrick & Kirkpatrick, 2006, 2009). This can be done by asking the participants to accomplish a post-training evaluation form. This level of evaluation does not yet measure what participants have learned but gauges the participants' interest, motivation, and attention levels (Smidt et al., 2009). The second level of evaluation is learning. This can be defined as "the extent to which participants change attitudes, improve knowledge, and/or increase skill as a result of attending the program" (Kirkpatrick & Kirkpatrick, 2006, p. 22). Thus, knowledge, skills, and attitudes are the three possible areas for framing the learning objectives of any program. This level may need a pretest and a post-test to examine whether or not learning has taken place. Assessing the participants' learning is a prerequisite for evaluating the next level of evaluation. However, this relationship can be erroneous. Arthur et al. (2003) attributed this idea that post-training environments may or may not provide opportunities for the learned material or skills to be demonstrated. The third level of evaluation is behavior. This pertains to the likelihood of transferring the knowledge and skills acquired when the participants return to their workplace. This level is quite challenging to assess compared to the first two levels. One critical consideration of this is when to conduct this level of evaluation. Two or three months after training is a good rule of thumb for some programs, but others may take up to six months or more to make the evaluation behavior more realistic (Axtell et al., 1997; Kirkpatrick and Kirkpatrick, 2006). In addition, level 3 does

not need to be elaborate or scientific by simply asking a few people. The evaluator can use interviews or questionnaires, or both at this level. The fourth level, the most important and, at the same time, the most challenging part of the evaluation process, is the determination of final results that measure the impact the training has had. This might include improvement in, for example, the performance of an organization, quality of instruction, and reduced cost. The evaluation process at this level varies depending on the context of the project and the field where it belongs.

For over six decades, Kirkpatrick's model is still relevant in the training evaluation field. Kirkpatrick and Kirkpatrick (2006) asserted the applicability of the model whether the programs are conducted in education, business, or industry, regardless of the content of the programs and the type of participants. For academic institutions setup, in particular, Kirkpatrick and Kirkpatrick (2006) stressed that there is no attempt to change behavior. The purpose of the training and development is simply to increase knowledge, improve skills, and change attitudes. In these cases, only the first two levels apply. However, all four levels use if the purpose is to get better results by changing behavior. Consequently, most researchers have confirmed the need to measure the four criteria of evaluation to evaluate training outcomes accurately.

The current study attempted to explore the evaluation of a teacher training program as the core theme of an extension project of a higher education institution using Kirkpatrick's four-level model. The results criteria, particularly the most sought after by stakeholders, were measured using the Qualitative Impact Protocol (QUIP) outlined by Copestake and Remnant (2014). The QUIP addressed the limitations of establishing the counterfactual by asking the participants directly to generate reasonable evidence of causation. Thus, this paper contributes to the literature on impact evaluation by applying qualitative approaches in evaluating a short-term teacher training program.

Materials and Methods

Study Area

The study was implemented in Legazpi City, Albay. In particular, the areas covered were the participating elementary and secondary schools under the Legazpi Port District II of the Department of Education (DepEd), Legazpi City Division. As mentioned in the introduction section, these schools were the target beneficiaries of the extension program.

Data Collection

The data used for this study were generated using documentary analysis and semi-structured interviews. The documents requested were reports about the progress and accomplishment of the extension program. The data for the survey was collected using a semi-structured interview. The questionnaire was patterned after the Qualitative Impact Protocol (QUIP) outlined by Copestake and Remnant (2017) from the University of Bath Centre for Development Studies. The questionnaire was composed of closed questions following the open-ended discussion. Open questions refer to generative questions asking the respondent to narrate any changes concerning the topic of interest (domains) from 2015 to 2019, if any changes have occurred, and the reasons for these changes. These domains were identified based on the extension project activities; for example, for the training on science investigatory projects, the outcomes of interest included participation in science technology fairs and quality of science investigatory projects of the school under evaluation.

Sensitivity and courtesy were observed before the interview. Respondents were provided informed consent emphasizing the anonymity and confidentiality of their responses. Furthermore, it was made clear that their participation was voluntary and that their information would remain confidential if they chose to end the survey at any time.

Sampling Design

The QUIP approach to sampling was through purposive sampling. Key Informant Interviews (KIIs) were changes and to whom or what they attributed these changes, which can be from multiple sources. Using the QUIP, research participants were allowed to share their experiences in an open, credible, and respectful way. There is no need for a control group since the evidence of attribution was sought through respondents' accounts of causal mechanisms linking the outcomes of interest to the training program (LEAP) alongside the other drivers of change rather than by relying on statistical inference based on participants' exposure to the project.

Analytical Design

The objectives of the study were analyzed using the four levels of evaluation introduced by Donald Kirkpatrick (1976). These four levels are reaction, learning, behavior, and results. The first three levels were evaluated by analyzing the available documents provided by the extension service providers. On the other hand, the results level was assessed using the QUIP. The data collected from QUIP was summarized using an Excel spreadsheet. Statements were coded into four types of statements: (1) Expl = change explicitly attributed to LEAP or explicitly named project activities; (2) Impl = change confirming or refuting the changes by which the LEAP aims to achieve, but with no explicit reference to LEAP or named project activities; (3) Inci = change attributed to other forces incidental to (not related to) the activities included in the LEAP's outcomes of interest; (4) Unat = change not attributed to any specific cause. The data was inductively summarized by identifying repetitions and patterns through immersion in the data. In addition, these statements were also coded according to whether respondents described their effects as positive or negative.

Limitations in Data

The study was initially designed to assess the impact of the

extension program following Kirkpatrick's framework. However, during consultations with the concerned extension manager, evaluation was only conducted immediately after the training ended. There was no monitoring made sometime after the program ended. As of writing, the division handling extension programs in the university do not require monitoring reports after the project has been completed. Such limitations in data precluded the research team from conducting a full assessment. Nonetheless, gaps and insights highlighted in the paper provided opportunities for lesson learning. Results in the study can be used as a form of assessment to appraise the process of proposing, implementing, and evaluating extension projects not only at Bicol University but also in other HEIs.

Results and Discussions

Adaptation of Four-level Evaluation Model to Evaluate Training Extension Programs for Science Teachers

Of the four levels of Kirkpatrick's model, reaction and learning can be considered internal criteria as they focus on changes within the training program. These first two criteria can be quickly done, provided that guidelines for evaluating reaction and learning are appropriately designed. Behavioral and results, meanwhile, can be considered as external criteria as they focus on changes that occur after the program and can be influenced by factors other than learning, such as the organizational and economic contexts (Alliger et al., 1997; Kirkpatrick and Kirkpatrick, 2006; Praslova, 2010). Unlike the first two criteria, behavioral results are relatively difficult to evaluate as more time will be required to decide on its evaluation design. The implementation of the four levels must be done sequentially. Level 1 must be assessed first before doing level 2 and so on. By doing this, conclusions at every level will not be compromised.

Reaction and Learning Level

The first two levels of training evaluation reaction and learning are internal. The reaction criteria measure how participants

react to the training they attended. Kirkpatrick and Kirkpatrick (2006) and other researchers described it as a measure of customer or client satisfaction. The assessment of client satisfaction involves the essential perspectives of “customers” about their experiences from attending the program. This level can measure one or multiple dimensions (Brown, 2007; Turner et al., 2018). For instance, in teacher training of an extension program for science teachers, the multidimensional constructs are the objectives of the activity, the usefulness/relevance of the activity, the contribution of the activity to community development, and the capability of the training provider. These indicators are helpful in the determination of trainees’ satisfaction levels in which the results can be a basis for enhancing the quality of training programs (Mulder, 2001).

The trainees’ reaction level was measured after attending each training using the self-administered questionnaires during the post-evaluation survey. Findings from this study showed that the trainees had a high level of satisfaction with each training they attended (Table 1). On a scale of 1 to 5, 1 being the lowest and 5 being the highest level of satisfaction, the average level of satisfaction of the trainees ranged from 4.62 to 4.95 from attending science investigatory project (SIP) and other science-related training. This indicates that science teachers had a positive reaction in the first level of Kirkpatrick’s model regarding the specified multidimensional constructs of the training.

Many studies have highlighted the importance of client satisfaction in evaluation. Trotter (2008) found strong correlations between client satisfaction and a program’s effectiveness. Hsieh and Guy (2008) and Morgan and Casper (2000) also asserted that clients rate higher levels of satisfaction when trainers are capable and comfortable performing the job. It appears that trainers played significant roles in the trainee’s overall satisfaction perceptions of the training. The trainers of LEAP for S&T were faculty members of the Bicol University College of Science who served as extension service providers and were experts in biology, chemistry, physics, mathematics, and computer science. This corresponds to the finding of Bayar (2017) that the quality of trainers and training delivery affected teachers’ satisfaction with mentoring activities. In addition, the relevance of the training was also found to be an indicator of

teachers’ professional growth and development (Lucas et al., 2017). The extension service providers provided the training according to the capacity development needs of science teachers in delivering substantial, motivating, and enhanced science courses to their pupils. For example, during the science investigatory project sessions, science teachers were given hands-on experience with the scientific method by being exposed to various biological, chemical, physical, and statistical procedures used to create science investigatory projects. Thus, the extension program was effective in attaining a positive response from teachers during the actual implementation of the series of training by considering the expertise of resource persons and facilitators who served as extension service providers.

Table 1

Summary of Training Evaluation Surveys on Teacher Training on Science-Related Topics

| Training conducted | Date of Implementation | Number of Participants | Average Satisfaction |
|--|------------------------|------------------------|----------------------|
| Science Investigatory Project 1 | Sept. 4-6, 2014 | 42 | 4.95 |
| Science Investigatory Project 2 | Sept. 6-7, 2014 | 23 | 4.68 |
| Training on Animal Handling | Feb. 9-10, 2015 | 18 | 4.62 |
| Mosquito Identification | Feb. 9-10, 2015 | 38 | 4.64 |
| Essential Microbiology using Household Tools | Feb. 9-10, 2015 | 18 | 4.65 |
| Science Investigatory Project 3 | Sept. 17-18, 2015 | 40 | 4.68 |
| Research Writing Workshop | Sept. 17-18, 2015 | 42 | 4.95 |
| Science Investigatory Project 4 | Sept. 22-23, 2016 | 37 | 4.77 |

Source: Bicol University College of Science (2021)

Note: No data available for the computer literacy component

After assessing the trainees’ satisfaction in the first level of Kirkpatrick’s model, the next level must answer whether or not the trainees learned anything from attending the training program. The

level of satisfaction alone does not necessarily mean the trainees acquired knowledge, developed their skills, and changed their attitudes. Thus, the learning criteria determine these expected outcomes from the participants after completion of the training. The expected learning outcomes were expounded further by Kraiger and colleagues (1993) and categorized into cognitive, skill-based, and attitudinal. The acquisition of knowledge falls under the mental aspect of learning outcomes, while the acquisition of technical skills is classified as a skill-based learning outcome. Finally, the attitudinal learning outcomes consist of factors such as participants' motivational disposition, self-efficacy, and goal setting that can be inferred as evidence of their development during training.

Potential training evaluation methods can be used to evaluate the learning outcomes of a training program, such as self-report measures, free recall measures, and pre and post-test measures – the most conventional and direct method. The pre and post-tests are typically used in higher education settings for assessing training effectiveness (Arthur et al., 2003). Although the procedures for evaluating learning outcomes are straightforward, the absence of these measures has direct implications in assessing Level 2 of Kirkpatrick's model. Therefore, a comparison of before and after training results that can indicate what changes have taken place will not be documented.

Evaluation at this level was not attained in the study. While pre- and post-tests are common forms of evaluating training programs to improve the participants' knowledge, the extension program providers failed to provide assessment tools in the form of pre- and post-evaluation that could have assessed the teachers' knowledge, skills, and attitudes. This suggests that improvements should be made in designing future training programs by including pre- and post-test in extension proposals.

Behavioral and Results Level

Applying the other two criteria (behavior and results) to teachers' training as an extension program requires adapting the model to a higher education institution's specific context and purposes (Praslova, 2010). Behavioral and results criteria are external

and thus are influenced by various factors other than learning. Among the criteria of the model, the data for these two are the most difficult to obtain, and such data are rarely completed. The behavioral criteria, in particular, identify the effects of training on the work performance of the participants in their workplace. This can be analyzed using quantitative and qualitative methods, especially in the education sector (Kirkpatrick & Kirkpatrick, 2006). In the case of science teachers in elementary and secondary schools, one potential evidence to evaluate behavioral materials and grading student works are some indicators to evaluate the behavioral criteria. Hence, follow-up data must be secured before evaluation. Typically, the best time to measure the behavioral change in participants, according to Kirkpatrick and Kirkpatrick (2006), is at least three months after the training. In a public school setting, this can be a whole school year comprising nine to 10 months in which S&T fairs are held in succession at different levels and periods – school level (September), division (October), regional (November), and national (February) – DepEd Memorandum No. 134 s. 2018.

This study was based on a two-year extension program focused on teachers' training that ended in 2017. Another constraint in this study was the unavailability of a post-training evaluation or follow-up data from the participants. Thus, the transfer of knowledge from the participants was not documented. According to the university's extension director (R. Zoilo, personal communication, October 13, 2021), follow-up data within a prescribed period after training is not standardized yet in the monitoring and evaluation system. Consequently, assessing the behavioral outcomes of teachers at the time of evaluation cannot be realized for three reasons: (1) depending on qualifications, public school teachers in elementary and secondary can be transferred to other stations, (2) some teachers who attended the training already retired from service, and (3) some students they taught already graduated. It was already five years since the project ended. Hence most of them were difficult to trace. As with the learning criteria, findings at this level suggest improvements in the implementation of extension programs in the university by requiring evaluation reports after the extension program has ended for some time.

The last and final level of the model is the final results that were accomplished because of the training program. This level is the outcome of the training program that usually focuses on organizational contexts. Therefore, it is necessary to consider the expected outcomes from the stakeholders' perspectives. Although results criteria in education may include a wide range of outcomes that expected outcomes from the stakeholders' perspectives. Although results criteria in education may include a wide range of outcomes that benefit the individual and the society, it is still imperative to be more specific. One way to determine the desired outcomes is to revisit the objectives of the training program. Hence, the evaluation of this study had four involved parties benefited: the elementary and secondary science teachers as the direct beneficiaries who attended the training program, their immediate students as indirect beneficiaries through cascading, the schools as their workplace, and the community where they live. These parties were the potential subjects for level 4 evaluation.

Kirkpatrick and Kirkpatrick (2006) suggested one guideline for evaluating results if the proof is not possible – be satisfied with the available evidence. The difficulties in assessing level 4 of the model were evident in the literature (see Berge, 2008; Mohamed et al., 2012). Some training programs only evaluated the reaction (Level 1), sometimes up to a learning (Level 2), assuming that it was already sufficient to assess whether or not the trainees had positive reactions to the training program. It could be assumed that trainees learned from the training, improved their work performance, and positively contributed to organizational results (Reio et al., 2017). These assumptions were turned down, considering there was no guarantee that a positive reaction assured learning, favorable behavioral outcomes, and better organizational results (Kirkpatrick & Kirkpatrick, 2006).

Among the potential parties involved in the teachers' training program, the teachers handling science subjects for at least five years in the participating schools were selected for level 4 evaluation. In this study, the outcome of the training program was evaluated through the key informants' perceptions of the changes from 2015 to 2019 in participating schools (Table 2). The year 2020 was intentionally excluded because of the mobility

restrictions imposed by the authorities in light of the COVID-19 pandemic. The data obtained from the respondents using the QUIP indicated a mixed picture of changes except for computer literacy. Six respondents reported that there were positive changes observed in the participation of schools in S&T fairs. Four also noted that the quality of their science investigatory projects made by their students significantly improved. This confirms the findings of Sanchez and Rosaroso (2019) that science teachers were seen to be instrumental in the SIP process as they instill basic research skills in students. Also evident in this study was the assistance and mentorship to pupils in creating a SIP that used minimal resources in low-resource schools. Meanwhile, positive changes in the use of ICT technologies in instruction were attributed to most of the respondents with computer literacy training. The literature also confirmed the positive effects of ICT training on teachers' confidence and teaching effectiveness (Galanouli et al., 2004; Xu & Chen, 2016).

Table 2
Responses to Closed Questions in QUIP

| Responses | Participation in Science Technology Fair n=23 | Quality of Science Investigatory Projects n=23 | Computer Literacy n=23 |
|-------------|--|---|---------------------------|
| Better | 6 | 4 | 21 |
| No change | 6 | 6 | 0 |
| Worse | 1 | 1 | 0 |
| Not sure | 5 | 6 | 0 |
| No response | 5 | 6 | 2 |

Source: Author's calculations

The self-reported attribution, in the form of narrative statements from respondents, was explored to determine the outcome of the extension project. The narrative statements for each training component were inductively grouped and then systematically tabulated the drivers of change mentioned by at least

two respondents. The main drivers identified were based on the three domains of the training program: (1) participation in S&T fairs, (2) quality of SIPs, and (3) computer literacy (Table 3). Participation in training and seminars was widely cited as a positive driver of change in the threedomains. The respondents viewed that their participation in various training and seminars was effective concerning improved participation in S&T fairs. This also made them more efficient in preparing learning materials for their learners. Limited resources, from financial to human, including time, were still identified as a constraint why some schools opted not to participate in any S&T fairs. However, it is important to note that the magnitude of the outcome among the beneficiaries in this study remains unknown. Therefore, the QUIP should be viewed as a method of contribution analysis rather than impact assessment (Copestake & Remnant, 2014)

Table 3

Most Widely Cited Positive and Negative Drivers of Change

| Domain | Positive | Negative |
|---|--|-----------------------|
| Participation in science and technology fairs | Participation in training and seminars (4) Access to the internet and gadgets (3) | Limited resources (2) |
| Quality of science Technology projects | Participation in training and seminars (4) | Limited resources (4) |
| Computer literacy | Participation in training and seminars (19) Self-learning (4) | |

Source: Author's calculations

Causal Statements of Respondents from KII

The narrative statements gathered from the KIIs were extracted to generate the number and the type of cause-and-effect statements that served as evidence of attribution (Table 4). Many respondents volunteered statements about positive drivers of change and most of which were implied. These implied positive

drivers of change confirmed the outcomes of interest the teachers' training program aims to achieve, but with no explicit reference to the project or named project activities. Most respondents explained how the training programs improved their professional development, student achievement, and teaching strategies. For example, one respondent believed that "training and seminars help improve their continuing professional development and learners' academic performance, especially in mathematics and science". One respondent also felt that her "students became more motivated and interested to learn and discover new things." On their participation in S&T fairs, one respondent stated that "the school has improved its participation by regularly joining to S&T fairs because of their students' output as an entry to the event." The quality of SIPs was also enhanced because of students' exposure to several S&T fairs and assistance from their teachers. For instance, one respondent reported that "the scientific inquiry skills of pupils were developed. This encouraged them to think and find solutions in creative ways and come up with an excellent SIP" This was supported by another respondent saying that "pupils developed the sense of confidence, responsibility, and trust among teammates." Another advantage of taking part in this teacher training program was the ability to integrate ICT into their classroom arrangements. For example, one respondent asserted that "through ICT training and seminars they attended, they were able to discover useful computer applications that helped them in making their teaching styles more engaging to learners."

Even though most of the respondents' positive narrative statements made no direct reference to the extension program, positive changes occurred in the three domains that the extension program aspired to achieve. The results from attending training programs in this study are consistent with the literature, which emphasizes the importance of teachers' professional development through training and the positive influence of mentorship on learners (Arnesson & Albinsson, 2017). Cribbs and colleagues (2020) asserted the benefits of attending a teacher training program in increasing inquiry-based instruction in mathematics and science classrooms. It aligns with Darling-Hammond and colleagues (2017) that effective professional development is critical for accomplishing

student achievement goals. Similarly, computer and internet literacy integration in classrooms can generate a strong positive attitude and appreciation among learners (Nuncio et al., 2020).

Documentation of Lessons Learned in Evaluating Training Extension Programs

This study met several constraints at all levels of the research that must be documented to come up with a lesson-learned framework design. This framework identifies areas where improvements can be made in implementing similar future training extension programs. Thus, this section summarizes the lessons learned from the teachers' training program implemented by the Bicol University College of Science that must be considered. The lessons learned were categorized into four factors that resulted in the sub-optimal achievement of the impact of the teachers' training program (Figure 1). These factors constitute the project design,

Table 4

Frequency of Causal Statements of Respondents from KII

| Indicators | Positive | | | | Negative | | | |
|--|----------|------|------|------|----------|------|------|------|
| | Explore | Impl | Inci | Unat | Explore | Impl | Inci | Unat |
| Participation in Science & Technology Fair | 0 | 6 | 2 | 1 | 2 | 0 | 1 | 3 |
| Quality of Science Investigatory Projects | 1 | 2 | 1 | 0 | 0 | 0 | 0 | 4 |
| Computer Literacy | 0 | 20 | 2 | 0 | 0 | 0 | 0 | 0 |

Source: Author's calculations

implementers, the teachers and students, and the confounding factors affecting the causal links between the project and its intended impact indicators. The analysis was based on the United Nations Development Programme (UNDP) Evaluation Guidelines (IEO UNDP, 2021).

Project design factors. The project design failed to capture the critical components of the evaluation process in the proposal stage of LEAP for S&T. This is because the proposal template for the extension project does not require an impact evaluation design. Thus, recognizing the importance of conducting an

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impact evaluation after completing a training extension program necessitates a well-defined impact evaluation design before its proposed commencement. An established evaluation design with a clear program results framework, SMART performance indicators, an impact evaluation method, and the timings and schedules for each stage, such as monitoring and follow-up data, can avoid constraints the LEAP for S&T experienced during its evaluation.

Project implementers factors. The roles of the project implementers in every step of the training management cycle are important in achieving the shared goal by meeting the project's objectives. The training management cycle comprised three significant steps: Step 1: Planning; Step 2: Implementation; and Step 3: Evaluation (JICA, n.d.). The first two steps of the project were carried out accordingly. However, the evaluation step was found to be challenging. The project implementers missed collecting the monitoring data necessary for evaluation, particularly for Kirkpatrick's model's learning and behavior level. This can be corrected when designing the project at the proposal level.

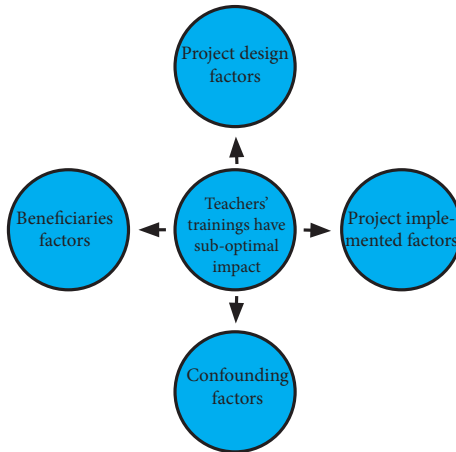
Beneficiaries factors. The beneficiaries of the training program include the teachers and students. Some of the teachers, including the school principals who directly benefited from attending the teachers' training program, were already transferred to other schools and retired from service during visits to schools for the evaluation. Thus, it was hardly impossible to locate the teachers in this case for them to participate in the current evaluation study. Similarly, some students benefited from the SIP component of LEAP for S&T through cascading of teachers who had already graduated. Also, it was not feasible to contact the students in this case.

Confounding factors. One main challenge encountered during the evaluation was the mobility restrictions because of the COVID-19 pandemic. Given this extreme situation, the evaluation was redesigned by excluding the respondents' perceived changes in 2020 to avoid attributions concerning the pandemic. Confounding factors also include similar interventions provided by institutions other than the project. Given its nature and contexts, this lesson-learned framework is not conclusive to other teachers' training programs.

However, this can be applied and enhanced for future similar extension projects regardless of the type of beneficiaries.

Figure 1

The Framework of Lessons Learned for LEAP and S&T:



Conclusions and Recommendations

This study illustrated that the Kirkpatrick evaluation model provided an excellent framework for identifying the strengths and weaknesses of the training process for science teachers in public schools. Based on the findings of this study using the adapted Kirkpatrick model, the LEAP for S&T was effective at Level 1 as it gained positive reactions in terms of the specified multidimensional constructs of the training. The teachers had a high level of satisfaction with each training they attended. However, the level of satisfaction does not necessarily equate to the acquisition of knowledge, development of skills, changes in attitudes of the teachers, as well as the transfer of knowledge to workplaces. With the absence of pre and post-tests for framing the learning objectives as well as the follow-up data for measuring the behavioral outcomes, the learning (Level 2) and behavior criteria (Level 3) were not successfully documented before the implementation of the last and final stage of evaluation (Level 4). However, these gaps and insights provided opportunities for lesson learning and implications for the program design of extension activities in HEIs.

Results from QUIP revealed that the participation in various training and seminars on science-related and ICT-related topics of teachers was widely cited as a positive driver of change among the three domains of the training program: schools' participation in S&T fairs, the quality of SIPs, and computer literacy. Several respondents provided positive implicit statements conforming to the expected changes the LEAP for S&T aimed to achieve, but with no explicit reference to the project or named project activities. However, the magnitude of the impact contribution of the training program was still uncertain. Thus, the narrative accounts of drivers of change can be viewed as evidence of attribution or a method for contribution analysis rather than impact assessment (Copestake & Remnant, 2014).

The lesson-learned framework indicated constraining factors that resulted in the sub-optimal achievement of the impact of the teachers' training program. These factors constituted how the project design was formulated, how well-known the project implementers were in the evaluation process, the situation of the beneficiaries, and the confounding factors affecting the causal links between the project and its intended impact indicators. Extreme events affecting the data collection were also considered in meeting the desired results. The identified constraining factors provided a holistic understanding for extension practitioners in preparing, designing, and implementing extension programs for science teachers.

The evaluation offered a space for improvements in implementing future extension programs by considering backward design in planning and determining the desired outcomes. In this manner of planning, extension practitioners will be informed of what data should be collected before, during, and after the completion of an extension program. This will ensure the reliability of the results of an evaluation by appropriately defining the program indicators. In future research, a more robust analysis of measuring the impact of a training program can be done by implementing both the qualitative and quantitative approaches of impact evaluation. These two approaches will provide a more profound and broader understanding of the effects of training programs.

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Multimodal Discourse Analysis of COVID-19 Vaccination Campaign Posters: Visual Grammar Approach

Joseph E. Padilla and Corazon A. Padilla

Department of Liberal Arts and Behavioral Sciences (DLABS)

Visayas State University

Visca, Baybay City, Leyte, Philippines

Abstract

Several studies have utilized multimodality to analyze texts such as advertisements, storybooks, posters, and videos. However, few have attempted to include COVID-19 vaccination campaign posters considering the currency of the issue. Thus, this study looked into the visual structures embedded in the representational, interactional, and compositional semiotic functions of selected vaccination campaign posters of the Department of Health (DOH) in the Philippines. It applied the Grammar of Visual Design (Kress & Van Leeuwen, 2006) to illustrate the meaning potential of the selected posters. Furthermore, it tried to explain how the various semiotic resources established the purpose of the discourse and the posters' communicative goal. The analysis revealed that narrative patterns, 'offer' images, personal distance, frontal horizontal angle, low vertical and eye level angles, and high modality was significant in the posters. Furthermore, the visual element was presented as new information, while the verbal element as given information, allowing visual content to be salient. Results suggest that the potential meaning of multimodal texts is improved when the relationship between viewers and represented participants is established. This can be achieved when viewers become part of the participants' worlds and experiences as depicted and represented in the posters. For vaccination campaign posters like these, the appeal to emotion is considerably valuable for yielding a positive response from the viewers. Consequently, people's responses will be geared toward vaccination and its perceived effectiveness.

Keywords: Multimodal Discourse Analysis, Visual Grammar, Representational, Interactional, Compositional

Introduction

There are other rich sources of meaning other than language. Language is only an aspect of a text where meaning is not limited. Halliday (1978, 4) substantiated that "... there are many other modes of meaning, in any culture, which are outside the realm of language." This notion implicates the indispensable roles of other semiotic resources as potential sources of meaning and (Baldry & Thibault, 2010) how these resources are used to "create other texts in addition to the spoken and written word." Similarly, these available multimodal resources in a particular culture are used to make sense "in any and every sign, at every level, and in any mode" (Kress & Van Leeuwen, 2001). Indeed, numerous diverse and expressive modalities contribute to the development of meaning in a complementary and integrated manner (Matthiessen, 2007).

As Halliday (1989) postulated, the functionality of language and texts are not limited to spoken and written forms. What is conveyed in language by using different word classes and clause structures, for example, can be expressed in visual communication by using different colors or compositional structures (Kress & Van Leeuwen, 2006). Undoubtedly, these multimodal resources allow images and text to enter the communication environment in new and significant ways (Jewitt, 2009).

Some multimodal posters can be visually described as having distilled text and distinguishing visual elements (Stepanov, 2016). Posters contain a considerable number of semiotic resources (i.e., images, verbal texts, colors, framing) that facilitate meaning-making among viewers and heavily rely on semiotic resources to signal the intended meaning of the producers (Oyebode & Unuabonah, 2013). As an information resource, posters can be indispensable in educating people about an issue. For instance, Dallyono and Sukyadi's (2019) analysis of environmental protection posters discussed the significant contribution of posters towards protecting the environment through environmental education. Similarly,

Isalambo and Kenneth (2020) have emphasized the use of compositional characteristics of posters like information value and framing, as well as connective devices to lead readers while engaging in multimodal public health communication regarding COVID-19.

The emergence of a global pandemic demands more vital positions for governments to provide invaluable information about COVID-19. In the Philippines, the Department of Health (DOH) established a system to deliver updated COVID-19 content to viewers, ranging from COVID-19 trackers, policies, and case bulletins. The use of social media sites like Facebook, according to Hunt (2015), makes the dissemination of health-related information rapid and can potentially influence behaviors on a large scale. Now, vaccination campaigns highlight the department's information drive in the account of achieving "herd immunity" in the country. However, this requires changing people's behavior toward vaccination and its efficacy. To realize this goal, the government should consider vaccination campaign posters effective in necessitating people to be vaccinated.

Hence, this study attempted to analyze the vaccination campaign posters of the Department of Health (DOH). Using the Visual Grammar (Kress & Van Leeuwen, 2006) as a theoretical framework, it aimed to describe the selected vaccination posters in three semiotic functions: representational, interactional, and compositional. Even more, it tried to explain how the various semiotic resources established the purpose of the discourse. Contrastingly, the study did not determine the effectiveness of the posters being analyzed.

Review of Literature

The following review highlights the theoretical framework mainly utilized in this study. The Grammar of Visual Design by Kress and Van Leeuwen (2006) provides a system of analysis to "describe how depicted elements – people, places, and things – combine in visual "statements" of greater or lesser complexity and extension" (p.1).

Visual Grammar

Kress and Van Leeuwen (2006) developed a system of

analyzing how semiotic resources, in particular texts, interactively work together to create potential meanings. They introduced their visual grammar to describe how depicted elements in texts are combined to create meaningful wholes. They strongly suggested that “the visual component of a text is an independently organized and structured message, connected with the verbal text but in no way dependent on it—and similarly the other way around.”

The “Grammar of Visual Design” has its theoretical roots in Halliday’s functional grammar. According to Halliday (1994), there are three metafunctions of language: ideational, interpersonal, and textual. The first metafunction involves using language to represent a person’s experience of the world, or in other words, the experiential function of language. It includes the analysis of functional constituents as participant, process, and circumstance. For Halliday (1985, p. 53), ideational metafunction is “the meaning in the sense of “content.” In visual grammar, the ideational metafunction is applied in understanding how visual elements “represent objects and their relations in a world” (Kress & Van Leeuwen, 2006).

The second metafunction is the interpersonal function of language. Interpersonal metafunction shows the use of language to encode interaction (Halliday, 1994). The speaker and listener relationship is established as they engage in a communicative situation. What is shown also are the interactive distinctions between whether participants are exchanging information or goods and the type of interactions as demanding or offering (Butt et al., 2000). Following this, the visual grammar framework suggests that “any semiotic mode has to be able to project the relations between the producer of a (complex) sign and the receiver/reproducer of that sign. Any mode has to represent a particular social relationship between the producer, the viewer, and the object represented” (Kress & Van Leeuwen, 2006, p. 42).

Lastly, the textual metafunction points to combining language resources into a coherent whole or text. Kress and Van Leeuwen (2006, p. 43) emphasized this, noting, “Any semiotic mode has to have the capacity to form texts, complexes of signs which cohere both internally with each other and externally with the context in and for which they were produced.”

Representational Semiotic Function

Similar to Halliday's ideational function, the representational semiotic function describes how semiotic resources in a text create representations of the world. Notably, there are two identified processes involved here: narrative and conceptual.

The narrative process involves a vector or a line formed by the depicted elements in the text, like the bodies, limbs, or tools "in action." Also, it can be formed through the eyeline or glance of the represented participants. The presence of a vector creates vectorial patterns or narratives that reveal the sequences and changes of events or processes in the text (Kress & Van Leeuwen, 2006). The participant from which vectors emanate is referred to as the actor, and the participant receiving them is the goal. In this case, an actional narrative is made. However, a reactional narrative is made when a vector is formed by eyeline or glance. In this case, the actor becomes the reactor, and the goal becomes a phenomenon. The action and reaction process can be transactional or non-transactional.

The conceptual process has no vector involved and represents participants in terms of their "more generalized and less stable and timeless essence, in terms of class, or structure, or meaning" (Kress & Van Leeuwen, 2006). That is, "conceptual processes are concerned with the representation of ideas in images where participants can be analyzed, classified, or defined" (e.g., charts, tree structures, and scientific diagrams) (Ly & Jung, 2015).

Interactional Semiotic Function

The interactional semiotic function considers the relationship of images and participants (interactive and represented) in text and corresponds to Halliday's interpersonal function of language. Included in the analysis is the social meaning encoded and organized by image-producers using the different semiotic resources (i.e., gaze, distance, angle). The viewers will make sense of the text and enter into an imaginary relationship with the represented participants and/or the interactive participants (image-producers).

Commencing the interactional analysis of a text is the

recognition of semiotic resources like gaze, social distance, and angle. The gaze establishes contact or a pseudo-social bond with the viewer, even at an imaginary level. Kress & Van Leeuwen (2006) emphasized the fundamental distinction created when participants look at the viewers or not. A demand for an image act is made when represented participants look at the viewers. This image act is used by producers if they want something from the viewers. The kind of relationship being established depends on the facial expression and gestures of the represented participants. A smile can mean that viewers are asked to engage in a social affinity relationship; a stare of cold disdain suggests that the viewers are asked to relate with the participants (e.g., as an inferior relates to a superior); a seductive pout can mean that the viewers are asked to develop desire towards the participants; a gesture of hand pointing at the viewer can mean that the participants want the viewer to come closer; and a defensive gesture, which can mean “Stay away from me” (Kress & Van Leeuwen, 2006). On the other hand, when represented participants in texts are not looking directly at the viewers, an offer is made. On this, viewers are transformed into “invisible onlookers” who scrutinize the participants as “specimens in display case” (Kress & Van Leeuwen, 2006, p. 119).

Other than the relationship created by gazes, distance is another element that builds interaction between participants. This involves the level of involvement of the viewers with the represented participants, and the casual relationship of physical proximity in everyday interaction is created (Horakik, 2015). Following Hall (1966), Kress & Van Leeuwen (2006, p.124-125) determined the following types of distance: intimate distance, close personal distance or the distance at which ‘one can hold or grasp the other person,’ far personal distance or the distance that ‘extends from a point that is just outside easy touching distance by one person to a point where two people can touch fingers if they both extend their arms’; close social distance or the distance at which ‘impersonal business occurs; far social distance or the distance where business and social interaction has a more formal and impersonal character; and public distance or the distance between people who are and are to remain strangers.’ It can be inferred that the closer the distance of the represented participants to the viewer is, the more intimate relationship is formed.

Another resource that institutes the relationship between the participants and the viewer is the angle or perspective. When applied to images, angles allow the viewers to develop subjective attitudes toward the represented participants. Kress and Van Leeuwen (2006) discussed two types of angles: horizontal and vertical. The horizontal angle emphasizes either involvement or detachment by positioning the participants as paralleled, aligned, or diverged from one another. A frontal horizontal angle shows involvement, while an oblique horizontal angle reveals detachment.

Furthermore, the vertical angle shows power relations among participants. For Martin (1968), a high angle denotes the subject as inferior or insignificant, while a low angle denotes the subject as superior or the feeling of exaltation and triumph. However, no power relationship is involved when the angle is set at eye level and equality is suggested.

Lastly, the modality of text also contributes to the interactional dimension of the multimodal text. The concept of modality, as applied in visual communication, refers to the degree of realism in the representation of the world. Kress and Van Leeuwen (2006) emphasize that defining realism depends on what is considered real based on some established criteria and its expression based on ‘right,’ the best, the (most) “natural” form to represent reality. Accordingly, the modality judgments, according to Kress and Van Leeuwen (2006), are “social, dependent on what is considered real (or true, or sacred) in the social group for which the representation is primarily intended” (p. 156). To achieve high modality in text, image-producers consider the following key markers: color, which can be through saturation, differentiation, and modulation; contextualization or the articulation of abstract; representation or the representation of pictorial detail; depth or perspective; illumination or the play of light; and brightness, or the lightness or darkness of the color.

Compositional Semiotic Function

The compositional semiotic function corresponds to Halliday’s textual function. It relates images’ representational and interactive meanings through the following systems: information

value, salience, and framing. Kress and Van Leeuwen (2006) explained that the position of elements (e.g., images and texts) endows them with a certain information value based on the various zones like left and right, top and bottom, and center and margin. In a left-and-right structure, given information is placed in the left zone while new information is on the right. Information is given if the viewers already know about it and are new if it is something not known.

On the other hand, the top and bottom structure reveals what information is real and ideal, with the top as ideal and the bottom as real. Ideal information includes the generalized essence of information or the most salient part, in contrast to the real, specific, or practical. Further, when elements are found in the center, they are considered the nucleus of the information, and the elements in the margin are ancillary and dependent.

Salience is also another resource in analyzing the compositional function of the text. Image-producers decide which elements should receive a more significant amount of salience in terms of placement in the foreground or background, relative size, and color contrast, among others, which enables them to attract the viewers' attention. Lastly is the framing, which points to the connection and disconnection of elements through dividing lines or actual frame lines (Kress and Van Leeuwen, 2006). Framing indicates whether or not elements in the text belong or do not belong in some way.

Related Studies

Numerous research employs multimodal analysis, particularly on posters, ads, and other forms of text. Specifically, Isalambo and Kenneth's (2020) investigations revealed how multimodal resources employed by poster designers help readers while engaging in public health communication. Guo and Li (2020) demonstrated that visuals and text collaborate in multimodal discourses regarding the COVID-19 pandemic to achieve their overall meaning. Similarly, Aning (2021) observed that the verbal and visual cues in COVID-19 posters on health services are intended to transmit an idea or message and communicate with readers to have a specific effect on them. The research by Jarreau et al., (2021) found that visual narratives enable

individuals to act on health information and incorporate it into their daily lives, enhancing health literacy. More findings show that the interaction of diverse semiotic resources aids in the formation of intended meanings at various levels (Bedi, 2019) and reveals a repeating narrative in the text that motivates readers to act (Deocampo, 2019).

Moreover, the multimodal analysis demonstrated the persuasive influence of advertising through representational functions reached through narrative and conceptual processes (Ananda et al., 2019). It emphasized the capacity of pictures to transmit multidimensional meanings in advertisements (Ly & Jung, 2015). When used to create storybooks, the combination of visual and verbal features enables young children to readily comprehend the narratives and maintain their interest in the tale being told.

Methodology

This study analyzed the purposively selected COVID-19 vaccination campaign posters of the Department of Health (DOH) in the Philippines. Correspondingly, eight materials were downloaded from the official Facebook page of the agency under the title “Resbakuna: Kasangga ng Bida” posts content. These posters depicted participants as healthcare workers and family members and were accompanied by verbal texts. However, in this analysis, only the visual structure of the text was considered, following the Grammar of the Visual Design framework (Kress & Van Leeuwen, 2006) as an analytical tool. Accordingly, each campaign poster was described and analyzed using the three semiotic functions of representational, interactional, and compositional. Initially, the visual structures were described based on how participants were represented, the suggested relationship between the participants and the viewers, and how the representational and interactive elements were integrated. Finally, an interpretation of how the identified visual structures relate to the purpose of the discourse was made. Remarkably, the description and analysis of the campaign posters were grounded on the assumption that posters in the Philippines were within the Western visual design. In their study, Kress and Van

Leeuwen (2006) noted that the discourses and iconography of Philippine advertisements leaned toward Western visual design.

Results

This paper analyzes campaign posters as texts using the Visual Grammar framework postulated by Kress and Van Leeuwen (2006). Employing the three semiotic functions, representational, interactional, and compositional, the authors identified the semiotic properties of campaign posters and explicated their meaning potential.

All campaign posters represented participants viewed as images of people (i.e., medical workers and family members). The narrative representations of texts were exhibited in Figures 1, 3, 5, 6, 7, and 8, in which narrative processes were identified through the presence of vectors. This oblique line was formed by depicted elements forming a directionality, demonstrating a connection or relationship between and among represented elements in the text (Kress & Van Leeuwen, 2006). Furthermore, the represented participants in the narrative appeared to be ‘doing something’ and could be identified as either transactional or non-transactional, consequently creating both action and reaction processes. On the other hand, Figures 2 and 4 seem motionless and “not doing something” in the text. This kind of representational characterization belonged to a conceptual process utilizing the symbolic process of attribution relations. The represented participants in this process were not engaged in any narrative process whose purpose is to display themselves to the viewer.

Moreover, the interactional semiotic function of texts suggests a form of interaction between the producer of the texts and the intended audience or viewer of images. The interactive participants (producer and viewer) were involved in different relations according to how they made sense of images (Kress & Van Leeuwen, 2006). To establish the interaction, viewers should decode the various social meanings encoded by the producers in the images using gaze or gesture, the distance of the represented participants to the viewers, perspective or angle, and modality, representing the truthfulness or credibility of an image.

On contact, most of the campaign posters represented

participants who were not making eye contact, which indirectly addressed the viewers. Represented participants, on this note, 'offer' themselves as objects for evaluation or scrutiny by the viewers. On the one hand, Figures 1, 2, and 4 projects 'demand' image acts that engage viewers in an imaginary relationship with the represented participants.

Also, five posters established a sense of involvement among viewers, as indicated by their perspective or angle. Images were placed at a frontal horizontal angle to connect the viewers with the participant's world. On the contrary, the participants in Figures 3, 5, and 6 were shown from the side at an oblique horizontal angle. Hence, viewers were detached from the participants and their world. Besides the horizontal angle, the vertical angle that showed power relations was found in posters. Participants in Figures 3, 5, 6, and 8 were at a low vertical angle, causing them to symbolically exercise power over the viewers (Kress & Van Leeuwen, 2006), while the remaining posters made evident equality or no power difference.

Also included in the analysis of interactional meanings was the distance, which established the social relations between the participants and the viewers. Based on the given classifications, seven posters comprised participants who established personal social relations (Hall, 1966, as mentioned in Kress & Van Leeuwen, 2006). The images were in medium close-up, prompting the participants to express personal relationships like those of a friend or family member. One of the posters, nevertheless, depicted a close social distance brought about by a medium-long shot. In brief, the posters were thought to have high modality based on several modality markers.

The compositional value of visual texts was as crucial as their representational and interactional semiotic functions. Elements associated with representational and interactional meanings were combined and linked here, integrating them into a logical whole. The interrelated systems of information values, framing, and salience was analyzed. Concerning information values, Figures 3, 5, 6, 7, and 8 positioned the text as given and the image as new, compared to Figures 1, 2, and 4, where the text is new and the image as given. Similarly, all identified participants were proven to be salient and essential items in the posters.

Below is the tabular presentation of the visual grammar analysis of the posters based on representational, interactional, and compositional semiotic functions.

Table 1

Representational Analysis

| Figures | Narrative | Representational | Conceptual |
|---------|---|------------------|---|
| 1 | One represented participant; action process; vector emanates from actor's thumb to text; goal is the text; unidirectional transaction | | |
| 2 | | | One represented participant; no vector; symbolic attribute relation depicted by symbolic medical items |
| 3 | One represented participant; reactional process; vector emanates from reactor's gaze; phenomenon is unknown; non-transactional | | |
| 4 | | | One represented participant; no vector; symbolic attribute relation depicted by symbolic medical items; |
| 5 | Five represented participants but two are salient; reactional process; vectors emanate from reactors' gaze; phenomenon is unknown; non-transactional | | |
| 6 | Three represented participants; reactional process; vector emanates from reactor's gaze; Baby's response is phenomenon of reactional structure; transactional | | |
| 7 | Two represented participants; action and reactional processes; vectors emanate from man's arm and woman's gaze; goal is the woman and phenomenon is giving of gift; transactional | | |
| 8 | Two represented participants but one is salient; reactional process; vector emanates from man's gaze; phenomenon is the child's reaction; transactional | | |

Table 2
Interactional Analysis

| Figures | Interactional | | | |
|---------|---------------|--|--|--|
| | Contact | Attitude | Social Distance | Modality |
| 1 | Demand | Frontal horizontal angle; eye level | Medium close shot; far personal distance; personal | High modality on other modality markers except for contextualization |
| 2 | Demand | Frontal horizontal angle; eye level | Medium close shot; far personal distance; personal | High modality on other modality markers except for contextualization |
| 3 | Offer | Oblique horizontal angle; low vertical angle | Medium close shot; far personal distance; personal | High modality on other modality markers except for contextualization |
| 4 | Demand | Frontal horizontal angle; eye level | Medium close shot; far personal distance; personal | High modality on other modality markers except for contextualization |
| 5 | Offer | Oblique horizontal angle; low vertical angle | Medium close shot; far personal distance; personal | High modality on other modality markers except for contextualization |
| 6 | Offer | Oblique horizontal angle; low vertical angle | Medium close shot; far personal distance; personal | High modality on other modality markers except for contextualization |
| 7 | Offer | Frontal horizontal angle; eye level | Medium close shot; far personal distance; personal | High modality on other modality markers except for contextualization |
| 8 | Offer | Frontal horizontal angle; low vertical angle | Medium long shot; close social distance | High modality on other modality markers except for contextualization |

Table 3
Compositional Analysis

| Figures | Information Values | Compositional | Saliency |
|---------|---------------------------|---------------|--|
| 1 | Image (given); text (new) | | Participant is contrasted; foregrounded; relatively big size |
| 2 | Image (given); text (new) | | Participant is contrasted; foregrounded; relatively big size |
| 3 | Text (given); image (new) | | Participant is contrasted; foregrounded; relatively big size |
| 4 | Image (given); text (new) | | Participant is contrasted; foregrounded; relatively big size |
| 5 | Text (given); image (new) | | Participant is contrasted; foregrounded; relatively big size |
| 6 | Text (given); image (new) | | Participant is contrasted; foregrounded; relatively big size |
| 7 | Text (given); image (new) | | Participant is contrasted; foregrounded; relatively big size |
| 8 | Text (given); image (new) | | Participant is contrasted; foregrounded; relatively big size |

Discussion

Analyzing how semiotic resources work in given texts offers affordances to the target audience in understanding meanings. Solely relying on verbal elements may not elucidate the intended message to the audience and inevitably hamper communication. Matthiessen (2007) exemplified various modalities' complementary and integrated contributions to creating meaning. Hence, recognizing the role of semiotics and its available resources (e.g., gestures, colors, sizes) as manifested by various modalities potentially increases the constitution of meaning in texts. Besides, "the visual component of a text is an independently organized and structured message, connected with the verbal text but in no way dependent on it—and similarly the other way around" (Kress & Van Leeuwen, 2006, 18).

Representational Semiotic Function

Generally, the vaccination campaign posters of the Department of Health (DOH) depicted real human images represented by participants. Drawing images from real-world objects establishes a meaningful and personal connection with viewers. The illustrations of medical workers and family members in the posters enhanced the function of the materials to disseminate health-related information.

Figure 1



Figure 6



Figure 3



Figure 7



Figure 5



Figure 8



In Figures 1, 3, 5, 6, 7, and 8, the represented participants were observed to be ‘doing something,’ as evident through the vectors formed. From this, narrative structure transpired to be action or reactional processes and transactional or non-transactional structures. In particular, action processes were apparent in Figures 1 and 7, where represented participants were perceived to have done something for the goal in a transactional process. As shown, a vector emanated from the participant’s thumb towards the verbal element inside the box in Figure 1. This verbal resource was the action’s goal, which became a critical aspect of the poster emphasizing the verbal message. Thus, the verbal text entered into an intersemiotic relationship with the image. In Figure 7, both action and reactional processes were expressed. The vector created from the man’s stretched arm holding a small box towards the woman demonstrated the transactional structure of an action process. On the other hand, the reactional process was realized from the

vector formed by the woman's gaze toward the small box. Giving a gift became the phenomenon of a reactional structure in which the woman was a reactor (Kress & Van Leeuwen, 2006). A man giving a gift to a woman is typical of gender roles in society in which men are perceived as givers and women as objects of gifts. Hurlock (2001) mentioned that an archetypal feminine personality involves passivity and dependency, while a masculine personality involves dominance and activity. Also, this image worked complementarily with the poster's verbal resource, signaling how vaccination can protract time being with your loved ones.

More reactional structures were expressed in Figures 3, 5, 6, and 8. A seemingly praying participant is represented in Figure 3. An outward direction of the vector from the medical worker's gaze was pointed to an unknown entity, which could be a celestial being in this sense. Perhaps the image producer desired to reveal a hopeful and strong 'front liner' amidst the pandemic. Though a symbolic cape of heroism was attached to the image, still, what was being emphasized here was the participant's dependence on the divine. In Figure 5, two represented participants were highlighted through color contrast. Set in the background were members of the family who appeared to be younger than the foreground participants. A vector emanated from the foreground participants' gazes towards an upward direction—a symbolic representation of looking into the future. The absence of a phenomenon categorized the image as a non-transactional reactional process and left the viewers to imagine what the reactors were looking at or thinking about. Thus, according to Kress and Van Leeuwen (2006), it creates among viewers "a powerful sense of empathy or identification with the represented participant."

Contrary to Figures 3 and 5 as non-transactional reactional processes, the presence of phenomena in Figures 6 and 8 classifies them as transactional reactional processes. The older adult and woman were reactors, and the vectors formed from their gaze toward the child resulted in a phenomenon (the child's reaction). Similarly, Figure 8 contained a reactor gazing towards the child in which the child's reaction became the phenomenon. A concentric theme of gazing at a child in Figures 6 and 8 illustrates parental aspiration to apportion what they have for their

children's future. In doing so, the producer intended to employ the emotional dimension of images in relating to the viewers.

Figure 2

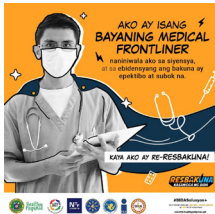
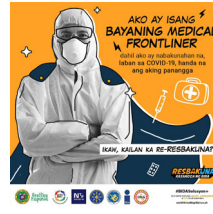


Figure 4



Further, when participants appeared to be “motionless” or “not doing something,” a conceptual representational process was exhibited. In Figures 2 and 4, the represented participants were in a symbolic attributive relationship. They were posing for the viewers’ scrutiny and did not engage in any actions that could be interpreted as narrative. Medical items (i.e., stethoscope, syringe, kit) functioned as symbolic attributes associating participants with the medical world or profession, thus establishing their identity as medical workers. It can be inferred from this set of images that the amplification of authority imposed on the viewers’ inhibition of vaccination. Highlighted, as well, was the profound desire of the department to reestablish people’s confidence in the efficacy of the vaccines, as displayed by medical workers receiving the initial doses.

Interactional Semiotic Function

The second metafunction in Kress and Van Leeuwen’s (2006) Visual Grammar involves the interaction between the represented and interactive participants. In analyzing the interactional semiotic function of posters, the contact established by gaze, attitude created by perspective or angle, social distance, and modality marker should be considered.

According to Royce (2007), the presence or absence of visual techniques determines the speech function of a particular visual. The direction of a participant’s gaze has potential meanings regardless of whether the participants look directly at the viewers. In cases where represented participants look at the viewer, both the participants and the viewers are involved in an imaginary relationship or

contact (Kress and Van Leeuwen, 2006). They termed this image “demand. On the contrary, some images indirectly address the viewers, as the represented participants do not look at the viewer. The type of image projected here is an ‘offer’ (Kress & Van Leeuwen, 2006) that identifies the represented participants as items of information or objects of contemplation.

Figure 1



Figure 2

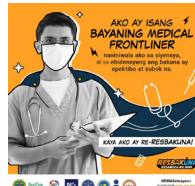


Figure 4



There were three posters exhibiting demand images. Figures 1, 2, and 4 represent participants engaged in addressing the viewers to do something or carry out an action. For Halliday (1985), gazes express demand from the viewers, resulting in an imaginary relationship. For instance, participants asked the viewer to relate to them, as shown by their cold, disdainful stares. The participants directed the viewers to be part of their world in a pseudo-social bond. In context, these demand images pulled the viewers towards being vaccinated and believing in the efficacy of the vaccines.

Figure 3



Figure 5



Figure 6



Figure 7



Figure 8



On the contrary, the represented participants in Figures 3, 5, 6, 7, and 8 did not develop affinity but an impersonal and detached relationship with the viewers. No demand from the image producers was directed at the viewers since no eye contact was established. In such cases, they offer information for viewers to acknowledge or contradict and do not demand the reader to carry out a particular action (Guijarro & Sanz, 2008).

Figure 1



Figure 2



Figure 4



Figure 7



Figure 8



As for angle or perspective, most images were at a frontal horizontal angle. In Figures 1, 2, 4, 7, and 8, the viewers were involved in the represented participants' world. The image-producer wanted to probably immerse the intended viewers in the lives of the participants. In this kind of campaign, it is imperative that viewers and participants relate to particular experiences. Viewers should be part of the participants' world to create accord and agreement on the information embedded in posters. This is to ensure that what is perceived to be experienced by the participants is similar in the real world. Although involving viewers in some kind of relationship is essential, some posters appeared detached.

Figure 3



Figure 5



Figure 6



The participants in Figures 3, 5, and 6 were positioned at an oblique horizontal angle. The sense of being "other" was empha

sized as viewers were not involved in the participants' world. Just like an offer image, this depiction positioned the participants as an object of evaluation among 'invisible onlookers' (Kress & Van Leeuwen, 2006).

Figure 3



Figure 5



Figure 6



Figure 8



Other than involvement and detachment, the angle reveals power relations between participants and viewers. Figures 3, 5, 6, and 8 show a low vertical angle, while the rest have an eye-level angle. According to Kress and Van Leeuwen (2006), a low vertical angle expresses a power difference. In the posters, participants positioned at a low angle expressed feelings of exaltation or triumph. Viewers were positioned to see the exuberance and to admire the same feeling after being vaccinated. In an eye-level situation, equality is imposed. Posters containing participants' eye-level angles articulated no power difference. The goal of the image-producer was to equalize relations between viewers and participants. In doing so, viewers can associate their personal disposition with the represented participants and act in the same way as the participants.

Medium-close shots convey a personal layer of friendship or family relationships regarding social distance. The posters set up a social environment where viewers could get into a closed relationship circle with participants. Effectively, these posters on vaccination project a sense of accountability as "family" would not want their members to suffer.

In terms of modality, all posters could be treated as having high modality, as exemplified by the saturation, differentiation, and modulation of colors. Representation, depth, illumination, and brightness also showed balance, contributing to the natural and realistic depiction of the images. The participants received ample representation of their physical attributes, like clothes, hair color, and so on. However, as noted, the posters projected decontextualization, making the participants appear typical rather than particular

examples. The decontextualization was the effect of the absence of a setting due to less articulated backgrounds. An interpretation of why the backgrounds in the posters were unmodulated could be to emphasize the salient part of the image. So, the viewers' attention was drawn to the people being shown and not the things around them.

Compositional Semiotic Function

In the compositional semiotic function, the object of analysis was the relationship between representational and interactional elements. Primarily, the discussion revolved around the three compositional principles of information values, or the placement of elements in various zones; salience, or the identification of eye-catching elements; and the framing, or the belongingness of elements in a text.

For information values, the majority of the posters had verbal information in the given zone and represented participants in the new zone. The given zone suggests that the information presented in verbal mode is already known to the viewers, while the new zone includes something the viewers are not yet knowledgeable about. In this sense, the image-producer would like to present the image as "problematic" information. This is to direct the viewers to the represented participant rather than the verbal message. Thus, it can be inferred that the emotions or experiences expressed by the represented participants were more important than the verbal message. The image-producer believed that highlighting the dramatic actions of participants could be an effective way to get the intended viewers vaccinated.

On salience, it could be noted that represented participants had significant sizes and colors. Viewers could easily identify the participants in a given frame. Basically, for size, important elements occupy more space in the background. With the other elements, the size of the represented participants was way more prominent than the text. To infer, verbal messages were deemed secondary in importance. Represented participants become the prime bearers of the most important information. However, it must also be noted that visual and verbal elements work interdependently in the posters (Kress & Van Leeuwen, 2006).

Generally, the colors utilized in all the posters were similar,

with orange dominating the background and blue for the text. Blue and orange are complementary colors in the color wheel. Therefore, a combination of these colors evokes balance. More importantly, orange is considered “extrovert and playful, demanding attention and appealing to adolescents and young children (Ambrose & Harris, 2005, p. 112),” making the campaign posters visually appealing to people. Moreover, the color blue is associated with hospitals and sickness, and its use in the posters revealed the kind of service offered by image-producers. Eiseman (2000) emphasized that the color blue connotes reliability, trustworthiness, dependability, and commitment. For a campaign like this, the Department of Health (DOH) must establish credibility as to the efficacy of the vaccines. Thus, the prevalence of orange and blue colors helped them achieve the purpose of the discourse.

Conclusion

In brief, analyzing the poster as a visual communication tool on health-related issues can provide invaluable information on its effectiveness. With the pandemic in sight, people need clear and accurate knowledge when making decisions, particularly about vaccination. In response, the Department of Health (DOH) put up posters for vaccination campaigns to meet this need. The analysis of the selected posters revealed that they represented animated participants composed of medical workers, or “front liners,” and family members. Narrative processes were dominant, consisting primarily of reactional structures. Further, most posters contained “offer” rather than “demand” images. The image-producer would likely provide active engagement among viewers without insisting on their performing an action. The goal probably was to allocate space for voluntary vaccination among people without suppressing their rights. The personal relationships established by close medium shots enriched the effectiveness of the posters in making the viewers part of the experience. Supported by the frontal horizontal angle, viewers become immersed in the represented participants’ world.

Additionally, power relations were established in terms of low angle, probably suggesting the triumph of represented participants.

The posters showed a high level of realism based on color saturation, differentiation, and modulation. However, they were decontextualized due to the absence of background. Lastly, visual elements were placed as new information, while text elements were given information.

These findings suggest that posters can be an effective resource for health-related information when various semiotic resources are interactive and integrative in achieving the purpose of the discourse—interactive and integrative means working together visual elements to carry out the text’s intended meaning. Indeed, the potential meaning of multimodal texts may be improved when a relationship between viewers and represented participants is established. This can be achieved when viewers are actively engaged in the participants’ worlds and experiences through representations such as distance, frames, angles, perspectives, modality, and salience.

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Co-Production in Poverty Reduction: The Case of PAGBAG-O, a Non-Government Organization in Negros Oriental

Jan Antoni A. Credo
Silliman University

Abstract

Civil society organizations in the Philippines have largely proven themselves to be dependable partners of the government in service delivery, especially in areas of governance where gaps in public service delivery are well-pronounced. Where the government has fallen short of its mandate, civil society organizations, more popularly known as the Third Sector, within the context of co-production, work with the public sector to address these deficiencies. In the province of Negros Oriental, the Panaghugpong sa mga Gagmayng Bayanihang Grupo sa Oriental Negros, Inc. (PAGBAG-O, Inc.) - a federation of small farmers, fisherfolks, and women's cooperative and IPs organizations in the province, has been at the forefront of co-production to improve public service delivery to marginalized groups.

This paper explores the poverty-alleviating potential of PAGBAG-O through improved public service delivery to end users-consumers through the lens of co-production.

Introduction

This work examines the poverty-alleviating potential of the co-production efforts between local government units in the province of Negros Oriental, line agencies of the Philippine government, and an NGO working with marginalized farmers, fisherfolks, women's cooperatives, and IPs. The PAGBAG-O or the Panaghugpong sa mga Gagmayng Bayanihang Grupo sa Oriental Negros, Incorporated, has worked with various people's organizations in the province for more than two decades and has been at the cutting edge of co-production to improve public service delivery and better people's lives. This research endeavors to examine the co-production between PAGBAG-O, the local government units, marginalized

groups and communities that it has organized, line agencies of the national government, and local and foreign donor institutions that it has partnered with through the lens of this novel governance paradigm developed by Elinor Ostrom and his cohorts in the Indiana University Workshop in Political Theory and Policy Analysis in the 1980s (Pestoff, 2009, p. 198; Brandsen & Pestoff, 2006). More specifically, it seeks to answer how co-production could alleviate poverty among the different people's organizations under its umbrella. The research, however, is limited by available information about the NGO found on their website, transcripts, and notes of the interview and exploratory meetings with officials of the federation last March 2018. Another source of information is the notes from the qualitative external evaluation conducted by an external evaluator for Bread for the World's (BfdW) Integrated Rural and Urban Development Assistance (Phase 1 & 2) financial grant to PAGBAG-O. It is worth noting that this external evaluation was the first to be conducted since 2012.

There are five sections in this research paper. The first section provides a snapshot of PAGBAG-O and details the development work it has been engaged in for over two decades. The second section examines the co-production paradigm to improve public service delivery to the end-users. This section details the findings of the evaluation conducted by an external evaluator on the NGO's project with Bread for the World (BfdW). Moreover, the third section explores the co-production between PAGBAG-O, the state, and other actors in Negros Oriental. The fourth section investigates the concept of value created due to co-production. The last section provides the concluding notes of the research paper.

This research takes a descriptive approach by superimposing existing concepts in co-production from literature and locating these concepts in PAGBAG-Os co-production efforts.

A Snapshot of PAGBAG-O Inc. in Negros Oriental

For more than 30 years, the Panaghugpong sa mga Gagmayng Bayanihang Grupo sa Oriental Negros, Inc. or PAGBAG-O has been actively organizing marginalized groups and communities into people's organizations. Their work of consolidating peoples and

communities is geared towards assisting them to access public services better, effectively managing their resource base, and expanding their livelihood and income opportunities through training and education. As a non-government organization (NGO) referred to by existing governance and public management literature as the Third Sector, PAGBAG-O, since 1986, through the partnership and effort of the Indigenous Development Education and Social Assistance (IDESA) and the faith-based Negros District Conference of the United Church of Christ in the Philippines (UCCP), has been at the forefront in promoting citizen participation in the process of development, especially in poor communities in the province. Its aim is to (PAGBAG-O, n.d.; Bovaird, & Loeffler, 2012; Teves, 2017):

1. Develop community organizations that will work together for the transformation of rural communities.
2. Ensure that the rights and interests of the marginalized sector are protected;
3. Promote environmental rehabilitation and protection and the sustainable use of natural resources.

Essentially, the NGOs bold mission is to (PAGBAG-O, n.d.):

Foster active community participation in the development process to achieve individual aspirations and support the overall welfare of farmers, fisher folk, women, and youth in rural communities.

To achieve this, the NGO has institutionalized three (3) core programs, each serving as the building block for attaining the succeeding. PAGBAG-O's core programs are:

- Institutional Building Program
- Sustainable Resource Management and Development Program
- Community-based Enterprise Development Program

The NGO provides institutional building programs to organize people and communities with technical and financial support from development partners, affiliate organizations, and government line agencies (DSWD, DENR, DOLE, NCIP). Once communities and peoples are aggregated and empowered, they are better situated to manage their resources, defend their rights, and consciously uphold their responsibilities as citizens. Empowerment also allows these communities to participate in decision-making and other governance processes through direct engagement with the state via

active involvement in political spaces provided by the government. Similarly, empowered and engaged communities practicing sustainable agricultural methods and techniques acquired through the training, seminars, and technology transfers put up by PAGBAG-O in partnership with government agencies such as the Department of Agriculture and the Department of Environment and Natural Resources puts the communities in a better stage to engage the mechanism of the market for their local produce. This is where the community-based enterprise development program comes in handy (Aranas, 2018). People's organizations can access and acquire capitalization for small enterprises provided by line government agencies on top of what the NGO provides to capacitated peoples organizations (Teves, 2017). In addition, to access government resources and programs, the federation has fostered strong partnerships with nine (9) local government units where the NGO has organized grassroots organizations (PAGBAG-O, n.d.).

Over the years, its members and affiliate organizations have dramatically increased. As of writing, the NGO has 28 people organizations under its umbrella. It is interesting to note that civil society-state engagement seen in the case of PAGBAG-O is the whole idea behind Peter Evans' concept of State-Society Synergy (Evans, 1996). In this concept, there is the recognition that the state needs the participation of communities. Conversely, the people also require the form as it copes with social, political, and economic changes. The people need the state to protect their demands and guarantee their rights and interests. Larry Diamond argued that this synergy could only happen if there exists a strong and engaged civil society, which shall act to demand greater accountability, transparency, and responsiveness from the State. Evans posits that significant institutional changes will appear when this occurs, positively affecting the people, communities, and society.

Co-production and PAGBAG-O

The partnership that PAGBAG-O has forged with the local government units in Negros Oriental is labeled by some as engagement, collective action, cooperation, and synergy. But

essentially, there is a common thread that links all this jargon. They are all connected by recognizing that citizens are a “valuable partner” in delivering public services (Voorberg et al., 2007). Public services, before the 1980s, was always viewed as an activity handled by a professional group or team of individuals bound by the duty to accomplish results in pursuit of the public’s interest. (Bovaird & Loeffler, 2012, p. 1120). This professional group or team of individuals compose the different agencies of the government that handle the delivery of public services to the end-user or the community. This was the common practice, especially in states operating under a centralized set-up. But under such a centralized and structured arrangement, governance suffered tremendously, particularly in delivering public services. For example, service delivery was compromised due to government budgetary constraints and austerity measures due to rising costs and changing social and environmental conditions. As government expenditure mounted, executive regimes were forced to cut certain services to accommodate new expenditure requirements. Also, it was observed that unique power relations were taking their toll on public service delivery. Social and political diversities also led experts to suggest that there were public domains that were hybrid and heterogenous and where institutional arrangements were variegated. These impressions in the 1980s led a group of public administration scholars at Indiana University in the United States to posit that there might be elements in the public service delivery that was not compatible with the existing centralized and state-centered delivery mechanism (Williams, Seong, & Johnson, 2016, pp. 695-696). Initially, these scholars in the Political Theory and Policy Analysis Workshop at Indiana University were grounded on the idea that citizens would receive more effective and efficient public services if a team delivered the same of highly trained and competent professionals in the public sector. However, while this preoccupied their theorizing, no empirical evidence supported this. However, at that time, the evidence was glaring, suggesting that multiple agencies were delivering public services, including private groups, volunteer organizations, and non-government entities (Brandsen & Pestoff, 2006). Pestoff (2009, p. 204) noted that even more enthralling was the realization

that delivering public services proved extremely difficult without citizen or end-user participation. This started the scholars to think of the idea of co-production. Led by Elinor Ostrom - a noted political scientist in the university, her team observed that there was an active involvement of multiple parties such as the end-users, private entities, volunteers, and other organizations. The participation of these non-public sector entities resulted in effective service delivery (Williams et al., 2016). Pestoff (2009, p. 198) points out that the participation of citizens in public service delivery was a new domain in public administration. But because of the findings of Ostrom's group, there was a renewed interest in the state-citizen interaction and these so-called unexplored areas.

In its nascent stage, co-production was only treated as an alternative modality of public service delivery (Williams et al., 2016). But it soon gained momentum as an entirely new paradigm in public policy in the United States after many states, obliged by the desire to reduce state operation costs, explored the idea of state-citizen partnership in public service delivery (Mitlin, 2008). Alford (2014, p. 299) notes that Ostrom and her colleagues at Indiana University thought that what they coined was simply an instructive framework for public policy. Little did they know then that it would become foundational for many other frameworks stemming from it.

At the core of the whole co-production framework is the idea that citizens can participate in producing the services they consume. Citizen participation, central to Ostrom's framework, can also take place in delivering public goods and services (2014). Its direct implication is a vibrant citizenry producing public goods (Ostrom, 1996). Jacobsen and Anderson (2013, p. 705) note that co-production is essential in the existing literature on citizen participation. Ostrom's co-production transcended citizen participation in that citizens were involved in the decision-making process and, more importantly, in executing the public policy.

Elinor Ostrom (as cited in Mitlin, 2008, p. 346) defined co-production as:

A process through which inputs used to provide a good or service are contributions by individuals who are not in the same organization.

Jacobsen and Anderson (2013, p. 705) refined Ostrom's seemingly broad definition, saying that:

Co-production involves the mixing of co-productive efforts of regular and consumer producers. This mixing may occur directly, involving coordinated efforts in the same production process, or indirectly through independent yet related measures of traditional and consumer producers.

Co-production is, therefore, noted by the mix of activities that public service agents and citizens contribute to the provision of public services. The former are involved as professionals or regular producers. At the same time, citizen production is based on the voluntary effort of individuals or groups to enhance the quality and/or quantity of services they receive.

The idea, therefore, of co-production begins with actors. These actors are classified as regular and consumer producers. Alford (2014, p. 300) noted that these actors take measures to co-produce public goods and services while driven by rational egoism to do so. When this idea was formulated back in the 80s as an output of Ostrom and her colleagues, it was considered an informative way of highlighting citizen participation. But its simplicity is somewhat deceptive in that it appears straightforward. However, as Alford observed, a more detailed reflection and analysis of Ostrom's framework reveal that it gives birth to many key areas in governance, politics, and citizen participation, which at that time were unexamined. For example, the most basic understanding of co-production was that consumers or the end users would co-produce only with the public sector. In other words, co-production was exclusively the affair between these two actors. But as Bovaird and Loeffler (2012, p. 1120) pointed out :

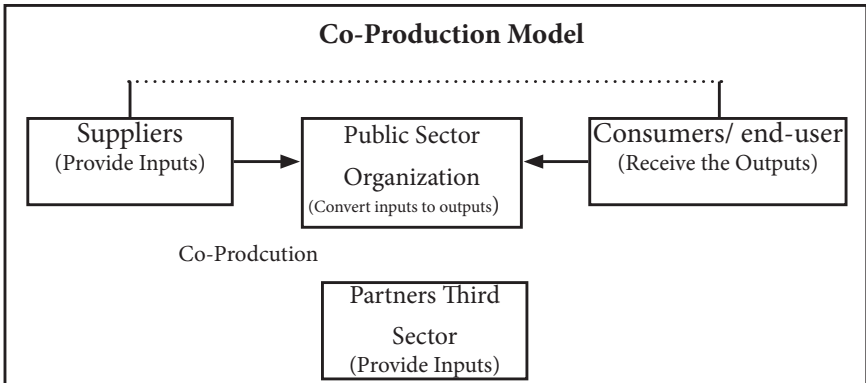
Co-production means delivering public services in an equal and reciprocal relationship between professionals, people using services, their families, and their neighbors. Services and neighborhoods become far more effective agents of change where activities are co-produced.

This articulation suggested that co-production is not confined between the regular producer and the consumer. Instead, there is a collection of other community actors who can participate in the co-production process. This is where Brandsen and Pestoff’s (2006, pp. 494-495) notion of a Third Sector comes into play. The Third Sector comprises non-government organizations (NGO) and civil society organizations (CSO) that have been primarily involved in service provision with the State. The involvement of the Third Sector with service delivery dates back to the post-war reconstruction in Europe, where NGOs and CSOs played equally crucial roles with the State, thus completely transforming the entire notion of service delivery. Johnson and Prakash (2007, p. 222) noted that NGOs and CSOs play a significant role in shoring-up democracy. The United Nations and the World Bank acknowledged its pivotal role in governance and economic development.

To capture the essence of the entire notion of co-production, Figure 1. shows a bare model of the process (Alford, 2014, p. 303)

Figure 1

Co-producers in Different Stages of the Co-production Process



It can be gleaned from the model that delivering public services through the co-production paradigm is not a restrictive activity of the public sector and the end-users only. The presence of the Third Sector, labeled in the model as a “partner,” straightforwardly suggests that it can forge partnerships with the consumers and the public sector. And this partnership, premised on co-production, is

what Joshi and Moore (Mitlin, 2008, p. 346) refer to as “institutionalized co-production,” which is definite and occurs over long periods and where the co-producers make considerable amounts of material and resource contributions. It could also be, as Joshi and Moore further stress, that the arrangements may just be temporary and may not involve formal agreements. Interestingly, as suggested by the model, partnerships can even be formed with suppliers of cities can establish partnerships with the public sector or touch base directly with consumers or the Third Sector for public service provision. This multiple co-production arrangement was later labeled by Alford (2014, p. 302) as polycentric co-production.

In the province of Negros Oriental, PAGBAG-O has been engaged in co-production for many years. While the concept is foreign to the development workers of the NGO, from what has been gathered, it has been involved in co-production since it began development work with local communities. Its network of people’s organizations and communities composed of 28 marginalized farmers, fisherfolks, women’s cooperatives, and IPs organizations spread across the entire province of Negros Oriental has co-produced with both the public sector and private development partners along its three core programs. These programs are the Institution Building Program (IB), the Sustainable Resource Management and Development Program (SRMDP), and the Community-based Enterprise Development Program (CBED) (PAGBAG-O, n.d.; Teves, 2017).

Institutional Building Program

Institutional building programs (IBP) are crucial for the success of community development efforts. The lack of mechanisms to prepare target communities and groups of development projects has resulted in project failures and unnecessary wastage of government and private sector funding/resources. PAGBAG-Os IBP prepares and equips the marginalized groups they work with to advocate for their rights and maintain a proactive consciousness of their responsibilities towards their members and the state (Teves, 2017) Through the IBP, PAGBAG-O touches base with

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marginal rural and fisherfolk communities and organizes them to form a collective. Developing united communities is foundational to tapping into the resources of the State and actively participating in policy formulation and decision-making. After these individuals and communities have been aggregated into organizations, measures by way of training and capacity-building seminars meant to empower and sustain the collective are delivered by PAGBAG-O staff and personnel to the communities. These training and capacity-building seminars include Community Leadership, the Conduct of Internal Elections of Office Bearers, Capacity-building (non-specific) of Members and Office Bearers, Organizational Development, Organizational Management, Accessing Services from Local Organizations and Government Programs, and Building Relationships with People's Organizations.

The external evaluation conducted by an external project evaluator for BfdW revealed that the training and capacity-building seminars under the IBP have been beneficial to the beneficiary people's organizations (POs). It was noted that as a strategy, the IBP proved to change the attitudes and habits of beneficiary POs. As pointed out by the evaluator, some POs were already in the end-stage of their life as PO was revived and subsequently sustained due to the application of the IBP training. Furthermore, it was also pointed out that line agencies of government that partner with PAGBAG-O hold with such high esteem the social preparation and groundwork that the NGO does through its IBP. The NGO's assistance to the POs and their capacity-building programs have been critical in the success of projects funded by line agencies of government (Teves, 2017)

At this point, it is essential to highlight that co-production is already taking place in this particular stage of the process. This can be patently appreciated in Figure 2 (see next page), where co-production between the Third Sector and the consumer/end-user is seen. It is also significant to underscore that it is in the Institutional Building Program of PAGBAG-O that the organized marginal communities are trained and equipped for meaningful local participation in policy development and formulation and decision-making in governance. Aranas (2018) pointed this out and featured that the federation already has POs represented in the Local Development

Council of some Local Government Units. These POs, Aranas noted, are engaging local state actors in policy formulation and articulation of interests as members of the Local Development Council (LDC). Of the 28 people organizations mobilized by PAGBAG-O, all have secured seats in the Local Development Councils of the LGUs and are regularly consulted whenever crucial decisions have to be made by the municipal legislative council (Teves, 2017).

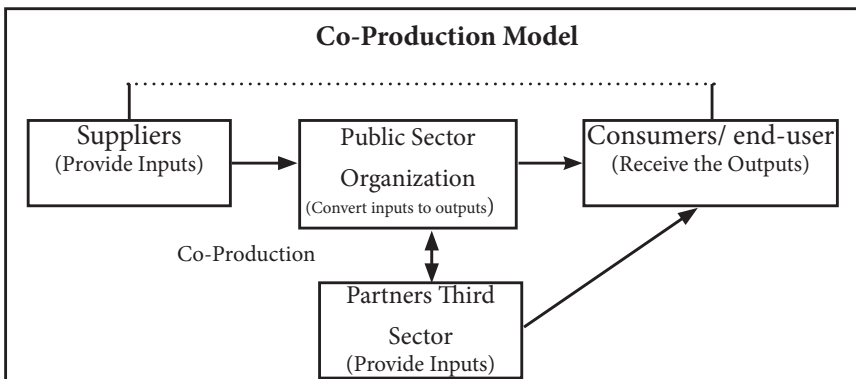
It is crucial to note that the participation of POs in the LDC is a right guaranteed by the Constitution and by the Local Government Code of 1991. The 1987 Constitution (Article 2 section 23) specifically mandates the institutional participation of civil society in State affairs:

The State shall encourage non-governmental, community-based, or sectoral organizations that promote the nation's welfare.

The above-stated non-self-executory provision in the Constitution finds full expression in the Local Government Code (Article 3 section 34 and Title VI section 108), which explicitly mandates LGUs to promote the creation and the operation of NGOs and provide avenues that will encourage citizen participation in pursuance of local autonomy. What is significant is the specific provision that mandates the representation of NGOs in the Local Development Council. This positions NGOs and POs to better articulate the interest of the marginal communities they represent (Santiago, 2000).

Figure 2

Highlighting the Co-production between the Third Sector and the Consumer



Sustainable Resource Management and Development Program

Under the SRMDP, PAGBAG-O capacitates the local marginalized communities that it has collectivized into effective natural resource managers and users. Being the most comprehensive of the three core programs of the NGO, the SRMDP features specialized training modules which function to stock the local peoples of knowledge so they can successfully manage to sustainable levels their water, soil, land, flora, and livestock resources. Training modules on Sustainable Agriculture and Organic Farming, Sloping Agricultural Land Technology and Contour Farming, Diversified Farming Systems and Crop Diversity, Soil Conservation and Development, On-Farm Production of Organic Fertilizer, Watershed Management, and Climate Change Awareness and Adaptation are provided regularly to farmer communities depending on their need and applicability to local conditions. In Negros Oriental, experts have linked land degradation, especially for upland farms, as the major impediment to farmers maximizing their resources. This has aggravated poverty conditions in the hinterland barrios and has considerably diminished the farmers' capacity to generate income. The training under the SRMDP calls attention to its capacity to enhance opportunities to increase crop yield, thereby allowing greater chances to augment farmers' household income. But what is notable is that while efforts are made to boost revenue by increasing farmers' yield, the technology used to meet this end are environment-friendly and least costly on the part of the farmer (PAGBAG-O, n.d.).

The training modules under the SRMDP necessitate skills. PAGBAG-O provides these skills through co-production with relevant government agencies and private partners, who provide the personnel to deliver the training. To this end, PAGBAG-O has forged partnerships with foreign and local government and non-government organizations. A survey of their website's information will reveal that it has extensive links with development partners (PAGBAG-O, n.d.; Aranas, 2018). Table 1 shows the partners and affiliates PAGBAG-O has collaborated with for the past three decades.

Table 1
List of Partners and Affiliates

| Development Partners | Affiliates |
|--|---|
| Brot fur die Welt (BfdW) Germany | Negros Oriental Network of NGOs (NEGORNET) |
| Evangelischer Entwicklungsdienst (EED) GER | Oriental Negros Children's Advocacy Network |
| Ecumenical Scholarship Program (ESP) GER | Sibol ng Agham at Teknolohiya |
| Philippines Australia Community Assistance Prog. AUS | Community Empowerment and Resource Network Visayas |
| Heifer International USA | Planning Research Institutional Support and Management Services |
| Direct Aid Program AUS | |
| Australian Youth Ambassador for Development | Department of Agrarian Reform |
| Feed the Children Philippines | Department of Labor and Employment |
| Provincial Government of Negros Oriental | Department of Social Welfare and Development |
| Peace Equity Foundation Philippines | National Commission on Indigenous People |

The rich network of partners and affiliates that PAGBAG-O has highlighted the polycentric nature of the co-production it engages in. The actors contribute resources towards the attainment of particular ends. This underscores the profound impact NGOs and civil society organizations play in critical aspects of development. Aside from providing services, NGOs and civil society are thus viewed as serving a “public purpose” by supplying and creating social capital and resources that the State might not have (Pena & Nito, 2005). The case of PAGBAG-O hovers around the forecast of NGOs giving rise to a “world society” that might lead to an entirely new phase of politics “beyond the state” (Johnson & Prakash, 2007).

An external evaluator's assessment of this core program indicated that POs under the PAGBAG-Os umbrella had adopted diversified farming systems under the SRMDP. However, the number of POs that have embraced the resource management techniques under the core program is not entirely remarkable. Using a sample size of 12 POs, the external evaluation revealed that only 8 out of 12 POs adopted the resource management system. Four of the eight that adopted the resource management techniques indicated improved and elevated productivity and income levels. It should be pointed out that the POs are not all similarly situated. For example, some POs have different land ownership statuses compared to others.

Some POs are also constrained by the size of the land they have, which makes multi-cropping, for example, difficult to achieve. Others have reported that the land size is sufficient. However, the farmers reside in different locations, which makes accessing the land daily challenging. Farmers also reported that, in many instances, they had realized surpluses in their production. However, these surpluses have not been fully converted to cash as accessing the market proved difficult (Teves, 2017).

The other 4 POs have only reported slightly elevated and slightly improved productivity. They have also indicated a dependence on chemical fertilizers and relied heavily on seasonal crops like coconuts. These factors were said to have hindered their full adoption of the resource management techniques in the SRMDP. Interestingly, the remaining 4 POs found it challenging to adopt farming systems under the core program. This is primarily because of the precarious conditions they are confronted with. For example, these POs have reported poor soil conditions and a lack of water to irrigate the farms.

Remarkably, the POs which are beneficiaries of the Department of Environment and Natural Resources (DENR) under their resource protection and conservation program has been, as noted by the evaluator, quite successful (Teves, 2017).

Community-based Enterprise Development Program

The third core program of PAGBAG-O is designed to boost rural economies by growing local enterprises that improve the socio-economic conditions of the marginalized communities organized by the NGO. In very pragmatic terms, the developed enterprises are meant to augment income and broaden opportunities to earn instead of focusing only on one potential source. Similar to the two other core programs, the CBED is composed of module-based training designed to equip the consumers or the members of the POs with skills and knowledge on decision-making about farm expenses and income. A module is also available to allow members of the people's organization to explore other income opportunities, such as handicrafts and food processing. A module also trains the community on how to properly market their products

and establish networks with other local producers and buyers of their farm outputs. Engaging in the program is the module on business development and strategic planning for people's organizations (PAGBAG-O, n.d.). Similar to the other two core programs, PAGBAG-O has the personnel to conduct the training and also taps on the resources of its partners and affiliates to cascade these modules.

Based on the evaluation conducted by the external evaluator for BfdW, most of the POs under PAGBAG-O were able to successfully secure seed capital from various line agencies of the government as a start-up for a micro-enterprise. The POs availed of the Php 15,000- Php 20,000 capital which most POs used as capitalization for a buy-and-sell business of animal feeds and fertilizers. These goods are sold to their primary consumers- their members, at relatively low mark-ups. Sustainability problems, however, hounded the POs as repayment by members proved to be challenging. Other POs established consumer product stores (sari-sari stores), which sold essential commodities to members of the PO. This venture showed signs of success during the evaluation. Income from these consumer stores has augmented the income of members and has even significantly helped the children of members acquire a college education (Teves, 2017).

The evaluator, however, noted that releasing this seed capital usually takes a long time, adversely impacting the trust and confidence of the POs in the releasing agencies of government.

Variegated Co-production Activities

What is uncomplicated in the case of PAGBAG-O is that its co-production has not been confined to service delivery. Through its core programs, it has co-produced not only with the public sector but with many actors identified in the co-production paradigm. Bovaird and Loeffler (2012, p. 1124) refer to this as “co-production by different authors.” The co-production can be in the co-planning of policy, co-design of the services that will be delivered, co-prioritization of services through participatory budgeting, co-financing of services, co-managing, co-delivery of services, and co-assessment. The difference between these co-production activities provides a

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wide latitude for PAGBAG-O and the other actors to co-produce. Similarly, Brandsen and Pestoff call attention to Osborne and McLaughlin's (2006, pp. 496-497) breaking down co-production concepts: co-production, co-management, and co-governance. These breakdown concepts indicate a Third Sector's direct involvement in service delivery. For example, co-governance suggests a kind of arrangement wherein the Third Sector participates in the planning and delivery of services. Direct participation of the Third Sector is also evident in co-management, where services are produced in collaboration with the state. In co-production, the citizens or end-users contribute significantly to creating their own benefits. PAGBAG-O has, by far, do this as a federation NGO. The partnerships it has established with local government units, the representation of the people's organizations it has organized in the partner LGU's Local Development Council, the agreements it has forged with local and foreign non-government organizations, which have been providing funds for the NGO and the cooperation and commitment of support from national government agencies like the Department of Labor and Employment is testament to this. The Benefits of Citizen Involvement in Co-Production.

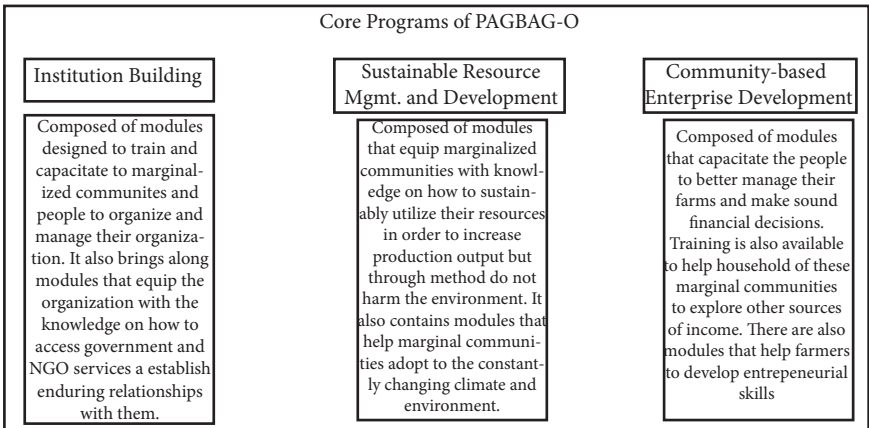
Earlier in the paper, it was mentioned that in co-production, the citizens or consumers are integral in delivering public services. Their involvement in the co-production configuration underscores their role in producing the services they will use. Their collaboration in providing services alters the service supplied and consequently, as Brandsen and Pestoff argue, reshapes them (2006, p. 496). Based on the literature, consumers acquire certain benefits from citizen involvement in service delivery. Bovaird (as cited in Mitlin, 2008, p. 347) notes that the participation of citizens has profound democratic implications. For example, it now situates consumers or the citizens at the core of the government's decision-making process. Second, local leaders and public sector managers are introduced to ways to interact with consumers. Third, the consumers become active participants in the co-planning and delivery. Essentially, it is a radical departure from the state-centered approach to service delivery. In addition to its democratizing quality, the co-production paradigm is an effective platform to combat poverty. The root causes of poverty

can be discussed in another paper. But of great import is to identify what sustains and maintains it. Mitlin (2008, p. 340) points out that the social malady of poverty is supported by an individual's inability to exist and "flourish in a cash economy." Their lack of a stable supply of income frustrates their ability to replicate themselves. Mitlin further stressed that the lack of basic services delivered by the state (e.g. water, housing) also dramatically contributes to poverty. For example, the lack of a safe and secure dwelling is partly due to an individual's inability to generate income. But more importantly, it reflects the inability of the state to provide the mechanisms and avenues for this need to be met by the citizens. Co-production, then, is a viable option to improve the services of the state in that it provides a platform for the poor to be effectively organized so they can secure better arrangements with the state. For example, a study in Bangladesh concluded that a lack of access to basic services, which took its toll on the people's health, significantly contributed to the depletion of their financial resources, thus pushing them deeper into poverty (2008, p. 341).

Examining the three-core programs of PAGBAG-O reveals that they are geared towards addressing the harsh conditions of poverty in rural communities. Theoretically, and based on experience in the Philippines, an agriculture-based economy is prone to the cost-price squeeze phenomena, resulting in repeating cycles of poverty (Tayengco, 2008). The core programs of PAGBAG-O aim to address that by methodically targeting the root of poverty in rural agricultural communities. For instance, under the Institutional Building (IB) program, by assembling previously disparate and segregated marginal communities where poverty is sharp and equipping them with the competencies to sustain organizational cohesion, they can now better access government and non-government programs and resources, which can aid in the improvement of their economic conditions. This can come by tapping into government and NGO programs that provide subsidies or capacity-building training and programs to transfer technology to farmers, fisherfolks, and other community members. This is not to suggest that government or non-government organization and their menu of intervention programs provides the ultimate solution to poverty. Government and

non-government material interventions and programs are one of many tools in the holistic approach to combating the social dilemma. Correlated with the IB program is the Sustainable Resource Management and Development Program. Under this program, the marginal community is outfitted with knowledge on addressing essential resource needs like soil and land degradation, contour and slope farming, and organic farming methods. At the heart of this module-based training is maximizing farm production despite their limited resources, evolving climactic conditions, and unfriendly geography. But then again, with the rising cost of farm inputs and the constant effects of inflation on their primary survival necessities, income generated from sustainable agricultural or fishing practices might not be enough for the household. That is why it is of great import that other sources of income be developed. This is the overarching idea behind the Community-based Enterprise Development Program. Aside from supplying the community with practical ideas for augmenting income through alternative livelihood opportunities, the marginal community is also taught how to make sound financial decisions regarding managing their small-scale farming or fishing. In addition, they are taught how to develop their produce to marketable standards, access markets for their produce, and subsistence levels (Aranas, 2018). Figure 3 essentially captures this systematic process along the three core programs of the NGO.

Figure 3
Core Programs of the NGO



Drivers and Motivations of Co-Production

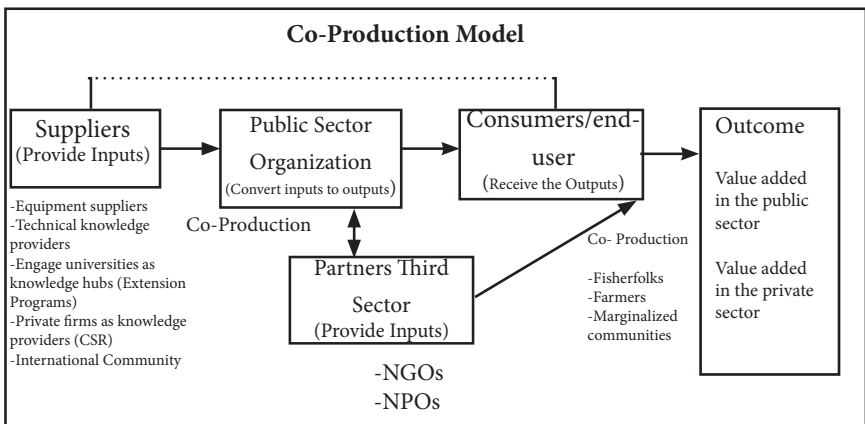
At this juncture of the paper, it can be confidently claimed that the essence and meaning of Elinor Ostrom's co-production paradigm have been elucidated. But what remains puzzling is what drives the actors (the NGOs, the volunteer groups, the public sector, and the citizen-consumers) to co-produce. Joshi and Moore (as cited in Mitlin, 2008, p. 346) identify two critical drivers to co-production, anchored on the "imperfections and incompleteness of the State." The first is the failure of the government to provide the public services needed. This non-fulfillment of a mandate could stem from a broad spectrum of sources. It could be due to budgetary constraints resulting from budgetary cuts or fiscal inadequacies. Or, similar to countries that the International Monetary Fund has prescribed, it could be due to externally directed budgetary allocations. Enduring power relations anchored on patronage and clientelism at the local government level can weaken state capacity and impede co-productive ventures (Credo, 2020). Second, logistical challenges can sometimes constrain the regular service provider to provide the public service needed by the consumers, owing to a lack of personnel and equipment to deliver the services.

For the non-State actors (the NGOs and the POs), it is a question of motivation. What motivates them to co-produce with the regular producer of public services? Alford (2014, p. 303) notes that in the case of suppliers, which co-produce with the regular producer and the consumers, it is the income that they generate from the co-production and, to a certain extent, their direct undivided attention to the work involved in the process. On the part of the other partners like the NGOs and their affiliates, Alford notes that it can stem from their impulse to get a fair share of the returns in proportion to the effort they contributed to the process. Consumers are generally motivated by the tangible material benefits they get from co-production. But not to demonize the consumer, selfish motives can be the push factor that drives consumers to participate in co-production or, as Bovaird and Loeffler (2012, p. 1127) explained, may be encouraged to play an active role in increasing value. Alford (2014, p. 305) also mentioned that in addition to the tangible motivation to co-produce,

actors are motivated to co-produce because of the dread of punishment, self-seeking behavior, “intrinsic rewards,” social recognition and “normative appeals,” and many more what is clear though is the fact that there is a plethora of motivations that steers actors to co-produce, which goes beyond reasoned self-centeredness. These drivers and motivations apply to PAGBAG-O and the actors that it has co-produced with. This would include the Local Government Units, the consumers they have organized into people’s organizations, the local and foreign development partners that support its programs, and the national government agencies with which it has partnered.

At this point, it is crucial to highlight that the co-production paradigm of Elinor Ostrom has gone through a process of evolution. From a simple novel idea of expanding service delivery to include the consumer, the model has metamorphosed into a polycentric model of public service delivery. The consumer-citizens are not the only important component in improving the quality and quantity of public services. But it has expanded to include various actors transcending ideology and rational egoism. Figure 4 shows the contextualized Co-Production model with all the labels as it applies in the case of PAGBAG-O.

Figure 4
Contextualized Co-Production Model



Value as Outcome of Co-Production

The model calls our attention to the result of co-production. Alford (2014, p. 306) astutely pointed out that this was primarily left unexplored when the group of Elinor Ostrom first came up with the idea, which led to the new paradigm. Co-production results in the creation of value. This value created exists on three levels. For example, when a local government unit co-produces with the community to whom the service is to be delivered, it results in the creation of public value on the part of the regular producer, the private value on the part of the individual consumer, and group value on the part of the larger community. In an example perspicuously explained by Alford, he cited the co-production between the housing ministry of Melbourne, Victoria, and the tenants of a public housing facility. The co-production between the housing ministry and the tenants centered around involving every tenant in the management of the housing facility. The housing ministry was driven to co-produce with the tenants because of their mandate to ensure safe, decent, and livable housing facilities for the citizens. On the part of the tenants, their decision to co-produce, albeit precipitated by the predilection to address concerns like vandalism and anti-social behavior, to a great extent, was spurred by non-material factors like the sense of group belonging and connection. The individual tenants received private value through the housing units they got from the government. The housing ministry officials also gained personal value through institutional affirmation that they have accomplished what they have been tasked to do. That feeling of accomplishment is felt by the officials who became part of the co-production. The community beyond the housing facility gained public value through the actualization of equity and the reduction of the incidence of homelessness as well as crimes that are associated with it. The dwellers realized group value in the housing facility as their co-production improved their estate facilities, promoting cleanliness and order.

A similar case is also cited by Joshi and Moore (as mentioned in Mitlin, 2008, p. 346), where an elite group of individuals, anxious over the deteriorating security situation in their community in Karachi, Pakistan, were able to successfully strengthen the

police service in their locality through a system of liasoning. This case underscores the fact that co-production aids in the performance of duty when state order and stability are compromised or in decline.

Superimposing these two cases to the case of PAGBAG-O, it appears that its co-production with local government units, line agencies of the national government, other NGOs, and the POs in the province have doubtlessly resulted in the creation of public, private, and group value. Take, for example the training conducted with the marginalized communities on organic farming technology under the Sustainable Resource Management Program (SRMDP). On the side of the individual farmer, he realizes the private value in that he acquires knowledge and skill on a promising technology with a growing market potential. The Department of Agriculture, the national government agency that PAGBAG-O has partnered with in delivering the service, also gains value. Its personnel and technicians who conducted the training realized the sense of fulfillment in being able to do their sworn task and mandate. Of equal importance is the public value created out of the training. The marginalized community and the public sector produced critical norms of environmental concern, the utilization of natural and readily available materials to increase crop yield instead of using expensive and environmentally destructive chemical fertilizers, and the promotion of less expensive but healthy farm produce. Collectively, the farmers create group value by showing concern and care for the environment and the community's health, respectively. The example here is just but one of the many aspects where co-production is taking place with the public sector, PAGBAG-O, and other actors to achieve the outcome of better public service delivery and the reduction of the incidence of poverty among people in the agriculture sector.

Conclusion

In retrospect, Elinor Ostrom's co-production paradigm has gone a long way. Today, the original schema that came out of the Workshop in Political Theory and Policy Analysis at Indiana University has completely transmogrified with the introduction of new actors other than the regular producers and the consumers of

public services. In the transformed model, which includes different dimensions not explored by Ostrom and her colleagues, there is a recognition of the vital role played by the Third Sector. This sector comprises non-government organizations, civil society organizations, volunteer groups, and cause-oriented groups that contribute their resources to improve service delivery to the community.

In Negros Oriental, the NGO PAGBAG-O, with its network of 28 POs, its linkages with foreign and local development partners, and partner line agencies of government, has been in the leading position in co-production for the past three decades (Teves, 2017). With its aim of developing community organizations that will collectively work for the transformation of rural communities, ensure that the rights of the marginalized are recognized and protected and promote environmental rehabilitation and protection and the sustainable use of natural resources, the NGO has partnered with other actors like the local government units, line agencies of the national government, foreign and local development organizations, and peoples organizations. The growing number of LGUs that have opened their doors to citizen participation in governance to people's organizations that PAGBAG-O has organized through the Local Development Council is a clear indicator of its acceptance by the LGU. The increasing reach of the NGO, evidenced by the expanding people's organization and marginalized groups and communities formed, is also telling of its success and efficacy. Also, the sustained support of its international and local development partners indicates sound management and effective implementation of its three-core programs. While it is tempting to make claims of the poverty-alleviating potential of PAGBAG-O's co-production with other actors based on the preceding structural and institutional development narratives taken from existing and available information, the absence of compelling empirical quantitative or qualitative evidence in support of such claim from the ground makes it so precarious to fashion such generalizations. The external evaluation, however, conducted by an independent evaluator engaged by BfdW, made pretty solid claims. As noted in its Final Evaluation Report (Teves, 2017), the NGO has successfully implemented its core programs. As an organization, PAGBAG-O has, through the years, remained

relevant. It has successfully capacitated POs with the needed skill and knowledge in crafting proposals, thus allowing them to access government funding for various projects of the POs. The evaluation also noted tangible signs that the NGO has successfully cascaded skillsets to POs in organizational management. This is how far our gauging of the poverty-alleviating potential of PAGBAG-O can go.

But enduring challenges to co-production remain. As pointed out by Williams, Seong, and Johnson (2016), some challenges durably confront actors who are in co-production. First, co-production works in decentralized State arrangements. Hence, it is requisite that for the transformative paradigm to achieve success, there have to be significant institutional revamps, especially in states that remain highly centralized. Spaces for citizen participation need to be made available, and a heightened consciousness of accountability be instilled among public officials. Second, co-production requires organizations like NGOs and volunteer groups to undergo a transformation process, especially in the financing, monitoring, and implementation, to accommodate co-production. Third, co-production causes inevitable tensions in governance to surface. For example, a balance must be struck between principles in public administration and effectiveness and connecting mechanisms of checks and balances and the value of trust between organizations. But above and beyond these challenges, a more significant provocation presents itself to the public sector, PAGBAG-O, its partners, and other NGOs/CSOs in the field of development work. The challenge has a lot to do with how to break the persisting poverty in the rural countryside. Co-production is not the ultimate solution. While its aesthetic quality might cause us to jump to such conclusions, we cannot be faulted if we do so. But what is certain, though, is that it presents itself as a viable tool to address the social malady of poverty.

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Estimating the Economic Benefits and Costs of Conserving Marine Protected Area in San Jose, Antique, Philippines

John Jonas F. Castuciano¹, Rheniel Dayrit² and Rodelio F. Subade³

¹ Department of Finance, Manila, Philippines, ² Southeast Asian Fisheries Development Center (SEAFDEC), Tigbauan, Iloilo, Philippines, ³ Division of Social Sciences, University of the Philippines Visayas, Miagao, Iloilo, Philippines

Abstract

The establishment of marine protected areas (MPAs) in the Philippines becomes a priority management strategy to conserve marine biodiversity and address the problem of declining marine resources. Economic studies can be a viable tool to determine MPA as a management option by evaluating their benefits and costs to the community. In order to determine the economic benefits of MPAs in San Jose, Antique, the total economic value of the resource consisting of direct and indirect use and non-use values was determined in 2016. Direct benefits from revenues and tourism amounted to Php 247,739.61 at the time of the study. Concurrently, the indirect functional benefits of MPA amounted to Php 2,162,235 using the benefit-transfer method. In measuring the non-use values of the MPA, the contingent valuation method was used to elicit the people's willingness to pay for the MPA conservation program. The mean willingness to pay (WTP) of 260 participants equals Php 219.00, and the social WTP amounted to Php 5,725,136.89. The total benefits of managing the MPA amounted to Php 8,135,111.50, which exceeded the cost of conserving the MPA, which amounted to only Php 1,235,363.30. The net present values across 25 year period and different interest rates generated positive results.

Keywords:

Total economic value, benefit-cost analysis, direct benefits, indirect benefits, non-use values, willingness to pay, net present value

Introduction

As a part of the Coral Triangle region, the Philippines is prioritized globally for marine conservation (Maypa et al., 2012). It is one of the most diverse countries in the world, endowed with almost all kinds of flora and fauna. It is also abundant in natural resources (Long & Giri, 2011; Cordero & Subade, 2018), especially in marine biodiversity because of its geographic location and tropical climate (Carpenter & Springer, 2005). The annual net economic benefits of shoreline protection from coral reefs were estimated at US\$782 million in 2010 (Lauretta et al., 2011). Moreover, in 2015, Brander et al. estimated that the total ecosystem service benefits of achieving 10% coverage of Marine Protected Areas would range from USD 622-923 billion over the period 2015-2050; and for 30% coverage, these would range between USD 719-1,145 billion.

Being an archipelagic country, the Philippines' main source of living is fishing (Philippine Statistics Authority, 2021). However, Philippine marine resources are also experiencing a high level of anthropogenic and climatic impacts and threats (Buncag et al., 2020; Ballad et al., 2018; Brander et al., 2015). It was observed that overexploitation of the fishery sector has resulted in the continuous downward trend of these resources (Pandolfi et al., 2003; Primavera, 2004; Cabral et al., 2014). Though fishes are a renewable resource, they need a certain quantity to reproduce and regenerate again (Hartwick and Olewiler, 1998).

One solution seen to be very effective in addressing the problem of the severe decline of marine resources is establishing marine protected areas (MPAs) (Dudley, 2008). More than 1,900 MPAs covering 200,881 km² were legally established in the six coral triangle countries, namely, Indonesia, Malaysia, Papua New Guinea, Philippines, Solomon Islands, and Timor-Leste over the last 40 years (White et al., 2014). Its objectives are to establish biodiversity conservation, fisheries sustainability, tourism, and recreation (Lester et al., 2009; Rodwell & Roberts, 2000; Angulo-Valdés & Hatcher, 2010).

In the Philippines, about 1,800 established marine protected areas, primarily small and scattered non-take zones, are

often managed by the community (Cabral et al., 2014; Post, 2015). The Philippine Fisheries Code of 1998 (Republic Act 8550) mandates that every coastal barangay must have 15% of its total area as marine sanctuaries and marine protected areas (Buncaga et al., 2020). However, upon implementing MPAs, several problems and issues arise, such that the country would take hundred years to fully protect 10% of its coral reef areas given that the rate of increase in establishing MPAs is too slow (Aliño et al., 2004). Accusations of improper management and insufficient budgeting have bombarded the policy, and only about 16-38% MPAs in the Philippines are efficiently and properly managed (Aliño et al., 2004), and only 0.5% of municipal waters and 2.7- 3.4% of coral reef areas are protected in no-takes MPAs (Weeks et al., 2010).

Across local government units (LGUs) in the country, various MPAs have been set up. In May 1998, Hayuma Foundation Inc. performed a rapid assessment of the reefs in the municipality of San Jose, Antique, and the results paved the way for the protection of the remaining live corals in the barangays of Funda-Dalipe, Madrangca, 3 (Comon) and 4 (Pantalan). In 2001, a total of 67.2 ha of coastal areas was declared MPA through Municipal Ordinance # 2001 - 2. The policy mainly aimed to conserve marine life to sustain people's livelihood (Local Government Unit of Antique, 2007). Moreover, in 2012 another assessment was conducted to produce monitoring data to serve as input for the management of the MPA (Martin & Martin, 2012). A total of 1661 fishes consisting of 28 families was identified, and the presence of endangered species of coral and fishes was seen. However, Azucena and Moreno (2010) found that the establishment of MPA in San Jose had a negative effect on the socioeconomic status of the fishermen living in the barangays, as mentioned above. There was also a significant decline in their income and production.

According to Laffoley et al. (2008), the loss of benefits of fisher folks is due to the restriction of fishing in the selected fishing grounds as mandated by the marine protected areas implemented in their area. Since the program started, fishers need to exert more effort to go to the unrestricted areas in order to have a catch. This phenomenon entails greater time and financial costs to the fishers and minimal catches due to the smaller area assigned for fishing. Azucena and Moreno (2010) also stressed that improper management

and inadequate funding were seen as some significant possible reasons for the inefficiency of the policy.

Many researchers, authors, and cases argue about the likely magnitudes of the benefits and costs of MPAs. Some have advocated the need for immediate implementation of these areas to counteract the negative impacts of fishing (Russ & Alcala 2004) and highlighted the numerous benefits that MPAs can provide to society (Ballantine, 2014) and the environment (Barton 1994; Costanza et al. 1997). In the same manner, some studies and sectors also claimed that due to the program, fishers lost opportunities to earn and restricted their livelihoods (Sanchirico et al. 2002), while others have expressed doubts about the ability of MPAs to deliver biological benefits (Smith & Wilen 2003; Fletcher et al. 2015).

This study attempted to analyze the benefits of the establishment of MPA and the costs it entailed to the government and the community affected. Economics can help progress the debate by taking a whole community perspective to assess the benefits and costs of conserving MPA and quantifying gains and losses over time. By expressing both benefits and costs in economic terms, ecological importance can be partially translated into monetary value that facilitates decision-making by enabling comparisions between benefits and costs (Beaumont et al., 2008).

The results of this study would also enable the local government to determine the area of strength and weaknesses of the MPA program and develop a better strategy to improve management. The San Jose, Antique community would also realize whether or not their efforts toward sustainable use of marine resources would provide them potential benefits in the future.

Methodology

The Study Site

San Jose, Antique is considered a first-class municipality located in the southwestern part of Panay Island in the Western Visayas (Figure 1). It is surrounded by three municipalities: Belison on the northern, Sibalom on the eastern, and Hamtic

on the southern side, where the Sulu Sea is on the western side.

The municipality of San Jose generally, has a flat topography with a land area of 4450 ha and a coastline of 13.65 km (Municipal Profile, 2015).

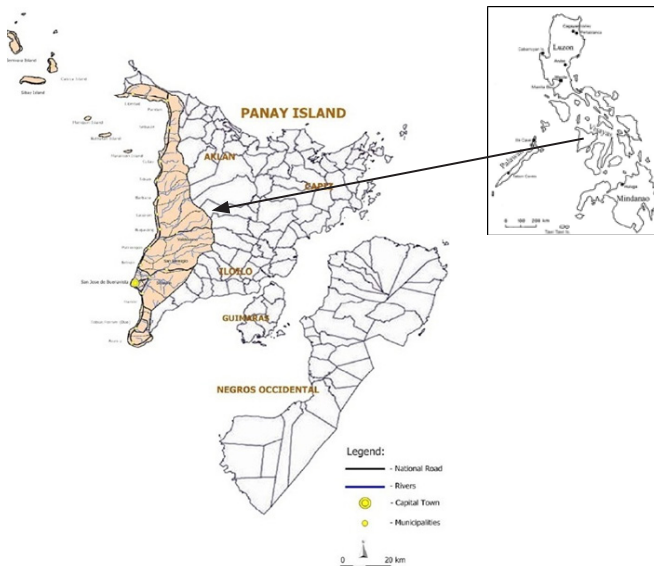
The municipality of San Jose is composed of 28 barangays. Thirteen of these are coastal barangays, and only four barangays implemented marine protected areas. These barangays are Madrangca, Funda Dalipe, Brgy. 3, and Brgy. 4, which were chosen as study sites.

Data Collection

Primary and secondary sources of data were utilized in this study. Primary data were collected through surveys, key informant interviews, and focus group discussions. Secondary data were obtained from the different offices of the municipal government of San Jose, the Municipal Environment and Natural Resources (MENR), Panay Process Foundation, and relevant information from the respective barangays and published articles on MPA.

Figure 1

The Map of the Province of Antique Showing the Encircled Study Site



In order to collect the primary data, letters were sent to the municipal government of San Jose asking for approval and recommendation to conduct the study in the municipality. Focus group discussions were conducted with immediate stakeholders of the MPAs, such as fisher folk, bantay-dagat crews monitoring team, and selected local officials to gather relevant information that was incorporated and served as a guide to frame essential questions included in the interview schedule of the study. The gathering of primary data was conducted from December 2015 to May 2016.

Key informant interview using a prepared, structured questionnaire was conducted among local officials, barangay councils of each barangay, representative of the local government of San Jose, and experts in the field of MPA and non-government organization. This was done to assess and determine the range of costs and benefits related to MPAs establishment, management, operation, and maintenance.

An interview schedule was designed to gather information on the survey respondents' knowledge, perception, and problems in the MPA. On a scale of 1 to 5, participants were asked to rate MPAs importance to the environment. The respondents were also asked about their willingness to pay for the conservation of MPA in the municipality.

To compute the sample size, the researcher used the following equation:

$$n_1 = \frac{N_1}{N} * n \text{ (Proportional Formula)}$$

where N symbolizes the total household of the four barangays

$$N = N_1 + N_2 + N_3 + N_4$$

and n is derived by using the formula for a large population

$$n_0 = \frac{(1.96)^2 \left(\frac{1}{4}\right)}{(0.05)^2}$$

then n is adjusted for the small population using the formula below

$$n = \frac{n_0}{1 + \frac{n_0}{N}}$$

Brgy 4=157; 3) Brgy. Madrangca=33; and 4) Brgy. Funda Dalipe =57. A total of 260 respondents were across the four barangays.

Estimating the Costs and Benefits of Conserving MPA

Total costs

The concept of total economic cost is applied to fully account for all of the expenditures and losses associated with establishing and maintaining MPAs. Emerton (1999) defined total economic costs as the sum of management costs and opportunity costs. Management costs are direct physical expenditures on the equipment, infrastructure, and human resources required to manage MPAs. This is of two kinds, fixed costs, and variable costs. Fixed costs include the cost of established infrastructure, specifically the watchtowers, semi-concrete structures, furniture inside the built structures, gears used by the monitoring team, patrol boats, and others. Variable costs include maintenance and operation costs and labor costs. Maintenance and operation costs include the expenditure on new equipment that lasts only a year. Labor costs are allotted to pay individuals monitoring, enforcing regulations, and maintaining the MPAs.

On the other hand, opportunity costs are land and resources used foregone or precluded due to MPAs establishment and restriction of economic activities in the area. These are foregone alternative income and profits provided by investments in human, physical, and financial resources because of the establishment of MPAs.

In this study, the total cost is a function of total fixed cost, variable cost, and opportunity cost, as shown by the formula.

$$TC=TFC+TVC+TOC$$

Where TC=Total cost

TFC=Total Fixed Cost

TVC=Total Variable Cost

TOC=Total Opportunity Cost

The total cost can be derived by solving for the summation of all costs discounted over a period of time. This is shown in the formula below:

$$TC = \sum_{t=1}^n \frac{C_j}{(1+r)^t}$$

Where C_i represents the different costs, r is the discount rate, t is the project's time or year, and n is the total number of years.

Total Benefits

To identify the benefits of implementing a marine protected area in San Jose, Antique. This is possible by attaching a monetary value to the benefits through market prices, contingent valuation, and benefits transfer methods. The market price technique is used to put a monetary value on the benefits from the direct usage of the project. Direct use includes the revenue obtained from fish harvest, permits, licenses, and fines. On the other hand, indirect use values could be estimated using the benefits transfer method from related studies since there is a constraint of time, resources, and information to derive this kind of value from the marine protected area in San Jose, Antique. The indirect benefits of coral reefs in MPAs were adopted based on the study of Costanza et al. (1997). These benefits are 1) coastal protection, 2) waste treatment and 3) food and biological control.

Finally, the contingent valuation method was used to measure the non-use benefits or the conservation value of the marine reserve as perceived by the participants. This method is an appropriate economic tool for this study which is not based on the observed market behavior or prices but rather on how people value the marine goods accessed after the conservation. This can be done by asking the participants how they are willing to pay to conserve the marine protected area in the four coastal barangay. Willingness to pay is a dependent variable, and for this study, it was estimated using the independent variables: bid price, monthly household income, age, sex, civil status, educational attainment, and knowledge index (Subade & Francisco, 2014)

The willingness to pay (WTP) is dependent on other variables, assuming a formula of:

$$WTP = f(X_1, X_2, X_3, \dots, X_n)$$

Where:

WTP = willingness to pay for the conservation of MPAs given the bid price

X1 = Age

X5=Size of Household

X2 = Sex

X6=Income ofHousehold

X3= Civil Status

X7=Knowledge index rating

X4=Educational Attainment

X8=Bid Price

WTP is used to measure the non-use benefit of the MPAs using the parametric estimates method. The formula below was utilized in this study.

$$\text{Mean WTP} = (-\alpha) / \beta = (-(\text{constant} + (\text{coefficient of variables} * \text{mean of variables}))) / (\text{coefficient of bid_price})$$

$$\text{Social Mean WTP} = (\text{percentage of respondents who are willing to pay}) \times (\text{total households of the barangay}) \times (\text{mean WTP})$$

Table 1 shows the total economic benefits of conserving the MPA with its measurement techniques.

Table 1

Total Economic Benefits from the MPAs in San Jose, Antique and its Measurement Techniques (2016)

| Type of Usage | Variable | Measurement Technique |
|---------------|--|---|
| Direct Use | Fish Catch | Market Price |
| | Permits and Licenses | Market Price |
| | Fines | Market Price |
| Indirect Use | Coral Reefs: -coastal protection -waste treatment -food production and biological control | Benefit Transfer Method Benefit Transfer Method Benefit Transfer Method |
| | -fish habitat | Benefit Transfer Method |
| Non-Use Value | Conservation Value | Contingent Valuation Method |

Total benefits are the total economic value of the marine reserve and are a function of use and non-use benefits or value as stated:

$$TB = \sum_{t=1}^n 1 \frac{B_j}{(1+r)^t}$$

Where B_j represents the different benefits, r is the discount rate, t is the project's time or year, and n is the project's total number of years.

Net present value (NPV) will determine the project's viability. The general formula for NPV is:

$$NPV = \sum_{t=1}^n \frac{(Bt - Ct)}{(1+r)^t}$$

Where:

B = Benefits of MPAs at time (t)

C = Costs of MPAs at time (t)

t = number of years

r = interest rate

n = duration of the project

To determine how much the society earns and returns for what it invests, the researcher computed the benefit-cost ratio using the formula:

$$BCR = \frac{\sum_{t=1}^n \frac{B_i}{(1+r)^t}}{\sum_{t=1}^n \frac{C_i}{(1+r)^t}}$$

Where:

B = benefits of MPA conservation

C = costs of MPA conservation

t = number of years

r = interest rate

n = duration of the project

Results and Discussion

MPAs provide a range of benefits for fisheries, local economies, and the marine environment (Angulo-Valdés & Hatcher, 2010; Davis et al., 2019; Sala et al., 2013). In order to formulate

well-organized social and economic policies and institutional frameworks for MPAs, it is essential to estimate their value (Biol et al., 2006, Buncag et al., 2020). Many valuation techniques and studies of environmental goods and services have been developed to quantify their economic values. Marine protected areas have also gained the attention of numerous valuation studies to elicit the monetary values of these types of ecosystems (Akhter & Yew, 2013).

1. Economic and Biological Importance of Marine Protected Areas

More than 60% of the participants agreed that MPAs are essential in the environment. The majority of the participants (64.6%) rated 5. MPAs have been established to protect critical habitats of marine life and other marine resources by restoring their productiveness and preventing degradation amidst exposure to different stressors (Mora et al., 2011; Bates et al., 2014). MPAs with no-take zones are critical in arresting and possibly reversing the global and local decline in fish population and productivity (Angulo-Valdés & Hatcher, 2010; Biol et al., 2006). In an MPA, the consumers directly benefit from the reserve. The coastal community, fisherfolks, gleaners, and tourists, among others, will receive ecosystem services.

Costs and Benefits of Conservation of San Jose de Buenavista Marine Protected Area

Costs

The cost of conserving San Jose de Buenavista MPA is divided into two parts: management and opportunity costs. Management costs can be dissected into fixed and variable costs. Fixed costs include furniture and equipment expenses, law enforcement expenses, resource assessment expenses, permits and licensing fees, telephone, and power expenses (Table 2). Furniture and equipment expenses include the equipment and materials purchased for managing MPA, which amounted to about Php 411,431.00. This investment was already considered a sunk cost, a cost that has already been incurred, and its recovery is difficult. Next is the law enforcement expenses, with an annual cost of Php 25,000.00. The MENR officer stated that the cost includes procuring and replacing buoys, floaters, and suspension markers for the

sanctuary. This is needed to demarcate the sanctuary as the no-take zone from the buffer zone. The MENR officer is also given a monthly cellular load allowance amounting to Php 2,000 for telephone and communication expenses. This is necessary whenever there are urgent matters that need to be addressed and discussed right away concerning the management of the sanctuary. Power expenses include the monthly cost of electricity and water used in the MPA gallery near the MPA area.

Variable costs include local traveling, training, and seminar and labor expenses (Table 2). Local traveling expenses amounted to Php 30,000.00. This amount was spent for fuel during the conduct of the Students Environmental Awareness Day (S.E.A. Day) at school and sea as part of the LGU San Jose de Buenavista environmental educational program. On the other hand, training and seminar expenses amounted to Php 187,818.00. For the labor cost, Php 459,384.00 is the estimated annual salary of the designated officer for MENR and three technical staff. There is one volunteer educator among the staff.

The opportunity cost was considered in the computation of the conservation of MPA, which amounted to Php 110,730.30 (Table 2). This amount is supposedly the benefit that LGU San Jose can acquire if the amount (marked with an asterisk) were invested in the bank with 15% as the interest rate. This is considered a foregone benefit. Table 2 shows the variable costs and some of the fixed costs summed up to arrive at such an amount as the opportunity cost. The costs marked with an asterisk are considered the recurring cost and yearly investment for managing the MPA. If the money spent in the conservation of MPA will be invested in the bank, the interest incurred from this amount is the opportunity cost which is Php 110,730.30.

Table 2*List of Costs of San Jose dB MPA (2016)*

| Costs | Estimated Amount |
|---|------------------|
| Fixed Costs | |
| 1. Furniture and Equipment | Php 411,431.00 |
| 2. Law Enforcement Section | Php 25,000* |
| 3. Resource Assessment Section | No assessment |
| 4. Permits and Licensing Section | No data |
| 5. Telephone Expenses | Php 24,000* |
| 6. Power Expenses | Php 12,000* |
| Variable Costs | |
| 1. Local Travelling Expenses | Php 30,000* |
| 2. Training and Seminar Expenses | Php 187,818.00 * |
| 3. Labor Cost | Php 459,384.00* |
| Opportunity Cost (i=15%) | |
| 1. Interest Rate for the Government Investments | |
| Total Cost | Php 1,235,363.30 |

Note: *added to compute for the Opportunity cost

The total cost of San Jose de Buenavista MPA amounted to Php 1,235,363.30. This is the cost incurred by the LGU San Jose de Buenavista in managing the MPA. Sanchirico et al. (2002) asserted that there had been less emphasis and attention on the potential costs of MPAs. Costs associated with managing MPAs will tend to increase due to the need for monitoring and enforcement because expected benefits will not be realized if there is little or no monitoring and enforcement of the protected areas. These costs depend on several factors, such as the size, location, and use of restrictions, fishery management regulations,

According to Azucena and Moreno (2010), study participants in San Jose de Buenavista MPA perceived that their income was declining and there was a lack of sustainable programs to help them earn. The establishment of MPA in their area delimited their fishing capacity and increased transportation costs.

Benefits

Direct use values or benefits include fish catch and tourism revenue. The study participants provided the data for the computation of the total revenue from the fish catch. During the face-to-face interview, participants were asked about the kinds of fish, and the quantity per fish caught for the past three months. Peak season usually starts from December to May, and lean season for the remaining months. Data gathering was conducted during March. Thus, it falls into peak season. The six-month peak season's revenue amounted to Php 117, 159.74. While for the six months of the lean season, according to the participants, the catch is only about half of the peak's catch, so the estimated revenue during the lean season amounted to Php 58,579.872. Thus, the total estimated revenue derived from fish catch has amounted to Php 175,739.61.

In Sumilon Island, fishing, particularly destructive fishing, was halted for ten years after establishing a marine sanctuary in the area (White et al. 2006). These have resulted in the improved condition of coral reef substrate, increased fish abundance, and increased fish catch (but not in the sanctuary) on the Sumilon Island reef. White et al. (2006) expressed that the benefits of MPAs in the Philippines are heavy and significant. Proper formation and considerable management of MPAs can also propel marine and coastal conservation needs by preserving essential habitats and significant species and protecting particular areas.

Income derived from tourism during the S.E.A. Day environmental campaign entrance fee generated an amount of Php 12,000. This is considered the non-consumptive use value of the MPA, specifically for educational purposes. The Great Barrier Reef in Australia draws in about 1.92 million visitors per day spent, valued at more than \$ 6.4 billion in 2012 relative to \$A192.5 million of Great Barrier Reef commercial fisheries (Deloitte Access Economics, 2013).

local fishing practices and customs, and existing technology.

Indirect benefits, on the other hand, are considered functional benefits that MPA can provide (Barton, 1994). As can be seen in the table, the indirect benefits that the San Jose de Buenavista MPA can provide include coastal protection, waste treatment, and biological and food production. Due to time and logistics constraints, the researchers used an important economic tool for valuating resources' value: the Benefit Transfer Method. This method utilized the values generated by the study site (the original study) and can be transferred to the policy site (this study). Costanza et al. (1997) provided a global economic value of the coral reefs, and this study adopted such values. Costanza et al. (1997) provided the value of each indirect benefit in the table per hectare per year. Coastal protection is valued at \$2750, multiplied by Php 47, the current peso-dollar rate after which, multiplied to 15 hectares of coral reefs in San Jose de Buenavista MPA, thus amounting to Php 1,938,750.00, while waste treatment computed with the same process amounted to Php 40,890.00. The biological and food production is valued at \$259 and amounts to Php 182,595.00.

The classification of the total benefit covers the conservation value or the non-use value of marine protected areas in San Jose de Buenavista, Antique. The contingent valuation method was used to measure the non-use value. In addition, the parametric estimates method was used to measure the mean willingness to pay. Table 3 shows the coefficient and mean of the variables that were used to compute the mean WTP.

Table 3

Mean WTP Using Parametric Estimates. San Jose de Buenavista, Antique (2016)

| Parameters | APHA | | BETA | |
|------------------------|-------------|-----------|-----------|-------------|
| | Coefficient | Mean | Parameter | Coefficient |
| Constant | 3.05541 | | bid_price | -0.00990883 |
| Knowledge score | -0.090793 | 5.12 | | |
| Sex | 0.164997 | 0.59 | | |
| Age | -0.018613 | 47.02 | | |
| Educational attainment | 0.0501706 | 10.24 | | |
| civil status | -0.2023 | 2.37 | | |
| Household size | -0.170499 | 4.68 | | |
| total_family income | 4.57539e-06 | 172885.32 | | |

Mean WTP = $(-(3.05541 + (-0.090793 * 5.12) + (0.164997 * 0.59) + (-0.018613 * 47.02) + (0.0501706 * 10.24) + (-0.2023 * 4.68) + (4.57539e-06 * 172885.32)) / (-0.00990883)) = \text{Php } 219.17$

The derived value of mean WTP was rounded off to Php 219.00. The mean WTP of Php 219.00 is much higher compared with other studies, such as the mean WTP for the Sagay Marine Reserve, which is only Php 90.00 (Guanzon and Lagera, 2006) and the mean WTP of Php 187.50 to support the patrolling and monitoring of community-based MPAs in Cagayan Province (Ballad et al. 2018). The mean WTP was then multiplied by 59.62% of the total number of households in the four barangays, which is 3,654, since 59.52% was the percentage of participants willing to pay for the conservation program out of 260. This will represent the value that the people of San Jose de Buenavista, Antique, will be willing to pay for the conservation of marine protected areas in their municipality monthly. In order to come up with the annual conservation value, it will be multiplied by 12 as shown in the equation below. This value is the Social WTP amounting to Php. 5,725,136.89. Social WTP = $12 * [219 * (3654 * 0.5962)] = \text{Php } 5,725,136.89$

The total annual non-use benefits of the marine protected areas in San Jose de Buenavista, Antique, is Php. 5,725,136.89. This is also the conservation value of the MPA.

The summary of the various benefits calculated is shown in

Table 4 . The total benefits of San Jose de Buenavista MPA amounted to Php 8,075,111.50

Table 4

List of Benefits of San Jose de Buenavista Marine Protected Area (2016)

| | Quantity | Price Per Unit | Inclusive Period | Amount (Php) |
|-----------------------------------|---------------|----------------|------------------|------------------|
| | | Use Values | | |
| Direct Benefits | | | | |
| 1. Revenue From Fish Catch | | | 2015-2016 | 175,739.61** |
| 2. Tourism | 2000 students | Php 6.00 | 2014-2015 | 12,000** |
| Indirect Benefits | | | | |
| 1. Coastal Protection | 15 hectares | \$2750*** | One year | 1,938,750.00 |
| 2. Waste Treatment | 15 hectares | \$58*** | One year | 40,890.00 |
| 3. Biological and Food Production | 15 hectares | \$259*** | One year | 182,595.00 |
| | | Non-use Values | | |
| Conservation Value | | Php 219 | One year | 5,725,136.89 |
| Total Benefits | | | | Php 8,075,111.50 |

* See discussion ** Estimated *** Benefit Transfer Method, Costanza et al., (1997)

\$1= Php 47.00

Net Present Values

In order to determine the economic viability of the conservation efforts for the MPA, accounting for the present values of the future costs and benefits is a must. Before proceeding to the computation of NPV, the future costs and benefits must be discounted first to determine their present values. Discounting is necessary as it accounts for the time value of money, an idea that the money received today is worth more than the money to be received later or in the future. It is also because of the social rate of time preference that people prefer to have present consumption over future consumption. Furthermore, discounting must be taken first to know the present values of such future costs and benefits.

The table below shows the net present value at different discount rates/ interest rates. This study used five different discount

rates, and these (i)s were utilized to aid the comparison of NPV across time and possible interest rates. In a 50-year period and at 5%, 10%, 12%, 15%, and 20%, the NPV range from Php 124,865,933.31 to Php 34,194,983.08. It can also be observed that as the discount rate increases, NPV decreases. A high discount rate can reduce sizable future benefits and costs to minimal present values (Henrichson and Rinaldi, 2014).

As seen in Table 5, the conservation of the San Jose de Buenavista MPA generated a positive NPV across time and different discount rates. The conservation effort produced a greater economic benefit compared to the costs it incurred. The project's benefits outweigh its costs.

Table 5
Net Present Values of San Jose dB MPA (2016)

| Year | Discount rate | | | | |
|------|---------------|--------------|--------------|--------------|--------------|
| | 0.05 | 0.10 | 0.12 | 0.15 | 0.20 |
| 1 | 6,514,045.90 | 6,217,952.91 | 6,106,918.04 | 5,947,607.13 | 5,699,790.17 |
| 2 | 6,203,853.24 | 5,652,684.46 | 5,452,605.39 | 5,171,832.29 | 4,749,825.14 |
| 3 | 5,908,431.66 | 5,138,804.06 | 4,868,397.67 | 4,497,245.47 | 3,958,187.62 |
| 4 | 5,627,077.77 | 4,671,640.05 | 4,346,783.63 | 3,910,648.23 | 3,298,489.68 |
| 5 | 5,359,121.69 | 4,246,945.50 | 3,881,056.82 | 3,400,563.68 | 2,748,741.40 |
| 6 | 5,103,925.42 | 3,860,859.55 | 3,465,229.30 | 2,957,011.90 | 2,290,617.83 |
| 7 | 4,860,881.35 | 3,509,872.32 | 3,093,954.73 | 2,571,314.69 | 1,908,848.19 |
| 8 | 4,629,410.81 | 3,190,793.01 | 2,762,459.58 | 2,235,925.82 | 1,590,706.83 |
| 9 | 4,408,962.67 | 2,900,720.92 | 2,466,481.77 | 1,944,283.32 | 1,325,589.02 |
| 10 | 4,199,012.07 | 2,637,019.02 | 2,202,215.87 | 1,690,681.15 | 1,104,657.52 |
| 11 | 3,999,059.12 | 2,397,290.02 | 1,966,264.17 | 1,470,157.52 | 920,547.93 |
| 12 | 3,808,627.73 | 2,179,354.56 | 1,755,593.00 | 1,278,397.84 | 767,123.28 |
| 13 | 3,627,264.50 | 1,981,231.42 | 1,567,493.75 | 1,111,650.30 | 639,269.40 |
| 14 | 3,454,537.62 | 1,801,119.47 | 1,399,548.00 | 966,652.43 | 532,724.50 |
| 15 | 3,290,035.83 | 1,637,381.34 | 1,249,596.42 | 840,567.33 | 443,937.08 |
| 16 | 3,133,367.46 | 1,488,528.49 | 1,115,711.09 | 730,928.12 | 369,947.57 |
| 17 | 2,984,159.48 | 1,353,207.72 | 996,170.62 | 635,589.67 | 308,289.64 |
| 18 | 2,842,056.65 | 1,230,188.83 | 889,438.05 | 552,686.67 | 552,686.67 |
| 19 | 2,706,720.62 | 1,118,353.49 | 794,141.12 | 480,597.10 | 214,090.03 |
| 20 | 2,577,829.16 | 1,016,684.99 | 709,054.57 | 417,910.52 | 178,408.36 |
| 21 | 2,455,075.39 | 924,259.08 | 633,084.44 | 363,400.45 | 148,673.63 |

| | | | | | |
|-------|----------------|---------------|---------------|---------------|---------------|
| 22 | 2,338,167.04 | 840,235.53 | 565,253.96 | 316,000.40 | 123,894.69 |
| 23 | 2,226,825.75 | 763,850.48 | 504,691.04 | 274,782.95 | 103,245.58 |
| 24 | 2,120,786.43 | 694,409.53 | 450,617.00 | 238,941.70 | 86,037.98 |
| 25 | 2,019,796.60 | 631,281.39 | 402,336.61 | 207,775.39 | 71,698.32 |
| 26 | 1,923,615.81 | 573,892.17 | 359,229.11 | 180,674.25 | 59,748.60 |
| 27 | 1,832,015.06 | 521,720.15 | 320,740.28 | 157,108.04 | 49,790.50 |
| 28 | 1,744,776.25 | 474,291.05 | 286,375.25 | 136,615.69 | 41,492.08 |
| 29 | 1,661,691.66 | 431,173.68 | 255,692.19 | 118,796.25 | 34,576.73 |
| 30 | 1,582,563.49 | 391,976.07 | 228,296.59 | 103,301.09 | 28,813.95 |
| 31 | 1,507,203.32 | 356,341.89 | 203,836.25 | 89,827.03 | 24,011.62 |
| 32 | 1,435,431.74 | 323,947.17 | 181,996.65 | 78,110.46 | 20,009.68 |
| 33 | 1,367,077.84 | 294,497.43 | 162,497.01 | 67,922.14 | 16,674.74 |
| 34 | 1,301,978.90 | 267,724.93 | 145,086.61 | 59,062.73 | 13,895.61 |
| 35 | 1,239,979.90 | 243,386.30 | 129,541.62 | 51,358.90 | 11,579.68 |
| 36 | 1,180,933.24 | 221,260.28 | 115,662.16 | 44,659.91 | 9,649.73 |
| 37 | 1,124,698.32 | 201,145.70 | 103,269.79 | 38,834.71 | 8,041.44 |
| 38 | 1,071,141.26 | 182,859.73 | 92,205.17 | 33,769.31 | 6,701.20 |
| 3.9 | 1,020,134.53 | 166,236.12 | 82,326.04 | 29,364.62 | 5,584.34 |
| 40 | 971,556.70 | 151,123.75 | 73,505.39 | 25,534.45 | 4,653.61 |
| 41 | 925,292.10 | 137,385.22 | 65,629.82 | 22,203.87 | 3,878.01 |
| 42 | 881,230.57 | 124,895.66 | 58,598.05 | 19,307.71 | 3,231.68 |
| 43. | 839,267.21 | 113,541.51 | 52,319.69 | 16,789.32 | 2,693.06 |
| 44 | 799,302.10 | 103,219.55 | 46,714.01 | 14,599.40 | 2,244.22 |
| 45 | 761,240.10 | 93,835.96 | 41,708.93 | 12,695.13 | 1,870.18 |
| 46 | 724,990.57 | 85,305.41 | 37,240.12 | 11,039.25 | 1,558.49 |
| 47 | 690,467.21 | 77,550.38 | 33,250.11 | 9,599.35 | 1,298.74 |
| 48 | 657,587.82 | 70,500.34 | 29,687.60 | 8,347.26 | 1,082.28 |
| 49 | 626,274.11 | 64,091.22 | 26,506.78 | 7,258.48 | 901.90 |
| 50 | 596,451.53 | 58,264.75 | 23,666.77 | 6,311.73 | 751.58 |
| Total | 124,865,933.31 | 67,814,834.54 | 56,800,678.59 | 45,556,243.16 | 34,194,983.08 |

Note: Figures above were computed in Philippine peso (Php)

Benefit-Cost Ratio (BCR)

BCR is the ratio of the discounted benefits relative to the discounted costs. A simple computation to solve for the BCR is

that the total benefit is divided by the total cost. Such computation was used since cost and benefit are assumed to be constant across 50 years. The total benefit equals Php 8,075,111.50 divided by the total cost equals Php 1,235,363.3, and the BCR amounts to Php 6.54. This means that for every peso incurred for the conservation of MPA, the society can benefit an amount of Php 6.54 or approximately Php 7.00. According to James and Predo (2015), if the BCR of the conservation effort exceeds 1, the present value of benefits is greater than the present value of costs, then the effort is economically efficient. If computed across time and interest rates, the BCR is still the same. Society can benefit by 7.00 even if the interest rate increases from 5% to 20%.

In order to obtain the economic value of the MPA, total benefits should be divided by the total area of the MPA in hectares. The total benefits generated by the MPA are equal to Php 8,075,111.50, and the San Jose de Buenavista MPA has an area of 67.2 ha.

$$\frac{\text{Php } 8,075,111.50}{67.2 \text{ hectares}} = \text{Php } 120,165.3/\text{ha}/\text{yr}$$

The computation below shows the cost per hectare of conserving MPA. On the other hand, the total cost amounted to about Php 1,235,363.30, which constitutes 15% of the benefits the MPA can generate for society.

$$\frac{\text{Php } 1,235,363.30}{67.2 \text{ hectares}} = \text{Php } 18,383.38/\text{ha}/\text{yr}$$

The economic value per hectare of San Jose de Buenavista MPA is huge and greater than the cost per hectare, even though some indirect benefits are not accounted for in the study. Hence, although the data was gathered in 2016, the BCA remains applicable since the 50-year period extends through the current year.

Conclusions and Recommendations

The study showed that the economic value of San Jose de Buenavista MPA is worth conserving because the benefit exceeded its cost. The benefit-cost ratio also tells that in every peso investment of the society for the MPA, the society can reap and get Php 7.00 as its benefits. Even if only 25% of the indirect benefits are accounted for, society can still benefit by Php 5.27.

However, the benefits and the costs might be underestimated due to a lack of available data and time and logistics constraints. A more thorough study could capture other benefits that the MPA can provide. The results could have higher economic value and benefits, resulting in positive NPV across time at different interest rates. Nevertheless, the cost-benefit analysis proved that San Jose de Buenavista's conservation program is economically desirable and viable.

The results of this study could supply the LGU with the information needed to develop effective resource-use policies. Given that almost 60% of the study participants were willing to pay for the conservation of the MPA, the LGU of San Jose should implement the conservation program. With such, the respective barangays where the MPA is established can employ a mechanism to capture the WTP of its constituents. Based on the personal interviews conducted in their respective barangays, the respondents suggested that a monthly contribution through barangay collection would immensely help the conservation program.

The San Jose LGU can also re-establish an MPA management board that would help facilitate coordination and cooperation in managing the MPA across barangays. It is crucial that the LGU San Jose should be freed from any attempt of corruption and irregularities in their conservation efforts toward MPA in order to gain the trust of the community and to implement the conservation program effectively. Community participation is recommended to empower the community and to conduct information and education drives to inform the people about the MPA and its benefits.

It is recommended for each barangay have a standardized record-keeping and data-collection technique to monitor fish catch. Regular monitoring of fish catch is necessary for determining the effectiveness of the management of MPA. Monitoring of fish landing areas in the community may also be included in data collection to be more indicative of the direct benefits of these MPAs. Enforcement of fisheries laws and MPA-specific ordinances need to be undertaken, too, considering that huge benefits would be huge compared to costs.

Future studies on resource assessment may be done to determine the biological conditions of MPA. Resource assessment was not included in the computation of total costs of managing San

Jose MPA due to lack of assessment during the period of study and unavailability of skilled individuals to conduct the assessment. Perhaps collaboration with other government agencies or educational institutions may be established to conduct assessment on the MPA.

Finally, a follow-up study on benefit-cost analysis of San Jose, MPA may be done to include other costs and benefits not covered by this study. Specifically, enforcement costs as well as opportunity costs of no take zone MPA can be pursued to provide additional inputs to BCA studies

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“High blood ka na naman!”: Pagdalumat sa Salitang Altapresyon Batay sa Kontekstong Pilipino

Cheyene Franchesca M. Go

Francis Roy S. Gonzales

Millena Maia T. Gonzales

Sweetheart Angela C. Gonzales

Mari Anne Estefani G. Guerra

Joyce Anne Marie F. Guerrero

J-Ross E. Guillermo

Nelsie Faith M. Gumapos

University of Santo Tomas – College of Nursing

Ian Mark P. Nibalvos

Samar State University – Paranas Campus

Abstrak

Ang altapresyon ang itinuturing na pangunahing sanhi ng maagang pagkamatay sa buong mundo. Ang sintomas ng pagkakaroon nito ay ang labis na pagtaas ng presyon ng dugo na nakasasama sa mga ugat at puso ng tao. Mahalaga na may kaalamang pangkalusugan ang mga Pilipino sa kung paano ito nakaaapekto sa kanilang karamdaman, pag-uugali, pagdedesisyon, at paggamot. Layunin ng pananaliksik na ito ang pagdalumat sa salitang ‘altapresyon’ bilang isang mahalagang salita sa intelektuwalisasyon ng wikang Filipino, lalo na sa larangan ng Narsing. Nakatuon ang pag-aaral sa pabibigay-linaw sa mga paniniwala ng mga Pilipino at ang kahalagahan ng regular na pag-inom ng gamot at pagpapakonsulta sa mga healthcare professional. Ang kalitatibong pag-aaral na ito ay naglalaman ng mga nakalap at sinuring sanggunian katulad ng tekstong akademiko at tekstong popular upang palawakin ang diskusyon ukol sa altapresyon. Ito ay hinahati sa apat na aspekto: istandard na kahulugan, etimolohiya, kahulugang batay sa

komunidad pangwika, at kahulugang simbolikal. Hinahangad ng mga mananaliksik na palawakin at palalimin ang salitang ‘altapresyon’ batay sa kontekstong Pilipino at maiugnay din sa mga unibersal na karanasan sa konsepto. Ayon sa mga naitalang sanggunian, madalas na ginagamit ang altapresyon sa larangan ng Medisina at Sosyolohiya at nakadepende rin ito sa kung paano ito ginagamit. Malawak ang pagpapakahulugan ng mga Pilipino sa salitang ‘altapresyon’ at iba-iba rin ang gamit nito batay sa paksa ng diskurso. Bagama’t limitado ang pag-aaral sa mga literatura, ang pagdalumat ng salitang ‘altapresyon’ ay maaaring maibahagi upang makabuo pa ng mga pananaliksik na may mas malawak na saklaw gaya ng pakikipanayam sa mga taong nakaranas ng sakit na ito sa isang lugar o komunidad. Higit na inirerekomenda ng mga mananaliksik ang mas malawak na diskusyon ukol sa mga interbensiyon ng mga nars sa pangangalaga ng mga taong may altapresyon.

Mga Susing Salita: Narsing, Hayblad, Paniniwala, Gawain, Pag-unawa

Introduksiyon

Ayon sa World Health Organization (WHO), ang altapresyon ang pangunahing sanhi ng maagang pagkamatay sa buong mundo. Isa itong karamdaman kung saan may labis na pagtaas ng presyon ng dugo na maaaring makasama sa mga ugat at sa puso, na siyang may malaking tungkulin sa paghahatid ng oxygen at mga nutrisyon sa iba’t ibang bahagi ng katawan (“hypertension”). Tinatayang nasa 1.28 bilyong tao na nasa edad 30-79 taong gulang ang may altapresyon at nasa 46% ang walang kamalayan na mayroon sila nito (WHO, 2020). Batay naman sa pagsisiyasat ng Philippine Heart Association (PHA), ang altapresyon ang nangungunang sakit sa puso ng mga taong naospital na may bilang na 38.6% (Sison, et al., 2020, 504-507).

Bagama’t alam ng mga Pilipino ang altapresyon, na madalas nilang taguriang “high blood,” ito ay madalas pa ring ipinagsasawalang-bahala, sa kadahilanang hindi gaanong nakikita ang mga sintomas at taglay na kalubhaan nito. Dahilan din ito sa pagbansag sa altapresyon bilang “silent killer,” sapagkat hindi man

halata ang mga sintomas, inilalagay nito sa panganib ang katawan at malaki ang idinudulot nito sa pagkakaroon ng iba't-ibang mga karamdaman gaya na lamang ng coronary heart disease, stroke, heart failure, kidney failure, at maging ng pagkamatay (Sawicka et al., 2011). Sa katunayan, sa bawat taon, umaabot sa 86,000 ang pumapanaw sa bansa dulot ng mga karamdamang may kinalaman sa altapresyon, ayon kay Dr. Rafael Castillo na council member ng International Society of Hypertension at ang nakaraang pangulo ng Philippine Society of Hypertension (GMA News Online, 2019).

Sa Pilipinas, may ilang paniniwalaparintungkolsa altapresyon na patuloy na lumalaganap at kailangang mabigyang-linaw. Ilan sa mga halimbawa nito ang mga maaaring sanhi ng pagkakaroon ng altapresyon, mga kinokonsumo at ginagawa, pagtigil ng pag-inom ng gamot kapag wala ng sintomas, at pati na rin ang pag-aakalang mga nakatatanda lamang ang nagkakaroon ng sakit na ito. Sa kabila nito, napag-alamang patuloy na dumarami ang kaso ng altapresyon sa mga indibidwal na nasa murang edad pa lamang; ito ay dahil sa talamak na kakulangan sa pisikal na gawain, pagtangkilik sa mga processed at instant na pagkain at iba pa. Mahalaga ang pananaliksik na ito sapagkat ang mga pangkulturang paniniwala ay nakaaapekto sa kaalamang pangkalusugan, sa kung paano nauunawaan ng mga tao ang mga karamdaman, mga pag-uugali at pagdedesisyon kaugnay sa sariling kalusugan, at paraan ng paggamot. Bilang isang pangkaraniwang karamdamansabansa, ang pagdalumat at pagtalakay sa paksang ito ay makatutulong sa pag-unawa ng kahulugan nito sa kontekstong Pilipino, pagtukoy at paglilinaw ng mga maling ideya tungkol sa altapresyon, pagpapalawak ng kaalaman at pagtulong sa mga Pilipino sa pag-iwas at pamamahala o pagtugon sa kondisyon.

Pokus ng Pag-aaral

Nakatuon ang papel na ito sa pagdalumat sa salitang 'altapresyon' bilang isang mahalagang salita sa intelektuwalisasyon ng Filipino, lalong-lalo na sa larangan ng Narsing. Dahil naiengkuwentro at ginagamit ang salitang ito sa nasabing larang, mahalaga ito sa intelektuwalisasyon upang makatulong na mas mauunawan ito at magamit ang kaalaman para sa pagpapapabuti ng pangangalaga sa

mga taong nakararanas o nanganganib magkaroon ng altapresyon. Kasama sa mga tatalakayin ang pangunahing kahulugan, dahilan, at epekto ng pag-aaral at kabuoang pag-unawa sa altapresyon. Mabibigyang-linaw rin ang mga kuro-kuro o ang mga tama at maling paniniwala ng mga Pilipino tungkol sa sakit, maging ang mga gawain upang maibsan ang tiyansang magkaroon ng altapresyon o ang mga hakbang na ginagawa tuwing nakararamdam ng sintomas. Bukod dito, mabibigyang-diin din ang kahalagahan ng pag-inom ng nararapat na gamot at pagkakaroon ng regular na konsultasyon sa isang propesyonal. Mabubuksan din ang usapin tungkol sa mga programa ng mga ahensiya ng kalusugan at ng komunidad namakatutulong sapangangalagang kalusugan maging ang malawakang pag-unawa nito sa lipunan ay sakop din ng pananaliksik.

Disenyo at Metodo ng Pananaliksik

Ang pananaliksik ay gagamit ng kalitatibong pamamaraan upang makamtan ang nasabing layunin. Isasagawa ito ng mga mananaliksik sa pamamagitan ng pagkalap at pagsusuri ng mga diskursong nakapaloob sa mga inilathalang reperensiya gaya ng mga tekstong akademiko, tekstong popular at iba pang literatura na may kinalaman sa pokus ng pag-aaral. Sa pagpapalawak ng kaalaman tungkol sa paksa, payayabungin ang diskusyon nang naaayon sa apat na aspekto: istandard na kahulugan, kahulugang pangkasaysayan, mga kahulugan batay sa mga komunidad pangwika, at kahulugang simbolikal. Ninanais ng mga mananaliksik na unawain at pag-ugnay-ugnayin ang mga pagpapakahulugan ng ‘altapresyon’ mula sa larangan ng Narsing at sa tulong nito ay tuluyang mapalawak at mapalalim ang pag-unawa at paggamit ng salitang ito sa lipunang Pilipino, at pati na rin sa ibang panig ng daigdig.

Elaborasyon ng mga Kahulugan ng Salita

Denotasyon

Binigyan ng pagpapakahulugan ng UP Diksiyonaryong Filipino ang salitang altapresyon sa larangan ng Medisina bilang

“mataas na presyon ng dugo.” Pinalawak naman ng Department of Science and Technology (DOST) ang salitang ito sa depinisyon bilang “isang medikal na kondisyon kung saan ang presyon ng dugo sa mga malaking ugat ay labis na mataas.” Ayon pa sa nasabing kagawaran, ang hypertension ay direktang naisasalin sa wikang Filipino bilang “sukduldiin” na magagamit din sa larangan ng Medisina. Mas pinalalim pa ng WHO ang pagpapakahulugan ng altapresyon bilang isang kondisyon kung saan ang mga ugat sa katawan ay tuloy-tuloy na mataas ang presyon, at mas nahihirapan ang puso sa pagpapadaloy ng dugo sa katawan.

Sa kabilang banda, binigyan naman ng pagpapakahulugan ng diksiyonaryong English-Tagalog na Gabby Dictionary ang salitang altapresyon sa dalawang larang. Ayon dito, ang salitang altapresyon sa larangan ng Medisina ay nangangahulugang “sobrang taas na presyon ng dugo,” samantalang sa larangan ng Sosyolohiya, ito ay nangangahulugang “maigting na maigting na emosyon.” Katulad ng Gabby Dictionary, binigyan din ng TagalogLang.com ng medikal at sosyohohikal na pamamaraan ng paggamit ang salitang hypertension. Ayon dito, ang altapresyon ay maaaring isalin sa wikang Filipino bilang “presyon” o “hayblad.” Ilan sa mga halimbawa kung paano ito ginagamit sa larangan ng Medisina ay katulad ng “Inaaltapresyon ako!” o di kaya ay “Tumataas ang presyon ko!” na tumutukoy sa pisikal na pagtaas ng presyon ng dugo. Sa kabilang banda, nagagamit ito sa larangan ng Sosyolohiya sa pamamaraang katulad ng “Hinahayblad ako sa’yo!” o di kaya ay “Hayblad ka na naman, relax lang!” na tumutukoy naman sa maigting na emosyon dulot ng isang madamdaming pangyayari.

Mula sa mga naitalang sanggunian, lubos na nagagamit ang salitang altapresyon sa larangan ng Medisina at Sosyolohiya. Ang kahulugan ng salitang ito ay nakadepende sa pamamaraan kung paano ito ginagamit. Natukoy rin na ang salitang hypertension ay direktang naisasalin sa Wikang Filipino bilang “sukduldiin” at “hayblad.” Malawak at mayaman na salita ang altapresyon, kung kaya’t nararapat lamang na suriin pa ang ibang aspekto ng salitang ito upang mas mailapat ito nang tama sa iba’t ibang larang at sa mausbong na kultura ng bansa.

Etimolohiya

Ang bahaging ito ay isang detalyadong pagsasalaysay ng kasaysayan ng salitang altapresyon. Ang salitang altapresyon ay nagmula sa salitang Espanyol na “alta” na nangangahulugang mataas, at “presión” na ang ibig sabihin ay presyon sa wikang Filipino.

Upang mas maintindihan kung paano nagbago ang kahulugan ng altapresyon at ang paglalarawan ng iba’t-ibang mga tao rito sa nakalipas na panahon, narito ang isang timeline na naglalaman ng mga salaysay na nagmula sa mga artikulo nina Esunge (1991), Harold (2019), Kotchen (2011), Murphy (1930) at Grillo (2019), Ressel (2003), Zarshenas et al. (2014) at ng Harvard Health Publishing (2020) tungkol sa naturang salita: 2600 BCE: Ayon sa librong Yellow Emperor’s Classic of Internal

Medicine, kapag maraming asin ang napunta sa dugo, naninigas ang pulso. Kabilang sa paggamot ng “hard pulse disease” noong sinaunang panahon ay ang acupuncture, venesection at pagbawas ng dugo gamit ang mga linta.

990 AD: Sa kabanatang “Fi al-Imtela” (About the Fullness) sa librong Hidayat al-Mutaallemin fi al-ibb na isinulat ni Abu Bakr Rabee Ibn Ahmad Al-Akhawyni Bokhari, inilarawan niya ang isang sakit na may mga sintomas na katulad ng kini kilalang altapresyon ngayon: malakas na pulso, pagkaantok, kahinaan, at hirap sa paghinga. Sa kaniyang opinyon, ang sakit na ito ay maaaring magresulta mula sa labis na dami ng dugo sa daluyan nito. Naniniwala siya na ang kabuoang dami ng dugo ay hindi normal, ngunit ang kalidad nito ay normal at nagagampanan nito ang tungkulin nito sa katawan. Ipinaliwanag niya na may posibilidad na may kasunod na mangyari sa sakit na ito gaya ng sobrang pamumula ng mukha, paglaki ng mga ugat, pag-usli ng mga mata, pagputok ng daluyan ng dugo na dahilan ng hindi mapigilang pagdurugo, “sakteh” (stroke), banta ng kamatayan, at pagdurugo ng ilong.

1896: Ang pagkilala sa altapresyon sa larangang klinikal ay nagsimula kasabay ng pag-imbento ng isang Italyanong doktor na si Scipione Riva-Rocci ng cuff-based mercury

sphygmomanometer.

- 1900: Ang Sodium Thiocyanate ang unang gamot na ginamit nina Treupel at Edinger para sa pagpapagaling sa mga taong may altapresyon. Subalit, ayon kay Hines at sa Mayo Clinic, ito raw ay mayroong potensiyal na makalason ng mga tao at nakapagbibigay rin ng maraming mga side effect kaya hindi rin ito naging sikat bilang gamot sa altapresyon.
- 1905: Inilarawan ng isang Russian na doktor na si Nikolai Korot koff ang mga tunog na naririnig kapag ang isang malaking ugat ay pinakinggan gamit ang stethoscope habang ang sphygmomanometer cuff ay umiimpis. Ang mga tunog na ito, na siyang binansagang Korotkoff sounds, ay nakatulong na tukuyin ang mga sukat ng systolic at diastolic na presyon ng dugo at pagtatala ng presyon ng dugo sa mga klinika.
- 1905: Bagama't ang unang pagkakahawig ng pagkonsumo ng asin sa mga kinakain at ang presyon ng dugo ay nagmula kay Huang Ti Nei Ching Su Wein noong 2600 BC na isinalin ni Wan Ping noong 762 AD, sina Ambard at Beaujard, mga mag-aaral ng mediko sa Pransya, ang unang nagtaguyod ng konsepto na ang sanhi ng pagkakaroon ng altapresyon ay batay sa asin na nakokonsumo mula sa pagkain. Inaangkin rin ng mga mag-aaral na ang pagbabawas o paghihigpit sa pagkonsumo ng asin sa mga kinakain ay nakapagbabawas ng presyon ng dugo.
- 1913: Ipinakilala ni Theodore Caldwell Janeway ang pangalang hypertensive vascular disease.
- 1914: Ang salitang malignant hypertension ay unang ginamit nina Franz Volhard at Theodor Fahr upang itala ang mga kaso ng renal arteriosclerosis na nagreresulta sa renal failure.
- 1925: Nilikha ni Eberhard Frank ang salitang hypertonie essential upang ilarawan ang pagtaas ng presyon ng dugo na kung saan ay hindi matukoy ang sanhi.
- 1930 - 1940: Ayon sa pag-aaral ni Selye, sinasabi na ang stress ay nakapagbibigay ng kontribusyon sa pagkakaroon ng altapresyon dahil sa pagpapasiglanit sa mga adrenal corticoids (hormones na nakatutulong sa pag-regulate ng presyon ng dugo). Dahil sa haypotesis na ito, isinasaalang-alang na

ang altapresyon ay isang sakit na halaw sa stress.

- 1950: Nakagawa ang mga eksperto ng gamot na mabisa sa pagpa pababa ng presyon ng dugo at tinawag itong chlorothiazide. Ito ay isang uri ng diuretic o gamot na pampaihi na siyang nakatutulong upang mabawasan ang tubig sa katawan. Sa pamamagitan ng pagbabawas ng tubig sa katawan, mapabababa ang presyon ng dugo at maiiwasan ang posibilidad na makaranas ng stroke at atake sa puso.
- 2003: Ang National Heart, Lung, and Blood Institute sa Estados Unidos ay naglabas ng gabay ukol sa pagtukoy ng mga uri ng altapresyon. Kabilang sa mga kategorya ang normal (<120/<80), prehypertension (120-139/80-89), stage 1 hypertension (140-159/90-99), at stage 2 hypertension (160/100).
- 2017: Naglabas ang American College of Cardiology at American Heart Association ng panibagong gabay na kung saan ay binabaan ang bilang sa pagtukoy ng altapresyon sa 130/80 at pataas para sa lahat ng matatanda. Kabilang sa mga kategorya ang normal (<120/<80), elevated (120-129/<80), stage 1 hypertension (130-139/80-89), stage 2 hypertension (>140/>90), at hypertensive crisis (>180/>120) na kinakailangan ng agarang pagpapakonsulta sa doktor.

Mga Diskurso ng Iba’t-Ibang Komunidad Pangwika

Komunidad Pangwika 1: Sosyolohiya

Sa larang ng Sosyolohiya, ayon sa Cebuano Dictionary, ginagamit ng mga Bisaya ang salitang “hayblad” kapag ang isang tao ay mabilis magalit o kaya ay sobrang galit. Sa pagdaan ng panahon, ginagamit na rin ito ng iba pang Pilipino bilang ekspresyon dahil sa madalas na paggamit nito sa iba’t ibang uri ng midya gaya ng pelikula, telebisyon, diyaryo, at meme.

Figure 1

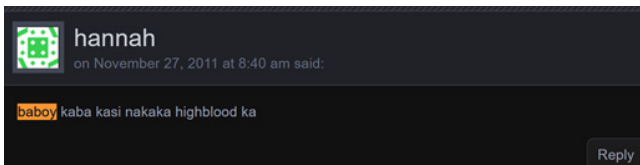
FPJ Meme (Meme Generator, 2013)



Inilathala ang meme na makikita sa itaas noong 2013 sa website ng Meme Generator. Makikita ang paggamit ng salitang “high blood” nang dinuro ni Fernando Poe Jr., isang Pilipinong aktor, ang isang lalaking galit.

Figure 2

The Top Ten Pickup Lines (Garcia, 2009)



Kaugnay dito ay ang paggamit din ng mga Pilipino sa salitang “hayblad” sa pagbibiro o sa pagbibitaw ng mga pick-up line. Sa isang blog ni Chico Garcia noong 2009, nag-post siya ng iba’t-ibang halimbawa ng pick-up lines at ibinahagi niya ito sa publiko. Noong 2011, isang netizen ang nagkomento at ginamit ang salitang “highblood” o altapresyon sa kaniyang pagbibiro.

Komunidad Pangwika 2: Relihiyon

Ang altapresyon ay mayroon ding kahulugan batay sa mga paniniwala ng ibang relihiyon. May mga pag-aaral na nagbibigay-mungkahi na ang paggamit ng salitang “altapresyon” ay bahagi rin ng kanilang kabanalan. May mga paniniwala na naglalahad

ng kanilang pagkagaling nang dahil sa isang poon (Kretchy et al., 2013). Dahil dito, naapektuhan nito ang kaalaman ng mga Pilipino na uminom ng mga gamot laban sa altapresyon upang sila ay mabigyan ng lunas. May ilan namang nagsasabing ang kanilang mga paniniwala at gawain sa kanilang relihiyon ay nagpapababa ng kanilang dugo at nakababawas ng mga sintomas na dulot ng altapresyon o high blood.

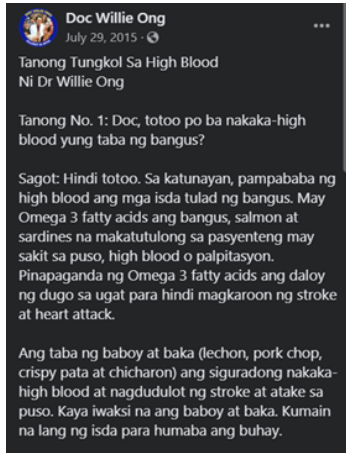
Komunidad Pangwika 3: Pamumuhay

Sa loob ng bahay, ang paggamit ng salitang altapresyon o high blood ay nakadugtong din sa mga pagkain na mataba o maalat. Ito ay dahil napatunayan na nakapagpapataas ng dugo ang mga ganitong uri ng pagkain. Kadalasan ay naririnig sa mga kamag-anak ang katagang "Ingat, baka ma-high blood ka niyan!" na siyang nagpapahiwatig na bawasan ang pagkain ng mga maalat at matabang pagkain. Gayunpaman, hindi lamang ang pagkain ng mataba o maalat na pagkain ang nagdudulot ng altapresyon dahil marami rin itong maaaring pagmulan tulad ng genetics at stress.

Ayon sa isang pag-aaral nina Lasco et al. (2020), inilarawan na ang pagkakaroon ng altapresyon ay posible rin na nagmula sa iba't-ibang kadahilanan tulad ng genetics, pagkain, labis na pagkapagod, at dulot ng init. Kung susuriin ang lipunan, malaki rin ang epekto ng mga kuwento at sabi-sabi na pinagpasapasahan ng mga henerasyon. Nang dahil dito, naging pananaw na ng mga Pilipino na ang pagkakaroon ng altapresyon ay dinamiko at nabibigyang-lunas sa loob ng maikling panahon.

Figure 3

Tanong Tungkol sa High Blood Ni Dr Wille Ong (Ong, 2015)



Sa isang Facebook post ni Dr. Willie Ong noong 2015, makikita rito ang pagsagot niya sa iba't-ibang tanong tungkol sa altapresyon. Isang tanong na kaniyang sinagot ay ang tungkol sa kung nakatataas ba ng presyon ang pagkain ng taba ng bangus. Sinagot ni Dr. Ong ang maling paniniwala at ipinaliwanag na pinabababa pa ang presyon ng isang taong may altapresyon dahil naglalaman ito ng omega-3-fatty-acids na tumutulong upang dumaloy nang maayos ang dugo sa ugat at maiwasan ang pagkakaroon ng stroke o atake sa puso.

Ang “Altapresyon” Batay sa Karanasang Pilipino

Ang Pagpapakahulugan ng mga Pilipino sa Altapresyon

Malawak ang pagpapakahulugan ng mga Pilipino sa altapresyon; maging ang sanhi o pinagmumulan, at lawak ng naapektuhan nito sa lipunan ay magkakaiba rin. Ang diskusyon sa pagpapakahulugan ng mga Pilipino sa altapresyon ay mahalagang bigyan ng pansin sapagkat makatutulong ito sa mga medikal na propesyonal upang maayos na maagapan ang altapresyon nang naayon sa kontekstong Pilipino.

Lumabas sa pag-aaral nina Lasco et al. (2020) na ang karanasan ng mga Pilipino sa hypertension o altapresyon ay madalas na isinasangguni o inihahambing sa salitang “dugo,” at ang mga pagbabago sa dugo ay isang paraan para sa kanila upang maunawaan

ang epekto ng altapresyon sa katawan (p. 3). Isang halimbawa ang madalas na paggamit ng mga pariralang "mataas ang dugo" o highblood at "malakas na dugo" o strong blood na ang ipinahihiwatig lamang ay altapresyon. Bukod dito, madalas ding gamitin ang pariralang "mababa ang dugo" o low blood na maihahambing sa mga konsepto ng low blood pressure, hypotension, at anemia, at maaari ring iugnay sa pagkahilo at panghihina. Ibinahagi ng isang kalahok sa saliksik ang paggamit ng konsepto ng mataas at mababang dugo sa kaniyang pahayag na "Bukod sa mataas na dugo, nagkaroon din ako ng mababang dugo at nakaranas ng panghihilo, kung kaya't kumain ako ng talbos ng kamote upang 'di na bumaba ang aking dugo."

Ilan pa sa mga pagbabago sa dugo na madalas isinasangguni ng mga Pilipino sa altapresyon, ayon pa rin sa nasabing saliksik, ay ang lapot at temperatura ng dugo. Ang "malapot" na dugo ay inihahambing sa hypertension at ang "malabnaw" na dugo ay inihahambing sa hypotension. Ang "mainit" o "kumukulo" na dugo ay inihahambing rin sa hypertension. Ayon sa isang kalahok, "Ang malapot na dugo ay pumupunta at bumabara sa mga litid o ugat kung kaya't hindi nakadadaloy nang maayos ang dugo."

Ayon pa rin sa nasabing saliksik nina Lasco et al. (2020) marami ang sanhi o pinagmumulan ng altapresyon, batay sa konseptong Pilipino. Una na riyan ang paniniwalang namamana ang altapresyon, o sa madaling salita, ito ay "nasa dugo" ng pamilya (p. 6). Nasa paniniwala ng mga Pilipino na ang altapresyon ay dumadaloy sa dugo ng pamilya, kung kaya't madalas isipin na kapag ang isang miyembro ng pamilya ay nakaranas ng komplikasyon ng altapresyon, katulad ng stroke, ay maaari rin itong danasin ng iba pang miyembro ng pamilya. Ito madalas ang nag-uudyok sa mga Pilipino na uminom ng kanilang mga gamot pang-altapresyon dahil sa takot at kaba sa maaaring maging resulta ng kanilang altapresyon. Pahayag ng isang kalahok, "Hindi na ako nagulat na ako ay may altapresyon dahil ito ay nasa dugo namin, ngunit natatakot ako dahil ang aking tatay, nanay, at mga kapatid ay na-stroke. Ayoko na mangyari ito sa akin kung kaya't nagpakonsulta na ako sa doktor."

Isa pa sa mga sanhi o pinagmumulan ng altapresyon, batay sa konseptong Pilipino, na ayon pa rin sa nasabing saliksik, ay ang init. Sa Pilipinas, kung saan mayroong tropikal na klima, ay madalas

makaranas ng matinding init lalo na kung panahon ng El Niño at kasagsagan ng tagtuyot. Hindi na bago sa kultura at pamumuhay ng mga Pilipino ang pagkakaroon ng maraming bentilador o electric fan, pamaypay, at sumbrero upang maibsan ang matinding init. Mabenta rin ang Halo-halo at ice candy upang labanan ang matinding init. Marahil ang madalas na pagsakit ng ulo, pagkahilo, at pagtaas ng kaso ng stoke sa mainit na panahon ay naging batayan ng mga Pilipino sa pagsangguni ng altapresyon sa init ng paligid. Pahayag ng isang kalahok, “Ang altapresyon ay dahil siguro sa mainit na klima. Wala kasi kaming aircon dito sa bahay. Kapag mainit ang piligid, umiinit din ang ulo at kumukulo ang dugo kung kaya’t tumataas ang BP.”

Panghuli sa mga sanhi ng altapresyon, batay sa konseptong Pilipino, na ayon pa rin sa nasabing pag-aaral, ay ang stress sa pisikal at emosyonal na anyo. Madalas sa mga Pilipino, kapag nakararamdaman ng pagod at matinding damdamin o emosyon, ay hinahayblad. Ayon sa isang kalahok, “Kapag iritado ka, at main it ang paligid, iinit din ang pakiramdam mo. Maaapektuhan ang katawan mo, kukulo ang dugo mo, at tataas ang BP mo.” Ayon pa sa isang kalahok, “Kapag pagod ka, lalo na kung galing ka sa mahabang biyahe, tataas talaga ang BP mo. Pero kung magpapahinga ka, babalik naman sa normal.” Mahalagang bigyan ng pansin ang konsepto ng stress sapagkat makatutulong ang pag-unawa ng mga Pilipino sa stress upang masolusyonan at magabayan ang kanilang pamamahala ng altapresyon.

Mga Paniniwala at Gawaing Pilipino sa Pag-iwas at Pamamahala ng Altapresyon

Bilang isang karamdaman na noong sinaunang panahon pa binibigyang-pansin, maraming gawaing Pilipino at paniniwala na ang naipasa sa bawat henerasyon upang maiwasan at mabigyang-lunas ang naturang sakit. Bagama’t marami man ang mga ito, hindi lahat ay masasabing epektibo batay sa kasalukuyang mga pag-aaral.

Ayon sa isang kalahok sa pag-aaral nina Lasco et al. (2020) ang pagkapagod ay maaaring maging dahilan ng pagtaas ng presyon ng dugo, gaya kapag mayroong lakad, biyahe, at trabaho (p. 4). Gayunpaman, hindi lahat ng mabigat na gawain ay may kaugnayan sa stress na nagdudulot ng pagtaas ng presyon; ang pisikal na pag-eehersisyo

ay kinikilala bilang kapaki-pakinabang sa kalusugan kapag ginawa bilang isang libangan kompara sa pisikal na mga gawain sa trabaho.

Karamihan sa kalahok sa parehong pag-aaral nina Lasco et al. (2020) ang nagsabi na ang kanilang karaniwang pagkain ay may impluwensiya sa kanilang altapresyon, lalo na ang pagkain nila ng mga hindi malulusog na pagkain gaya ng maaalat at matataba (p. 5). Ang kolesterol ay nagdudulot ng paglapot ng dugo at pagbara sa daluyan nito na siyang nauuwi sa komplikasyong hatid nito, gaya ng stroke at pag-atake sa puso, subalit importante ring tandaan na ang lokal na pagkakaintindi sa salitang kolesterol bilang sustansiya na galing sa taba ay hindi tulad ng kahulugan nito sa biomedicine. Dahil sa pagkakaintinding ito, nagkakaroon ito ng epekto sa tamang pagkain at pangangalaga ng mga tao sa sarili nila. Gayunpaman, mahalaga pa ring malaman na ang hindi wastong pagkain nito ay maiuugnay din sa mababang presyon na siyang may hatid na problema rin sa kalusugan.

Pinabulaanan naman ng isang cardiologist mula sa Philippine Heart Center at kalihim ng Philippine Society of Hypertension na si Gilbert Vilela ang pag-inom ng pineapple juice, pagkain ng bawang, at ang paglagay ng gamot sa ilalim ng dila bilang pangkontrol ng presyon ng dugo, at binansagang isang mito at hindi makabuluhan. Walang direktang kaugnayan ang mga ito sa naturang sakit, at maaari pa itong magdulot ng iba pang problema. Sa halip na gawin ang ganoong klaseng remedyo, inaabisuhan ang mga tao na dapat na pumunta sa pinakamalapit na manggagamot kapag nakararanas ng altapresyon (Mendoza, 2021).

Isa sa mga paniniwala ng karamihan na kapag ang altapresyon ay nasa dugo ng pamilya o namamana ay wala nang maaaring magawa (Newman, n.d.). Bagamat mayroong kaugnayan ang altapresyon at genetics, isang pag-aaral ang nakabuo ng isang konklusyon na ang pagkakaroon ng malusog na pamumuhay sa paraang pagkain ng tama, limitadong pag-inom ng alak, katamtamang dami ng sodium sa katawan, normal na body mass index (BMI), at paggawa ng mga pisikal na aktibidad ay may relasyon sa pagpapababa ng presyon ng dugo, kahit na may genetic risk (Pazoki et al., 2018, pp. 653-661).

Ang mga bato o kidney stones ang umaayos ng mga nibel ng sodium at tubig sa dugo ng katawan ng tao; subalit ang pagkonsumo ng sobra-sobrang sodium at maaalat na pagkain ay nagdudulot

ng pananatili ng tubig sa katawan na siyang nagpapataas ng dami ng dugo. Dahil dito, tumataas ang presyon ng dugo na nagiging dahilan kung bakit kinakailangang higit pang magsumikap ang puso na padaluyin ang dugo sa iba't ibang parte ng katawan at sa paglipas ng panahon ay nagdudulot ng altapresyon, atake sa puso, at iba pang mga karamdaman at komplikasyon (Grillo et al., 2019, p. 8).

Isa rin sa mga paniniwala ang hindi kinakailangang pagtuon ng pansin sa pagkonsumo ng asin sa mga kinakain dahil hindi naman nila ito ginagamit sa pagluluto (Lasco et al. 1). Lingid sa kaalaman ng karamihan na ang sodium ay hindi lamang makikita sa paglalagay ng asin sa ilang mga lutong putahe, ngunit maraming mga sangkap panluto ang naglalaman nito tulad ng mga kamatis, keso, tokwa, peanut butter, at iba pa. Naglalaman rin ng mataas na nibel ng sodium ang mga prosesong pagkain tulad ng mga delata at mga produktong karne dahil sa taglay nitong mapatagal ang pagkasira ng mga produkto.

Inirerekomenda ng WHO ang pagkonsumo ng hindi tataas sa limang gramo ng asin kada araw upang maiwasan ang pagkakaroon ng altapresyon o anumang sakit sa puso. Ang paglimita sa pagkonsumo ng mga pagkaing likas sa sodium o maaalat na pagkain ay mabisa sa pagpapababa at pagkontrol ng presyon ng dugo sa mga indibidwal na may altapresyon, bagamat kailangan pa rin ng mas malawak na pag-aaral sa malaking populasyon upang mas maunawaan ang mga epekto ng paglimita ng pagkonsumo ng sodium sa puso (Dong, 2018, pp. 7-16).

Higit pa sa mga nabanggit na paniniwala, ayon kay Newman (n.d.), marami pa ring tao ang naniniwala na ang sakit na altapresyon ay hindi maiiwasan sa pagtanda, dahil karamihan sa mga matatanda ang madalas na may altapresyon. Subalit, inilahad naman ng Center for Disease Control and Prevention, ang sakit na hypertension ay nakaapekto ng 7.5 % na tao na may edad ng 18-39 taon gulang. Ayon din sa isang pag-aaral, may 1040 respondents na nasa edad 17 hanggang 25 taong gulang, 20% o 204 ng mga kalahok ang may hypertension (Urbina et al., 2011, p. 332). Batay sa mga artikulong ito, bagamat isa ang pagtanda sa maaaring makadagdag sa tiyansa ng pagkakaroon ng altapresyon, masasabing hindi lamang makikita ang karamdamang ito sa mga may edad na, kundi maaari rin itong makaapekto sa mga nakababata, lalo pa sa kasalukuyang henerasyon

kung saan nagkaroon ng pagbabago sa paraan ng pamumuhay, na siyang nagdulot ng hindi pagiging aktibo at pagkasanay sa diyetang hindi gaanong mainam sa kalusugan ng isang tao.

Ang Kahalagahan ng Medikasyon at Konsultasyon para sa mga Pilipino

Ayon sa isang pananaliksik ni Sison, Divinagracia at Nailes noong 2019, nananatili pa rin na mataas ang bilang ng namamatay sa stroke dahil sa altapresyon, hindi lang sa Pilipinas kung hindi sa buong mundo na rin (p. 506). Bunga ito ng kakulangan ng kaalaman, hindi pagkontrol sa presyon ng dugo, at lalong-lalo na ang hindi pag-inom ng mga gamot na inirereseta ng doktor. Ngunit karugtong nito ang iba't-ibang dahilan kung bakit hindi ito nagagawa (Gutierrez et al., 2021, pp. 13-14); isa na rito ay ang estadong pinansiyal ng isang tao kung saan napapaloob ang edad, mababang natapos sa edukasyon, at kawalan ng trabaho; pangalawa ay ang estado ng pasyente sa kasalukuyan tulad ng natatanggap na suporta sa pamilya, kaalaman sa sakit, at ang pagtrato sa sakit; at ang pangatlo ay ang kasalukuyang nararamdaman ng pasyente, kung siya ba ay walang sintomas o nararamdaman na kaakibat sa altapresyon.

Kilala ang altapresyon bilang "silent killer" dahil sa hindi pagpapakita nito ng kahit anong sintomas, kung kaya't karaniwan sa mga mayroon nito ay mababahala o matutukoy lamang kapag sila na ay nakararanas ng matinding karamdaman tulad ng stroke o heart failure. Hindi nakapagpapakonsulta ang maraming Pilipino upang maagapan ito. Kung nadiskubre man sa maagang panahon, marami pa ring Pilipino ang hindi naniniwala, nanghihinayang sa gastos, o dikaya ay nahihiya sa pamilya, kamag-anak, at mga kaibigan (Norman, 2020).

Dahil sa mga ito, may mga programang ipinatupad ang gobyerno at ang Philippine Society of Hypertension (PSH) upang mapigilan ang paglala, mapanatili ang normal na presyon ng dugo, at maibaba ang mga kaso ng mga namamatay dahil sa altapresyon. Sa Proklamasyon No. 1761, s. 2009, inilaan nila ang buong buwan ng Mayo bilang National Hypertension Awareness Month, sa layuning bigyang-alam at paalala ang mga tao tungkol sa altapresyon lalong-lalo na sa mga malalayong lugar. Bukod dito, ilan

sa mga programang ipinatupad ng gobyerno ay ang Hypertension and Diabetes Club noong 2016 kung saan maaaring makakuha ang mga nakapagparehistro sa club ng mga libreng gamot sa barangay health centers. Layunin nitong makontrol ang pagtaas ng mga presyon sa iba't-ibang barangay. Isa pang ipinatupad ng gobyerno ay ang Philippine Package of Essential Non-Communicable Diseases Interventions o mas kilala bilang PhilPEN, na may layunin na pababain ang mga kaso ng mga hindi nakahahawang sakit tulad ng altapresyon. Inilunsad din ang programang Cardiovascular Risk Assessment and Management Initiative na nakaangkla sa PhilPEN kung saan tinuturuan ang healthcare community tungkol sa makabagong proseso at patnubay ng panggagamot sa altapresyon (Pino, 2019). Sa kabilang banda, kasalukuyang ipinatutupad naman ng PSH ang programang May Measurement Month o MMM 2021 na nagsimula noong Mayo 17 ng taong 2021 at magtatapos sa Nobyembre 30 ng nasabing taon din. Nakipag-ugnayan sila sa mga LGU, International Society of Hypertension, at kagawaran ng kalusugan upang mapalaganap ang pagpapatupad nito nang maayos, sa kabila ng hinaharap na pandemya. Hinihimok ng MMM 2021 ang mga Pilipino na simulan at panatilihin ang pagmonitor ng presyon sa kani-kanilang bahay at ilagay ito sa opisyal na email ng MMM o sa MMM mobile app upang mamonitor ito ng PSH nang sa gayon ay maibigay ang mga malalapit na screening sites.

Bilang karagdagan, batay sa pag-aaral naman ni Gutierrez at Sakulbumrungsil noong 2021, tinalakay na mahalaga ring iayon ng mga doktor ang pagbibigay ng mga paalala tuwing konsultasyon ang estado ng pamumuhay ng mga pasyente (p. 2). Kasabay dapat sa pagsusuri ng pasyente ang mga posibleng hadlang na maaari nilang maranasan. Ayon kay Opina (2008), dapat ring tandaan at isaisip ng mga doktor ang kakayahan ng mga taong matustusan ang mga gamot na irereseta (affordability), mabili (availability), maakses (accessibility), at mainom (tolerability) ito ng mga indibidwal. Mahalagang ipakita ang pag-unawa at iparamdam sa mga pasyente ang pagmamalaskit upang mahikayat silang sundin ang mga payo sa pamamahala ng altapresyon at uminom ng angkop na gamot.

Konklusyon

Mahihinuha sa pananaliksik na ito ang pagiging makabuluhan ng altapresyon sa kontekstong Pilipino bilang isang karamdamang laganap sa bansa at bilang isang matinding emosyon na nakasanayang bansagang hayblad o "high blood." Pinagtibay at mas pinalawak ng mga tekstong akademiko, tekstong popular, at ibapang literatura ang pag-unawa sa kahulugan at pinag-ugatan ng salitang ito upang magamit ang mga nakalap na impormasyon sa pananaliksik bilang gabay sa pagpapabuti ng pangangalaga sa mga taong kasalukuyang nakararanas o maaaring makararanas ng sakit na ito sa Pilipinas. Nakita sa pagtalakay ng iba't-ibang komunidad pangwika ang paggamit ng mga Pilipino sa salitang altapresyon sa pagbibiro, sa pagkonsumo ng pagkaing mataba at maalat, at maging sa kanilang relihiyon. Ang mga gawain at paniniwala nilang ito ay nakaaapekto sa pananaw nila ukol sa sintomas at lunas ng altapresyon, pati na rin sa pag-iwas dito sa pamamagitan ng pagwaksi sa ilang mga pagkain at sa pagpapaalala sa kanilang mga kakilala na mag-ingat sa kinakain dahil maaari itong makapagpataas ng presyon ng dugo. Binigyang-diin din sa talakayan na bukod sa pagkain ng mataba at maalat, malaki rin ang kontribusyon ng genetics at stress sa pagkakaroon ng altapresyon.

Bilang pagbubuod sa malalawak na diskusyon, masasabing ang konsepto ng altapresyon para sa mga Pilipino ay may kinalaman sa pagbabago ng dugo sa katawan, pati na rin ang mainit na temperatura at labis na pagkalapot, na sinasabing nakaaapekto sa hindi mainam na pagdaloy ng dugo sa mga ugat. Inihahambing din ito sa pagkahilo at panghihina kung "mababa" naman ang dugo. Isa rin sa pangkaraniwang paniniwala ay ang namamana ang altapresyon kung ito ay sakit na ng pamilya. Kung sisiyasatin, mabuting alam ng mga Pilipino na nakaaapekto ang genetics sa pagkakaroon ng nasabing sakit at tama rin ang pagkaalam na maaari itong maging dahilan ng stroke sapagkat nakaiimpluwensiya ito sa mga desisyon nila sa paraan ng kanilang pamumuhay at sa maagang pagpapakonsulta sa doktor. Bukod pa rito, pinaniniwalaan ding nakapagpataas ng presyon ng dugo ang mainit na panahon at ang matinding pagod at stress, kung kaya't sa kanilang pagkaunawa ay maaari itong maibalik sa normal sa pamamagitan ng pagpapahinga.

May mga wasto mang paniniwala at gawain ang mga Pilipino tungkol sa altapresyon, marapat pa ring maipaliwanag ang halaga ng sapat na pisikal na gawain at hindi tuluyang pag-iwas sa sodium at kolesterol, bagkus ay limitahan lamang ito sapagkat kailangan pa rin ang sapat na nutrisyon upang maisagawa ng katawan ang mga gampanin nito. Sa kabila ng mga ito, laganap din sa mga komunidad ang mga maling kuro-kuro at nangangailangan pa ng mas matibay na paglilinaw sa mga ito. Makukuha rin sa diskusyon ang pangangailangan na paigtingin ang kampanya sa pag-iwas at pamamahala ng altapresyon sapagkat kahit alam ng ilang indibidwal ang mga bagay na nakaaapekto sa kanilang kalusugan, mayroon pa ring pagkukulang sa pag-aksiyon laban dito gaya ng pagpapatuloy ng di-aktibong pamumuhay at pagkonsumo pa rin ng labis na sodium na maaaring dulot din ng kakulangan sa kamalayan na hindi lamang ito asin, bagkus ang sodium ay ginagamit bilang sangkap sa napakaraming mga pagkain sa ngayon. Isa pa sa mga nakaaalarmang implikasyon ay ang pagdami ng kaso ng altapresyon sa mga nakababatang indibidwal, kung kaya't importanteng sa murang edad pa lamang ay masimulan na ang malusog na pamumuhay upang mabawasan ang tiyansang magkaroon ng karamdamang ito.

Sa kabilang dako, maraming kadahilanan ang dapat na isaalang-alang sa pag-unawa ng kalagayan ng altapresyon sa bansa. Bukod sa kakulangan sa kaalaman at hindi mainam na pamamahala rito, malaki ang dulot ng aspektong pang-ekonomiya ng mga Pilipino, ang antas ng edukasyon, trabaho, at pati na rin ang estado ng sistema ng pangangalaga ng kalusugan o healthcare system ng bansa. Maliban dito, nakaiimpluwensya rin ang kawalan ng kamalayan sa kondisyon dahil bihirang makaranas ng sintomas ang ilang tao hangga't hindi pa lumulubha ang kondisyon. Gayunpaman, kahit naagapan ang pagsusuri sa altapresyon, mayroon pa ring hindi nababahala o naniniwala o kaya naman ay hindi kinakaya ang gastusin sa gamutan. Bilang tugon dito, may mga programang ipinatupad ang mga sektor ng kalusugan upang makontrol ang paglala ng karamdaman, maagapan ang pagtukoy rito, at maisagawa ang angkop na pamamahala nito. Nakatutulong ang mga ito, kaakibat din ng pagmamalasalakit at pagsasaalang-alang ng mga propesyonal na nangangalaga ng kalusugan sa totoong

kalagayan ng mga Pilipino at sa kakayahan nilang umunawa ng mga konsepto at gumawa ng mga desisyong pangkalusugan.

Sa kabuoan, ang pagdalumat sa salitang altapresyon ay mahalaga hindi lamang sa larangan ng Narsing, bagkus maging sa paggamit nito sa lipunang Pilipino, at sa ibang panig ng daigdig. Mahalaga ito sapagkat nakatutulong ito sa pagpapaliwanag ng kahulugan ng altapresyon at mga dahilan ng pagkakaroon nito, lalo na sa importansiya ng pagpagsasaalang-alang sa persepsyon ng mga Pilipino, upang maituwid ang mga maling paniniwala at gawain, at maagapan o kaya'y makaambag sa kaalaman ng pamamahala ng karamdamang ito. Ibinahagi rin sa diskusyon ang mga programang kasalukuyang inilulunsad upang makatulong sa mga Pilipino.

Ang pananaliksik na ito ay limitado sa pag-uugnay-ugnay ng mga literatura na may kinalaman sa altapresyon. Nakalap ang mga impormasyon sa pamamagitan ng pagsusuri sa mga reperensiya gaya ng teksong akademiko, tekstong popular, laman ng midya, at iba pang literatura. Sa kabilang banda, maaaring gamitin ang pananaliksik na ito bilang gabay sa pagbuo ng iba pang pag-aaral na nakatuon sa mas malawak na saklaw o kaya naman sa pagsusuri o pagtuon sa mga partikular na komunidad. Lubos pang mapalalalim at mapagbubuti ang talakayan sa tulong ng pagkalap ng mga impormasyon sa pamamaraan ng pakikipanayam sa mga tao, nakararanas man o hindi ng altapresyon. Maaari ring mapagtibay ng mga matutuklasan sa mga kasunod pang pananaliksik ang mga tinalakay rito. Inirerekomenda rin ng mga mananaliksik ang pagkakaroon ng mas detalyadong diskusyon ukol sa mga interbensiyon ng mga nars sa pangangalaga ng mga indibidwal na nanganganib o mayroong mataas na presyon ng dugo. Ang mga kaalamang nadiskubre rito ay maaaring magamit sa pagbuo ng angkop na mga nursing care plan o NCP para sa mga kaso ng altapresyon. Higit pa rito, maaaring magsilbing tulong ang pag-aaral na ito sa paghahambing o pag-uugnay ng gamit ng salitang altapresyon sa iba pang mga larangan.

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NOTE SECTION

Sustaining Community Extension during the COVID-19 Global Pandemic

Novee E. Maestrecampo Jr.
Silliman University

During the lockdowns and quarantine procedures instituted by the national government to control the spread of the COVID-19 virus, academic institutions had to use online or study-at-home teaching and learning strategies. While Instruction and Research seemed more adaptable to online teaching and home study learning approaches, Extension, which is more about active partnership or working with communities, required more creative and innovative ways to achieve its many goals. This paper presents how Silliman University, through its Office of Community Engagement and Service-Learning (formerly Silliman University Extension Program) OCESL has maintained during the pandemic its commitment to respond to community needs and describes how the students were able to experience and learn with OCESL how they can help the community during the pandemic.

The OCESL maintains outreach programs that give students a platform to conceptualize, organize and implement community outreach with strict compliance with security and health measures. During the lockdowns, the students initiated creative activities online to raise funds for outreach projects while OCESL led the mobilization of procurement, packing, and logistics of goods. Partnerships with specific appropriate government offices such as the City Social Welfare and Development Office (CSWDO), Sectoral Desk, and City Environment & Natural Resources Office (CENRO) in facilitating the identification of and distribution to target sectors and communities. The project worked with over 300 beneficiaries from the formal, informal, women, children, medical frontline, and elderly sectors of Dumaguete City. P123,119.07 worth of face masks, health kits, packed goods, food supplies, and home learning packs were received by the different beneficiaries.

The onset of the COVID-19 global pandemic

When the novel coronavirus, commonly known as COVID-19, became a pandemic in March 2020, the normal ways of life and living had to be changed to control the further spread of the virus. Governments of different nations instituted lockdowns. The systems of management and operations both in the government and private establishments had to be changed. Health protocols and measures to contain the epidemic had to be instituted by governments. The economies and businesses were negatively affected. The schools and the educational systems had to be changed. Teaching and learning had to be designed so students did not need to go to the traditional classroom to learn. Online teaching and study at home became the modes of teaching and learning.

Colleges and universities have tri-focal functions: Instruction, Research, and Extension. Instruction and Research could be more adaptable for online use. Both teaching and learning and research are being done now. The third function of colleges and universities, which is Extension, is the focus of this paper. This paper illustrates how community outreach was done with students during the pandemic.

Community Outreach and Students' Learning

The community as a learning venue fosters a sense of social responsibility and enhances a “people-oriented” mindset through volunteerism among learners.

The community is a significant contributor to students' learning. It offers opportunities and experiences for students' knowledge and skills to be applied in real-world situations. Student experiences in communities enable an understanding of the three interconnected facets of student life: personal connection (how students have been affected by the experience), academic connection (relationship of the experiences with theories learned from various subjects), and social connection (heightened awareness and understanding of community issues and problems and identifying actions of students can help improve the situation).

Learning and working in the community is a very potent

stimulus for volunteerism. It provides educational and real-world learning opportunities that will bring to the surface the basic philosophy of volunteerism. The basic philosophy of volunteerism is service: (1.) is done by choice, (2.) without monetary reward, and (3.) for the benefit of the communities served.

Sustaining Community Extension during COVID-19 Global Pandemic

The Office of Community Engagement and Service-Learning (OCESL) with the Silliman University Student Government (SUSG), the Student Organizations and Activities Division (SOAD) of the Office of Student Services implemented an outreach program called “11 Days of Sharing” during the pandemic. The “11 Days of Sharing” has been an annual student activity for the past five years.

In the spirit of “11 Days of Sharing” with the OCESL as the overall coordinator, the Silliman University Student Government and the different student organizations initiated online community outreach activities for their identified community partners. The different student organizations planned specific outreach goals and objectives, raised funds, and generated resources to implement their respective outreach activities. The community outreach activities were:

- The “Balik Eskwela” project provided school supplies for Dapdap Daycare Center daycare pupils. The Cheering Committee, Socio-Cultural Committee, and Special Projects Committee of the Executive committees of SUSG initiated the project.
- “Project H2O: Hinlo ug Hatag” led by the Health Committee, Secretariat Committee, and Research Committee of SUSG, distributed food packs to 218 environmental technicians (garbage collectors) through ENRO.
- The “TRInitiative Health Project” for the tricycle drivers within the city were the beneficiaries of the Educational Services Committee, High School Affairs Committee, and Social Services Committee of the SUSG. 100 tricycle drivers were hygiene kits that contained masks and face shields.

- “Project Pag-abot” (reaching out) of the Dorm Life Committee, Infomedia Committee, and Miss Silliman Committee provided 120 hygiene kits to the Dumaguete City Women’s Jail.
- The Advocacy Committee, Environment Committee, and Students’ Rights and Welfare Committee raised funds to purchase goods and food items for the Dumaguete City Youth Home.
- The students involved in the project raised Php 93,119.07 worth of funds to purchase hygiene kits, face masks, face shields, food packs, and school supplies. This was done online.

Reflections

Partnerships with the greater community contribute to success in community outreach.

A significant factor in the success of the outreach program is the partnership with appropriate government offices, private, community-based organizations, and non-government organizations. In this project, the OCESL established a partnership with the City Social Welfare and Development Office, Environmental and Natural Resources Office (ENRO), the Sectoral Desk of Dumaguete City, the Community Jail Women’s Dormitory, the Dumaguete City Youth Home, the Dumaguete Sibulan Motorcab Operators, and Drivers Association and, Brgy. Bagacay, Dapdap Day Care Center. The Philippine Dental Association-Negros Oriental Chapter and Silliman University High School Batch 1995 were the private organizations that also supported the initiatives under the 11 Days of Sharing program. These partners assisted in organizing the beneficiaries and provided logistical support.

The conduct of community extension can be done and sustained amid the COVID-19 global pandemic

Silliman University’s Community extension through

outreach as a learning experience for students and sustaining outreach activities were sustained by harnessing and supporting the students' desire to be active in community outreach while not on campus. The OCESL provided a platform for students to create and lead activities online, such as social media advocacy campaigns and fundraising for projects translated to action and implementation by the different government and private organizations that were partners in the project. The students' active and creative community outreach projects may be attributed to an enhanced sense of social responsibility and volunteerism, a component of the Whole Person Education (WPE) espoused by Silliman University.

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