

# Language Barrier As A Factor Affecting The Perception Of Science Information And The Proposed Solutions

Dr. Crisanto E. Avila

Master of Development Communication  
University of the Philippines Open University

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## ABSTRACT

### Keywords:

Article Received: 18 October 2020, Revised: 3 November 2020, Accepted: 24 December 2020

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## I. Introduction

**“Science communication is part of a scientist's everyday life. Scientists must give talks, write papers and proposals, communicate with a variety of audiences, and educate others”.- Feliú-Mójer (2014)**

Thus, it is imperative to communicate scientific information to the general public. Feliú-Mójer (2014) emphasized that when scientists are able to communicate effectively beyond their peers to broader, non-scientist audiences, it builds support for science, promotes understanding of its wider relevance to society, and encourages more informed decision-making at all levels, from the government to communities to individuals.

With this viewpoint, Communication of Science to the General Public is a significant concern of the scientists and the government to make this world a better place to live in as the people intelligently interact with the behavior of the environment and other elements that affect their being.

In this principle, the researcher became interested in identifying the factors affecting the perception of science information and in finding a best solution to the problems. This research was done with the Selected Homeowners of Phase 2 Extension, Mabuhay City, Paliparan 3, Dasmariñas City, Cavite.

## II. Overview of the Problem

Arado (2018) believes that communicating science to the masses remains to be one of the challenges faced by the scientists of the Association of Southeast Asian Nations (ASEAN) that their main objective is to be able to communicate science in a more popularized fashion that would be understood by the common people.

In the context of communicating science in the Philippines, it is said that (Navarro and McKinnon, 2020) Science in the Philippines is characterized by limited funding, insufficient scientific capacity, and middling research productivity plus the factor that with over 7,000 islands and more than 180 different languages, The Philippines offers a distinct science communication context which is worth examining.

Language is one of the factors that affect the understanding of the science information. Mohun Cyparsade, et.al. (2013) of Mauritius mentioned in their study that language barrier is one factor affecting the teaching-learning process in Science. Thus, in this study, the researcher was interested in investigating other factors that are possibly affecting the perception of science information.

## III. Literature Review

## **Facing the Challenges of Science Communication 2.0: quality, credibility, and expertise**

The issues of credibility and reliability of information and the role of experts are being raised in this paper. Also, the consequence of ‘crisis of mediators’, the quality of public communication of science is – even more than in the past – highly dependent on the quality of research produced and published in specialized contexts. New research is increasingly pushed in real time into the public domain without being ‘filtered’, as was the case in the past decades, by professional mediators and popularisers.

Another issue presented is the predation in online open access. This inevitably connects science communication at large with trends causing major concerns in the world of research policy and academic publishing: e.g. a significant rise in retractions, the emergence of ‘predatory journals’, and lack of and failure in replicating studies.

### **Communicating Science Still a Challenge**

From this news report in Sun Star-Davao, ASEAN Science Diplomats Chair Director Glenn Banaguas commented that communicating science to the masses remains to be one of the challenges faced by the scientists of the Association of Southeast Asian Nations (ASEAN). He also said there is a need for the people at the grassroots level to understand climate change in particular.

Banaguas recalled that when Typhoon Yolanda (international name Haiyan) hit the Philippines in 2013, the main problem seen was the failure to communicate to the people the intensity of a “storm surge”. As the term is not as familiar to a lot of people, especially the common residents of the affected areas, the strength of the water surge was stronger than expected causing more lives to be lost.

With this problem, they aim to communicate science in a more popularized fashion that would be understood by the common people. Currently, he said they are partnering with the local government units, the Mindanao Development Authority (Minda), and other different national institutions of other ASEAN countries in order for this goal to be realized.

## **Beating the Language Barrier in Science Education**

A study in Mauritius saw the need to overcome the language barrier in the learning of science. This was made possible through classroom observations, focus group discussions with students, interviews with educators and post-test for students. They conclude that role play and ICT can potentially overcome the language barrier in the learning of science at pre-vocational level. Findings revealed that reading and writing should be kept to a minimum while the use of Mother Tongue (Kreol language) and hands-on activities with oral interactions must be encouraged during lessons conducted in pre-vocational schools.

### **Challenges of Communicating Science: Perspectives from the Philippines**

This study concluded that scientists and science communicators in the Philippines perceive local science communication efforts as poorly done and face communication challenges similar to their counterparts in developing countries. Other challenges are amplified within the developing context. For example, the generally low numbers and salaries of science communicators worldwide are even lower in the Philippines. Local science communication efforts are also challenged to cater to the country’s unique culture, like its many languages and conflicting attitudes to science.

Another factor raised in this study is the archaeological structure of the Philippines that each region has a distinct culture that is reflected in the experiences of scientists and science communicators from those regions.

### **The communications gap between scientists and public**

It was highlighted in this paper that more scientists and their institutions feel a need to communicate the results and nature of research with the public. Public outreach has become an issue of growing importance for science.

Many scientists and scientific institutions feel a need to inform the public about potentially dangerous misconceptions or to counter a continuing barrage of misinformation from numerous quarters including commercial lobbies

and fundamentalists. The alarming deficits in the public's understanding of science is a big impact.

### **Science Communication to the General Public**

It was emphasized that it is important for scientists to be able to communicate scientific information to non-scientists. This is a difficult skill that many practicing scientists lack, likely due to the combination of increased specialization over time and the absence of formal training in science communication. It was argued that incorporating formal communication training into undergraduate and graduate curricula for aspiring scientists will enhance the quality of discourse between scientists and the lay public.

They recommended to develop basic science courses with an emphasis on communication with a layperson audience, with specific examples derived from our own experience developing and implementing a neuroimmunology course designed to promote science communication skills in parallel with mastery of scientific content.

They raised an important point that science journalism is the main conduit for the dissemination of scientific information to the public. Much has been written about how the relationship between scientists and the media can shape the efficient transmission of scientific advances to the lay public. . Good science journalists are specialists in making complex topics accessible to a lay audience, while adhering to scientific accuracy. Unfortunately, pieces of science journalism can also oversimplify and generalize their subject material to the point that the basic information conveyed is obscured or at worst, blatantly wrong. The impact of a basic discovery on human health can be exaggerated so that the public thinks a miraculous.

### **Gaps that need to be addressed**

Language has been always seen as a barrier in communicating science to common people. Many studies have been done to address this problem. This research attempts to discern other contributory factors hampering the understanding of science concepts and information that affects the belief, behaviors, culture, and decision making of the common people.

The gaps that need to be addressed in this study are the realizations that not only language is

the barrier to science understanding but there are also other factors like attitude, orientation, belief, academic background, health, gadget, location, time, and others. These will be investigated in this study.

### **The Conditions and Circumstances that Influence the Problem**

The challenge of this study is to come up with a conclusion supported with findings that there are many factors affecting the perception of science information to the public aside from the language barrier. Under these circumstances, this study requires an instrument in gathering data for the targeted population.

### **The Size and Scope of the Problem**

Specifically, this study will be done in the immediate location of the researcher with 50 respondents focusing on the factors affecting the perception of science information. This study will excavate responses from the respondents in order to draw conclusions.

### **The Interrelationship of the Problem with the other Problems Related to Science Communication**

Based on the reviews conducted by the researcher, it was established that there are many factors contributing to the problems of the science communicators and those are not all from the scientists themselves, institutions, government, information sources but also to the end of the general public. That the furtherance of this study would contribute to the simplification of problems in science communication.

### **Key Audience and Stakeholders**

Residents of Phase 2 Extension, Mabuhay City Subdivision, Brgy. Paliparan 3, Dasmariñas City, Cavite are average income families and most are employees. Only 50% of the population was able to finish a degree that understanding science concepts is a challenge. Participants in this study are selected 50 homeowners.

### **IV. Objectives**

This paper aims to:

1. identify the factors affecting the perception of science information to the end users
2. conduct solution scanning to the problem to identify possible solution
3. come up with the best solution to the problem
4. come up with recommendations in order to address the problem

## V. Solution Scanning

In order to come up with the right solutions to the problems presented, the researcher conducted a solution scanning. Ten (10) possible solutions to the problem were presented as follow:

### 1. Effective Communication

Mójer (2015) believes that science communication is part of a scientist's everyday life that scientists must give talks, write papers and proposals, communicate with a variety of audiences, and educate others. For them to be successful, regardless of field or career path, scientists must learn how to communicate effectively, ensuring themselves to become an effective communicator. Mojer explained effective communication means transmitting the message clearly and concisely so that it is understood. Science writer must answer 'So what?' and 'Why does it matter?'

To achieve this, science students and professionals need to develop effective communication skills. They need to catch few training opportunities. It is good effective communication skills are no longer perceived as soft skills. Increasingly, they are becoming part of the core professional skills every science student and professional should have. Many science communication training programs and courses for scientists use the public communication of science as a tool to develop effective communication skills.

This solution is one effective move to removing the barriers of understanding science information because understanding is facilitated by effective communication primary objective it to transfer the knowledge.

### 2. Building Knowledge and Understanding

Understanding Science (US) (not dated) defines science as a collective institution aims to produce more and more accurate natural explanations of how the natural world works, what its components are, and how the world got to be the way it is now.

Further, US believes that science's main goal has been building knowledge and understanding, regardless of its potential applications — for example, investigating the chemical reactions that an organic compound undergoes in order to learn about its structure.

US argues that the knowledge that is built by science is always open to question and revision. No scientific idea is ever once-and-for-all "proved." Why not? Well, science is constantly seeking new evidence, which could reveal problems with our current understandings. Ideas that we fully accept today may be rejected or modified in light of new evidence discovered tomorrow.

It has to come to the knowledge of the stakeholders that despite the fact that they are subject to change, scientific ideas are reliable. The ideas that have gained scientific acceptance have done so because they are supported by many lines of evidence.

To consider as a solution, these scientific explanations continually generate expectations that hold true, allowing us to figure out how entities in the natural world are likely to behave.

### 3. Developing an In-depth Understanding of Complex Scientific Principles

One of the reasons why we resist of reading complex scientific principles because it requires an enormous amount of time and effort. Tackling a difficult text can be daunting, even for the most intelligent person. Explore Health Careers (2019) gave the following tips to confidently undertake reading science reports.

- a. Ask help of experts or teachers
- b. Read for Understanding-Pay attention to the way the material is laid out on the page: the larger the heading, the broader the topic; the smaller the heading, the more specific the topic.
- c. Scrutinize Each Paragraph-As you ferret out the facts, you Pay close attention to details, formulas, charts, graphs and

inter-related concepts.

d. Read Each Chapter More than Once-It may take you several readings to fully grasp and absorb the material.

e. Don't Skip Sample Problems-Sample problems emphasize important concepts in the chapter.

#### 4. Promote Science as a Subject at Schools

Barni Homden (2017) concludes that Science is one of the oldest and most important academic disciplines, and covers a wide variety of subjects. It is also one of the fundamental parts of the term STEM, used to refer to science, technology, engineering and mathematics. In many countries around the world, the matter of how to promote STEM subjects is a hot topic. This is particularly true of the sciences, which can lead to many great degree options for students.

Since elementary we were oriented that Science helps our understanding of the world around us. Everything we know about the universe, from how trees reproduce to what an atom is made up of, is the result of scientific research and experiment. Human progress throughout history has largely rested on advances in science. From our knowledge of gravity to cutting edge medicines, students of Science have shaped our modern world.

Hormen encourages the governments, companies and wider society to promote Science as a subject at schools; it ensures the next wave of progress in all of the fields that affect our daily lives.

#### 5. Science Outreach is Important!

Monica Metzler ( executive director of the Illinois Science Council) gave tips on how scientists can succeed at public outreach during the AAAS Annual Meeting. She emphasized that Science outreach is important. She disclosed that the U.S. has a shockingly low scientific literacy rate.

Outreach activities can pay off professionally. Most outreach activities inherently involve organizing thinking and working on communication skills. Developing these skills can lead to better grants, papers, and teaching. Sharing your research on social media may pay off

with increased citations for your papers. A study found that highly tweeted articles were 11 times more likely to be highly cited than less-tweeted articles (although whether this is a causal relationship is unknown).

There are many ways to do outreach. More interactive opportunities include science cafes, bringing students into your lab, and going into senior centers and clubs. Outreach isn't about you, it's about your audience. You probably won't talk about your actual research—this level of detail will be too much for most audiences. You may have to zoom out a great deal to get to the right level, and sometimes you may have to talk about a different subject all together.

#### 6. Beating the Language Barrier

In a study in Mauritius by Van Driel, Verloop & de Vos (1998), they described how in service teachers in the pre-vocational sector adopted specific strategies to overcome the language barrier in the learning of science . Students of form III were taught few basic ideas related to "Earth & Space" through the use of role play and ICT.

The concepts chosen for this study were 'occurrence of day and night', 'relative positions and motions of the Earth, the Moon and the Sun' and 'main constituents of our solar system'. Classroom observations, focus group discussions with students, interviews with educators and post-test for students show that role play and ICT can potentially overcome the language barrier in the learning of science at pre vocational level.

Their study reveals that reading and writing should be kept to a minimum while use of Mother Tongue (Kreol language) and hands-on activities with oral interactions must be encouraged during lessons conducted in pre-vocational schools.

To overcome language barriers, Gratis (2016) suggested the following:

1. Use plain language..
2. Find a reliable translation service.
3. Enlist interpreters.
4. Provide classes for the community.
5. Use visual methods of communication.
6. Use repetition..

## 7. Be respectful.

Language barriers can be a challenge, but working with people of different cultures and backgrounds is what drives innovation, creativity, and success. Don't let language barriers stand in the way of embracing everything a diverse workplace has to offer.

## 7. Communicate Science in a More Popularized Fashion

In a news article, Arado (2018) reported that communicating science to the masses remains to be one of the challenges faced by the scientists of the Association of Southeast Asian Nations (ASEAN), as said by an ASEAN Science Diplomats official.

As a means to make the people of the ASEAN further understand weather and climate conditions in the ASEAN countries among many other concerns, the Asean Science Diplomats hold their assembly at the Ritz Hotel from April 23 to 27, 2018.

ASEAN Science Diplomats Chair Director Glenn Banaguas said there is a need for the people at the grass roots level to understand climate change in particular.

"There is really a need for people of Asean to understand and to mitigate climate change that's why what we're doing is to do these types of initiatives to train and hire more people to work with scientists," said Banaguas.

One of their main objectives of the ASEAN is to be able to communicate science in a more popularized fashion that would be understood by the common people.

## 8. Accessibility and Local Attitudes to Science

Kamila Navarro and Merryn McKinnon (2020) commented that Science communication research is dominated by Western countries. While their research provides insight into best practices, their findings cannot be generalized to developing countries.

There study examined the science communication challenges encountered by scientists and science communicators from the

Philippines through an online survey and semi-structured, investigative interviews.

Answers revealed issues which have been echoed in other international studies. However, challenges of accessibility and local attitudes to science were magnified within the Philippine context. These results indicate the ubiquity of certain challenges in science communication and the need for country-specific science communication frameworks.

They recommended that further research on the identified challenges is needed on a local and global scale.

## 9. Mastering Basic Science Skills

Technology described Science is one of the top fields of today that has continually gained recognition due to discovery and invention. Science is one of the most interesting subjects anyone can ever take in his entire school life. It enables you to let your curiosity loose and be able to discover many things in this world you never knew existed.

Curiosity and desire for improvement of life has lead many people to incline towards science and eventually become experts in this field. Had you decided to go into the field of science there are basic science skills you need to learn in order for you to be the best in the field.

**Observing.** This is by far the most important basic science skills one needs to learn and develop.

**Inferring.** This means making an educated guess. Educated meaning you have observations prior to making your guesses.

**Measuring.** Math is the language of science thus measuring is also a skill you have to learning science.

**Communicating.** This might seem out of the sphere of science but basic communication skills is also among the basic science skills you need to learn.

All of these are the basic science skills one needs to learn to be successful in the field of science. As an ever growing industry, they need highly skilled and highly developed people to

join the field. Master these skills to be highly competent in joining the battle in the pursuit of science.

### 10. Possible Remedy to Conquer inequality

Kaptana, Timurlenk (2012) believes that scientific knowledge is the common heritage of humankind. It is the only treasure of humankind that can provide a possible remedy to conquer inequality and to bring about an acceptable quality of life and a purpose, for a majority of the people of the world. Some of the main problems that should be overcome for a sustainable and proper science education are:

1. Inadequate teacher compensation and professional development to attract, prepare and retain high-quality teachers,
2. Insufficient number of science and technology teachers' taking active role in the preparation of the programs,
3. The insufficient in-service training of the science teacher in the transition state of a program,
4. Compartmentalized subjects taught by teachers isolated within and across departments,
5. Students generally lack motivation and have low self confidence in learning,
6. Persistent achievement gaps in science and math among many student subgroups, demographic changes,
7. The huge numbers of the students in the class,
8. The informational education orienting students towards only exam achievement,
9. The broken link with other lessons,
10. Insufficient physical conditions of schools (less laboratory opportunities),
11. The intensive curriculum but insufficient time allocation for science education and
12. The instruction of lesson in an information level and students in passive position (only listening and writing), teachers in active position (writing on the board and teaching in a classical way),

In this paper, the problems of challenges for science education and solutions to overcome the problems were presented. The lack of epistemological role of science is emphasized and the productive use of history and philosophy of science is proposed in science education.

### Synthesis:

Doing the solution scanning to the problem presented to this paper gave the researcher an opportunity to understanding why there is a poor understanding of science information not only by young people but mostly by the adult populace.

Effective communication by scientists and science communicators themselves must be employed so they may be understood by the common people- the end-user of the science information. This solution is one effective move to removing the barriers of understanding science information because understanding is facilitated by effective communication, its primary objective is to transfer the knowledge.

Science communicators must put in mind that building knowledge and understanding must be their consideration in sending scientific information. To consider as a solution, the scientific explanations continually generate expectations that hold true, allowing people to figure out how entities in the natural world are likely to behave.

It is true that one of the reasons why we resist of reading complex scientific principles because it requires an enormous amount of time and effort. With this, science learners must have prior knowledge about basic scientific principles so they can easily relate to the complex scientific principles.

Even at the early level of education, science must be promoted as an important subject. Teachers must establish love and interest in science. This ensures the next wave of progress in all of the fields that affect our daily lives.

Science education does not stop in schools, it has to be brought outside the school—in the community through doing science outreach activities like presenting research and other platforms of reaching out to the community.

To propagate scientific information we have to overcome language barriers by using simple language that laypeople understand. Translating a science jargon to a local term can help emphasize a message. An interpreter can be of help. This is the same with the idea of communicating science in a more popularized fashion that would be understood by the common people.

We must not depend on the researches and scientific reports from Western countries as they may now just conclude on the local situations.

Filipinos must develop a culture of science writing for Filipinos.

To ensure easy understanding of scientific information, a must for everyone to acquire scientific skills such as observing, inferring, measuring, and communicating. All of these are the basic science skills one needs to easily grasp science concepts.

The bottom line of all challenges in understanding science is the issue of inequality. There are no equal chances to be educated, no equality in life's comfort, no equality for time to learn science.

With the above-mentioned solutions, I have found remedies to ease the factors affecting the perception of scientific information to the homeowners of Phase 2 Extension, Mabuhay City, Paliparan 3, Dasmariñas City, Cavite.

## VI. Solution Generation

This paper intends to find a the solution to the factors affecting the perception of science information to the villagers of Mabuhay City subdivision particularly at Phase 2 extension. With the 10 identified possible solutions in the conducted solution scanning activity, this proponent was convinced that solution number 6 which is Beating the Language Barrier is the best solution that will be adopted in this study and that will solve the problem presented.

As suggested by Gratis (2016), there are 7 strategies that can be considered in overcoming language barriers such as:

1. Use plain language.
2. Find a reliable translation service.
3. Enlist interpreters.
4. Provide classes for the community.
5. Use visual methods of communication.
6. Use repetition.
7. Be respectful.

The particular difficulty that the community in Phase 2 extension, Mabuhay City Subdivision is experiencing in the perception of the

science information is understanding the language used particularly on published science articles. Most of the publications are written in English is referred to as quality publications and popular newspapers are in Filipino. In broadcast media such as radio and television, they have the same issue, understanding the language used especially the jargon and technical terminologies.

In Phase 2 Extension, Only 60% of the heads of the family were able to finish college and 40% finish high school. But 90% of the families can send their children to college. With the level of education in the community, understanding the language used in science information is a big challenge.

In this premise, the community needs help for them to overcome the challenges brought by the language barriers. In this paper, the seven strategies suggested by Gratis will be tested. The researcher, with the help of science teachers of St. Aloysius Academy of Dasmariñas will conduct an experiment with the identified participants in the study.

In collaboration with the officers of the homeowners association, the researcher will identify the sample population that will serve as the participants in this study considering their availability and capacity to participate.

Resources of the St. Aloysius Academy of Dasmariñas and the homeowners association will be utilized as to the database, paper works, and facilities. An amount of P5,000.00 was allocated budget of the researcher for the conduct of this project which includes materials and food.

In the experimentation to be conducted by the researcher and the teachers will do the following:

### A. Using plain language.

Two articles will be presented to the participants, one is the original science reports lifted from a newspaper and the other one is a revised version using plain language. With this, a conclusion maybe drawn on which can be easily understood.

### B. Finding a reliable translation service.

Another sets of articles will be presented, one is in English and one is in Filipino. Respondents will be asked which one can easily be understood. This is another strategy to draw a conclusion.

### **C. Enlist interpreters.**

To simulate broadcast media, in this strategy, participants will watch an English video clip about science news. Afterward, a teacher will interpret the news using Tagalog and laymen terms. Participants will be asked how an interpreter can help them understand the news report.

### **D. Provide classes for the community, use visual methods of communication, use repetition, and be respectful.**

In this procedure a teacher will deliver a lesson to the respondents about a particular health issue using visual aids and employing repetition and the value of respect. The teacher will teach to the adult learners discussing a health issue and to make it easy to understand he will use visual aids like pictures, charts, and others. He has to set a friendly ambiance by showing respect to the participants and by injecting other values.

To gather the responses and reactions of the participants on each activity, a questionnaire will be served to the participants. A simple questionnaire will be prepared by the researcher in a way that they will choose their answer based on the given choices. After the experimentation, the researcher will document the results in the questionnaire in each activity. Results of this experimentation will be the basis of the conclusion and recommendation to be addressed to the science communicators, media, and the LGU.

Recommendations for science communicators and the media will focus on using plain language and translation. For the LGU and community, the recommendations are about providing interpreters and conducting classes to the community.

## **VII. Solution Implementation**

In the implementation phase of the solution, the following procedure shall be done.

Step 1. Sending the communication to the board of directors of the homeowners association for the solicited cooperation requesting for a

meeting.

Step 2. Meeting with the BOD of the homeowners association for the conduct of the experimentation and as well as the implementation.

Step 3. In cooperation with the secretary of the homeowners association, the researcher will identify the sample population that will serve as the participants in this study considering their availability and capacity to participate.

Step 4. Meeting with the Science Teachers of the St. Aloysius Academy of Dasmariñas for the preparation of the experimentation to be conducted.

Step 5. Finalization of the date of the experimentation and communicating with the participants as to the venue, schedule and program flow.

Step 6. In the experimentation proper, there will have 4 stations intended for 4 activities as follows:

### **A. Using plain language.**

Two articles will be presented to the participants, one is the original science reports lifted from a newspaper and the other one is a revised version using plain language. With this, a conclusion maybe drawn on which can be easily understood.

### **B. Finding a reliable translation service.**

Another sets of articles will be presented, one is in English and one is in Filipino. Respondents will be asked which one can easily be understood. This is another strategy to draw a conclusion.

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To simulate broadcast media, in this strategy, participants will watch an English video clip about science news. Afterward, a teacher will interpret the news using Tagalog and laymen terms. Participants will be asked how an interpreter can help them understand the news report.

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In this procedure a teacher will deliver a lesson to the respondents about a particular health issue using visual aids and employing repetition and the value of respect. The teacher will teach to the adult learners discussing a health issue and to make it easy to understand he will use visual aids like pictures, charts, and others. He has to set a friendly ambiance by showing respect to the participants and by injecting other values.

**Step 7. Answering the Questionnaire.**

To gather the responses and reactions of the participants on each activity, a questionnaire will be served to the participants. A simple questionnaire will be prepared by the researcher in a way that they will choose their answer based on the given choices.

**Step 8. Documenting the results.** After the experimentation, the researcher will document the results in the questionnaire in each activity. Results of this experimentation will be the basis of the conclusion and recommendation to be addressed to the science communicators, media, the LGU and the homeowners association. This will also serve as a reference on the implementation phase.

**Step 9. Another meeting with the BOD of homeowners association.** In this meeting, for the practical application of the solution by way of implementing the two major projects capturing the 7 strategies as suggested by Gratis (2016) in overcoming language barriers in science communication.

a. Posting and dissemination of the science reports utilizing plain language and translated in Filipino (Tagalog) for better understanding of the community. It may be about calamities, health issues and science breakthrough. This may be in a form of a circular memorandum, poster, announcement and fliers.

b. Staging a forum with invited speakers to interpret science information to the level of the laymen and using local language. Speaker shall be required to use visual aids like concrete material or power point presentation. To consider that the listeners are adult learners, the forum shall be done in a friendly manner observing respect and learning styles. This can be incorporated in the association's general assembly (GA). Virtual (zoom meeting) will also be organized.

**Step 10. Conducting evaluation of the projects.**

An evaluation instrument will be prepared to evaluate the implementation.

**VIII. Monitoring and Evaluation**

To insure proper implementation of the solution, an Action Plan will be prepared with the specific activities, name of persons involve, date, materials, budget, and expected outcome. For evaluation there will be an evaluation instrument of the implementation that would be the basis for improvement.

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### Pilot Testing of the Solution and Implementation

The solution was pilot tested last January 12, 2021 with the selected homeowners of Phase 2 Extension held at St. Aloysius Academy of Dasmariñas. It was participated by 10 homeowners, 5 teachers and 5 officers of the association.

For those who did not participate on face to face implementation was able to participate with a virtual meeting via zoom last January 12.



A meeting with the clerk of the Phase 2 Homeowners Association for the issuance of the BOD approval of the implementation. The clerk also provide the list of the participants.



Checking the venue to be used for the experimentation activities and pilot testing at St. Aloysius Academy of Dasmariñas.



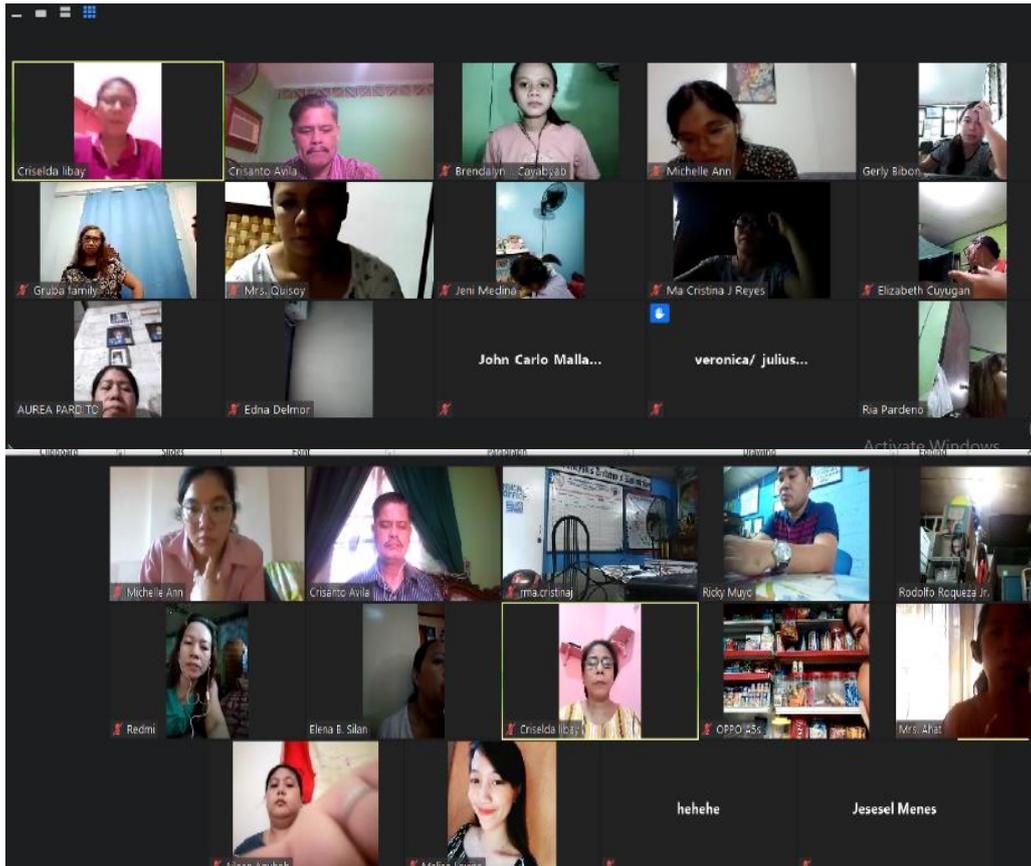
The researcher is giving instructions to the teacher-volunteer who will assist in the conduct of the experimentation and implementation proper.



The school building of St. Aloysius Academy of Dasmariñas to be used by the researcher in conducting the pilot testing following the protocol of social distancing.



Ms. Brendalyn Cayabyab, a teacher-volunteer simulating classes for the community, using visual methods of communication, use repetition, and being respectful with adult learners.



Virtual Meeting with homeowners for the interpretation and translation of a science report. Ms. Brendalyn Cayabyab, read an English article about the new variant of coronas virus and translated it to Filipino and gave interpretation.



Activities for video and written report translation and interpretation with the teacher-volunteers.

**ACADEMIC INTEGRITY STATEMENT**

Before submitting your assignment and written report, copy this and insert your signature:

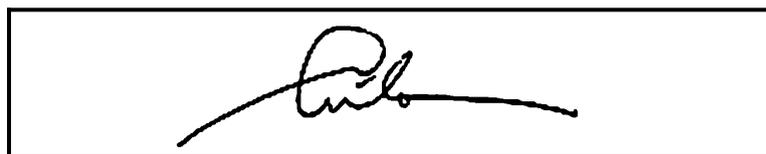
As a student of the University of the Philippines Open University (UPOU), I hold myself to a high standard of integrity, and by signing/accepting the statement below I reaffirm my pledge to act ethically by honoring the UP Student Code of Conduct.

I acknowledge that the work I submit is my individual effort. I did not consult with or receive any help from any person or other source. I also did not provide help to others. I may work with others

only if the instructor gave specific instructions, and only to the extent allowed by the instructor.

I understand that suspected misconduct on given assignments/examinations will be reported to the appropriate office and if established, will result in disciplinary action in accordance with University rules, policies and procedures.

*In accordance with the rules and regulations of the University of the Philippines on student conduct and discipline\*, I certify that all my answers here are my own work, and that I have cited all references that were used in this assignment:*



\* As approved by the BOR at its 876<sup>th</sup> meeting on September 2, 1976 and as amended at the 923<sup>rd</sup> BOR meeting on January 31, 1980 and

1017<sup>th</sup> BOR meeting on March 8, 1988 and further amended at the 1041<sup>st</sup> BOR meeting on July 4, 1991 and 1051<sup>st</sup> BOR meeting on June 25, 1992