



Republic of the Philippines  
**Department of Education**  
REGION IV-A  
SCHOOLS DIVISION OF QUEZON PROVINCE

**DIVISION ADVISORY NO. 083, s. 2021**  
July 6, 2021

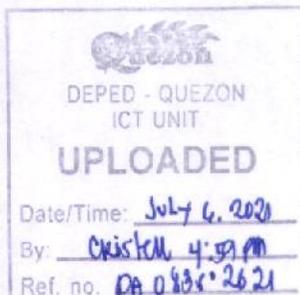
In reference to the request of Ms. Analyn M. Guno through this Office to disseminate the information regarding her research study entitled "**Framework on Enhancing the Numeracy Instruction in Public Junior High School**" this Advisory is issued for the information of All Public Junior High Schools

**FRAMEWORK ON ENHANCING THE NUMERACY INSTRUCTION IN PUBLIC JUNIOR HIGH SCHOOL**

Public Junior High School teachers teaching mathematics are advised to answer the survey questionnaire through this link [http://bit.ly/NUMERACY\\_FRAMEWORK\\_GUNO](http://bit.ly/NUMERACY_FRAMEWORK_GUNO). Proper coordination with the school heads within the Division of Quezon is advised so as to ensure the provisions of DepEd Order No.09 s.2005 (Instituting Measures to Increase Engaged Time-On-Task and Ensuring Compliance therewith)

Please be guided accordingly.

ELIAS A. ALICAYA JR. EdD  
Assistant Schools Division Superintendent  
Officer-In-Charge  
Office of the schools Division Superintendent



Asdshdp07/06/21

DEPEDQUEZON-TM-SDS-04-011-003



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**1st INDORSEMENT**  
June 1, 2021

Respectfully returned to **Ma. Analyn M. Guno**, Researcher, **Batangas State University**, Batangas, City, approving the hereto attached request to conduct a study entitled "Framework on Enhancing the Numeracy Instruction in Public Junior High Schools."

Proper coordination with the school heads, teachers and students within the Division of Quezon is advised so as to ensure that the provisions of DepEd Order No. 9, s. 2005 (Instituting Measures to Increase Engaged Time-On-Task and Ensuring Compliance Therewith) shall be observed.

**ELIAS A. ALICAYA JR. EdD** ✓  
Assistant Schools Division Superintendent  
Officer-In-Charge  
Office of the Schools Division Superintendent

Paregs6/1/2021

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Republic of the Philippines  
**BATANGAS STATE UNIVERSITY**  
College of Teacher Education  
GRADUATE SCHOOL  
Batangas City



May 31, 2021

**CYNTHIA M. MARQUEZ**  
Public Schools District Supervisor  
Sariaya East District  
Sariaya, Quezon

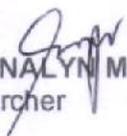
Madam:

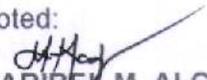
I am a postgraduate student of Batangas State University, Batangas City and currently employed as Teacher III in Pili National High School, Sariaya, Quezon. As of now, I am conducting a study entitled, "**Framework on Enhancing the Numeracy Instruction in Public Junior High Schools**" in partial fulfillment for the degree Doctor of Philosophy in Mathematics Education.

In view of this, I would like to inform your office that the respondents of this study are Secondary Mathematics Teachers in Quezon Province.

Your full support to this intellectual undertaking is highly appreciated.

Very truly yours,

  
MA. ANALYN M. GUNO  
Researcher

Noted:  
  
MARIBEL M. ALCANTARA  
Principal I



**BATANGAS STATE UNIVERSITY**  
Pablo Borbon Campus, Batangas City



**COLLEGE OF TEACHER EDUCATION**  
Graduate Program

**RESEARCH INSTRUMENT**

Dear Respondents,

I am MA. ANALYN M. GUNO, Teacher III of Pili National High School and taking up Doctor of Philosophy major in Mathematics Education at Batangas State University, Batangas City, presently conducting a study entitled "FRAMEWORK ON ENHANCING THE NUMERACY INSTRUCTION IN PUBLIC JUNIOR HIGH SCHOOLS" as part of my requirements in Post Graduates Study and dissertation writing. In this connection, I would like to ask for your cooperation in providing the data for my study by honestly answering the attached survey questionnaire.

Rest assured that your response will be regarded with strict confidentiality. Thank you very much and God Bless.

Sincerely yours,

*Analyne M. Guno*  
MA. ANALYN M. GUNO  
Researcher

**PART I- PERSON RELATED INFORMATION**

**Directions:** Please fill in your personal information and check on the blank to the corresponding options that give the profile of your personal characteristics.

NAME (Optional): \_\_\_\_\_

CONGRESSIONAL DISTRICT:

- \_\_\_ 1st District
- \_\_\_ 2<sup>nd</sup> District
- \_\_\_ 3<sup>rd</sup> District
- \_\_\_ 4<sup>th</sup> District

SCHOOL: \_\_\_\_\_

District: \_\_\_\_\_

Municipality: \_\_\_\_\_

AGE: \_\_\_\_\_

SEX: \_\_\_\_\_

HIGHEST EDUCATIONAL ATTAINMENT:

- Bachelor Degree
- Master's Degree
- Doctorate Degree
- Other: \_\_\_\_\_

YEARS OF EXPERIENCE IN TEACHING MATHEMATICS: \_\_\_\_\_

NUMBER OF RELEVANT SEMINARS AND TRAININGS (for the last 5 years): \_\_\_\_\_

RESEARCH INVOLVEMENT (for the last 5 years):

- \_\_\_\_\_ completed
- \_\_\_\_\_ presented in conference
- \_\_\_\_\_ published in journals

**PART II- TEACHERS' TASKS BASED ON 21<sup>ST</sup> CENTURY NUMERACY MODEL**

**Directions:** Please indicate your perceived level of manifestation towards the teachers' tasks based on the dimensions of the 21<sup>st</sup> Century Numeracy Model listed below by checking the appropriate box under the given verbal descriptions.

- 4-Highly Manifested (HM)
- 3-Moderately Manifested (MM)
- 2-Slightly Manifested (SM)
- 1-Least Manifested (LM)

Teachers' task based on the following dimensions of the 21 <sup>st</sup> Century Numeracy Model by Goos, Geiger & Dole, 2012.	4	3	2	1
<b>Application of Mathematical Knowledge</b>				
1. teaching the concepts of numeracy relevant to the K-12 Mathematics curriculum				
2. developing the students' numeracy skills applicable to other math concepts				
3. considering the learning style of the students in teaching problem-solving in Mathematics				
4. aligning the numeracy skills to mathematical knowledge that needs to be developed among the students				
5. presenting varied teaching strategies to solve math problems				
6. encouraging the students' ability to make sensible estimations				
7. organizing the numeracy concepts hierarchically				
8. developing numeracy activities that stimulate the development of newly proposed math concepts				
9. determining and prioritizing the most important math concepts to be learned				

10. providing developmental instruction which is helpful to learners' cognitive-growth				
11. providing quantitative data for students to construct and communicate mathematics				
12. introducing new techniques to solve math problems				
13. integrating math instructions with other literacy development				
14. using feedback to try a new approach				
15. developing a problem-solving capability among learners				
16. knowing the relevant curriculum competencies in other subject areas				
17. determining activities to analyze the numerical data and make meaning of the past events				
<b>Attention to Real Life Contexts</b>				
1. designing tasks that involve real-life computational activities and decision making				
2. engaging the students to relate their activities to finances and business				
3. creating tasks that give students opportunities to apply the math concepts in daily activities				
4. associating different work-related activities in teaching math contexts				
5. developing the students to become informed citizens who can interpret data, make projections, and think systematically				
6. creating activities that address the numeracy demands of the society				
7. connecting topics in math that are related to adult lives				
8. citing examples of the use of numeracy in daily lives				
9. encouraging the learners to engage in productive leisure and recreational activities through creative mathematical tasks				
10. designing tasks in math appropriate for a particular purpose in life				
11. embedding numeracy in current events and political issues				
12. teaching math in the context of solving computational problems in real life				
13. applying math activities that can be experienced in the workplace				
14. using learner-centered approaches to ensure that learners see the relevance of what they are learning				
15. teaching and learning about numbers and their application in daily activities				
16. providing hands-on experience in collecting, organizing, and interpreting data				
17. utilizing the resources in the environment to elevate mathematical knowledge				
18. engaging the students to connect math concepts to personal health				
<b>Use of Representational Tools</b>				
1. using representational tools in teaching Mathematics such as symbol system, graphs, maps, diagrams, tables, and ready reckoners				
2. engaging the students to manipulate physical tools such as models and measuring instruments				
3. utilizing digital tools in teaching Mathematics such as computers, software, calculators and the internet				

4. creating Math activities that encourage the use of varied tools for interpretation				
5. exploring the possibility to use different online platforms in learning mathematics				
6. using technology in appropriate and effective ways				
7. orienting the learners on how to use calculators in solving complex equations				
8. developing students' understanding through hands on activities				
9. letting the students explore mathematical ideas with concrete visual representations				
10. using realia, menus, bills, etc., to enable the students to transfer skills to real-life situations				
11. introducing more work-related charts, graphs, and other statistical information to prepare the learners for the world of work				
12. using graphic organizers to task learners to create mental images of something invisible				
13. manipulating concrete objects to solve word problems				
14. Using varied and appropriate measuring instruments during performance tasks				
<b>Positive Dispositions Towards Mathematics</b>				
1. addressing and evaluating attitudes and beliefs of learners towards math using a data collection instrument				
2. creating tasks that solicit students' willingness to finish the assigned tasks				
3. encouraging learners to share ideas and skills in making collaborative decision				
4. engaging the students to apply their mathematical knowledge flexibly and adaptively through task leading activities				
5. giving task that develops a positive attitude towards mathematics				
6. designing task for active learning and planning purposeful play				
7. creating an environment that promotes interest and enthusiasm for numeracy				
8. matching the learning styles of the students in acquiring mathematics competencies				
9. encouraging students to develop good working relationship in accomplishing mathematical tasks				
10. determining what students already know about the topic in Math before giving new instructions				
11. ensuring that students gain confidence in using appropriate mathematical knowledge and skills				
12. allowing the students to present their own discovered solutions				
13. planning a purposeful numeracy learning activity that will engage students' active participation				
14. building confidence to try new approach in solving word problems				
<b>Critical Orientation</b>				
1. encouraging the students to become aware of the mathematical thinking being used is appropriate in analyzing the situations and drawing conclusions				
2. engaging the students to explain the reasonableness of the obtained results				
3. instructing the students to evaluate quantitative, spatial, or probabilistic information				

4. providing social and political scenarios from where the mathematical information can persuade, manipulate, disadvantage, or shape opinions				
5. encouraging the students to use multiple solution strategies				
6. asking critical questions to develop students' historical knowledge and understanding as a mathematical basis				
7. giving the students the chance to compare their obtained answers to point out any misconceptions				
8. asking HOTS questions and soliciting probes to come up with the solutions				
9. soliciting learners to offer multiple varied solutions to complex problems through brainstorming				
10. generating creative ideas from learners by providing a "big picture" of what they are learning				
11. using cooperative group work where learners are tasked to discuss understanding, evaluate their works, and reflect on learning				
12. displaying the obtained data and make comparisons of the outputs to visualize content of their works				
13. soliciting students to pose their questions about the mathematical word problem				
14. letting the students assess their work based on the learning goals and make necessary adjustments				
15. embedding the mathematical content and skills in processes like problem solving, reasoning, and decision making				

### PART III-NUMERACY COMPONENTS

**Directions:** Please indicate your assessment on the extent of integration of the following numeracy components in teaching mathematics. Check the appropriate box under the given verbal descriptions.

4- Great Extent (GE)

3- Moderate Extent (ME)

2- Slight Extent (SE)

1- Least Extent (LE)

I integrate the following numeracy components in teaching mathematics by...	4	3	2	1
<b>Context and Purpose</b>				
1. performing adult roles like purchasing and budgeting				
2. improving the computational skills associating the family activities				
3. reflecting the great impact of numeracy in personal demands				
4. enhancing the critical thinking of the students to protect their health through wise decision-making				
5. associating the numeracy skills in leisure activities				
6. adapting to new employment demands in lessons and activities				
7. demonstrating the students' personal understanding of finances in their performance tasks				
8. integrating a wise consumption money, time and budget in performance tasks				

9. complementing the Math activities suited to student's personal interest and hobbies				
10. acquainting the students with the issues and application of math in the society				
11. integrating environmental preservation in the discussion of Math lessons				
12. addressing the aspects of the physical world through designing, constructing, and measuring				
13. interpreting and reflecting the obtained numerical data and graphical information which are related to self, work, and community				
14. improving the mathematical skills needed for further study of mathematics and other subjects				
<b>Mathematical Content</b>				
1. establishing a deep understanding of meaning, use, and relationships between operations on numbers				
2. relating the number sense and operations to the present world situation				
3. generalizing and representing quantities in varied ways				
4. develop solution methods based on the properties of numbers, operations, and equations				
5. enriching the mathematical knowledge in measurements and shapes				
6. extracting and interpreting information from data and statistical measures				
7. focusing on hands-on problem solving by giving attention to the development of a spatial sense				
8. understanding the geometric principles through comparing and relating to similar examples				
9. understanding patterns, relations, and functions in math activities				
10. representing and analyzing mathematical situations and structures using algebraic symbols				
11. using mathematical models to represent and understand quantitative relationships				
12. formulating questions that can be answered by the collected relevant data				
13. selecting and using appropriate statistical methods to analyze data				
14. evaluating inferences and predictions that are based on gathered data				
15. performing tasks that apply basic concepts of probability in day to day activities				
<b>Cognitive and Affective Component</b>				
1. developing the students' ability to think and act numerally and effectively				
2. understanding the meanings behind the operations and procedures in mathematics				
3. building interconnections among various mathematical ideas				
4. igniting the conceptual understanding to help learners produce reasonable estimations				
5. capacitating the students to think logically about the relationships among concepts and situations				

6. making generalizations about their relationship of gathered data				
7. leading that students to choose a particular solution method				
8. encouraging the students to justify that an answer is reasonable				
9. correcting the students to use the precise mathematical terms				
10. enriching the mathematical vocabulary of the students				
11. using mathematical content appropriately in a real situation				
12. performing calculations efficiently and accurately by using paper and pencil procedures				
13. teaching the students to do mental mathematics and estimation techniques				
14. allowing the use of technological aids to complete more complex computations				
15. developing positive attitude, beliefs, and emotion towards math				
16. soliciting the students' willingness to engage, use, and persevere in mathematical thinking				



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## DATA SHARING AGREEMENT

This Memorandum of Agreement is made and entered into between:

**MA. ANALYN M. GUNO, 41, married, Filipino,** with principal address at Sitio Beringuela, Brgy. Bucal, Sariaya, Quezon. Hereinafter referred to as the **FIRST PARTY**.

-and-

The Department of Education, Schools Division of Quezon, with office address at Sitio Fori, Brgy. Talipan, Pagbilao, Quezon, represented by its Data Protection Officer, **MARIA DOLORES D. ATIENZA**, hereinafter referred to as the **SECOND PARTY**.

### WITNESSETH:

**WHEREAS**, The Data Privacy Act of 2012 (Republic Act No. 10173) was enacted to protect one's fundamental right to privacy of communication while ensuring free flow of information in order to promote innovation and growth.

**WHEREAS**, the Department of Education recognizes the need of sharing data while ensuring the protection of personal information.

**WHEREAS**, this memorandum is subject to the approval of the Schools Division Superintendent.

**NOW THEREFORE**, premises considered, the PARTIES hereby agree and stipulate on the following:

1. **Purpose.** The parties are entering into this agreement, and SECOND PARTY is granting FIRST PARTY access to the Data "**FRAMEWORK ON ENHANCING THE NUMERACY INSTRUCTION IN PUBLIC JUNIOR HIGH SCHOOLS**", as required in Post Graduate Studies.
2. **Description of Data.** "Data" includes {SHORT DESCRIPTION OF THE DATA, SUBJECT MATTER OF DATA}, further described in {ATTACHMENT}, and attached to this agreement.
3. **FIRST PARTY's Use of Data**
  - a. **Standard of Care.** FIRST PARTY shall exercise at least the same degree of care as it uses with its own data and Confidential Information, but in no event less than reasonable care, to protect the Data from misuse and unauthorized access or disclosure.
  - b. **Safeguards Around Data.** FIRST PARTY shall use appropriate safeguards to protect the Data from misuse and unauthorized access or disclosure, including.

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- i. maintaining adequate physical controls and password protections for any server or system on which the Data is stored,
    - ii. ensuring that Data is not stored on any mobile or transmitted electronically unless encrypted, and
    - iii. taking any other measures reasonably necessary to prevent any use or disclosure of the Data other than as allowed under this agreement.
  - c. **Personal Information.** FIRST PARTY will not attempt to identify any Person whose information is contained in any Data or attempt to contact those Persons.
  - d. **Unauthorized Disclosure**
    - i. **Report.** The FIRST PARTY shall promptly report to the SECOND PARTY any unauthorized use or disclosure of data within twenty-four (24) hours of becoming aware of such.
    - ii. **Cooperation and Mitigation.** FIRST PARTY shall cooperate with any remediation that SECOND PARTY, in its discretion, determines is necessary to
      1. Address any applicable reporting requirements, and
      2. Mitigate any effects of such unauthorized use or disclosure of the Data, including measures necessary to restore goodwill with stakeholders, including research subjects, collaborators, governmental authorities, and the public
  - e. **No Modification of Data.** FIRST PARTY shall not copy, decompile, modify, reverse engineer, or create derivative works out of any of the Data.
4. **Term.** This agreement will commence on the Effective Date and continue as long as FIRST PARTY retains the Data, unless terminated earlier but shall not exceed 5 years without prejudice to entering into a new data sharing agreement.
5. **Confidentiality/Security Measures.** The confidentiality of data pertaining to individuals will be protected as follows:
- a. The FIRST PARTY will not release the names of individual, or information that could be linked to an individual, nor will the recipient present the result of data analysis in any manner that would reveal the identity of individuals.
  - b. The FIRST PARTY will not release individual addresses, nor will the recipient present the results of data analysis in any manner that would reveal individual addresses.
  - c. Both parties shall comply with laws and regulation governing the confidentiality and privacy of the information that is the subject of this Agreement.

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- d. The FIRST PARTY will not release data to a third party without prior approval from the SECOND PARTY
  - e. The FIRST PARTY will not share, publish, or otherwise release any findings or conclusions derived from analysis of data obtained from the SECOND PARTY without prior approval from the latter.
6. **Ownership.** All data being shared remain the property of the SECOND PARTY.
7. **Return or Destruction of Data Property.** On the expiration or termination promptly:
- a. Return the Data and any other property, information, and documents including Confidential Information, provided by SECOND PARTY,
  - b. Destroy all copies it made of Data and any other property, information, and documents, including Confidential Information, and
  - c. If requested by SECOND PARTY, deliver to SECOND PARTY a certificate confirming FIRST PARTY's compliance with the return or destruction obligation under this section.
8. **Mediation.** Parties shall resort to mediation as a pre-requisite towards any possible legal action over all suits and actions arising out of this agreement.
9. **Venue.** The venue of all suits and actions arising out of or in connection with this agreement shall be within the Philippines where the agreement was entered into
10. FIRST PARTY shall be held liable under the Data Privacy Act of 2012 (Republic Act No. 10173) for the violation of this agreement.

IN WITNESS WHEREOF, the parties have hereunto set their hands this 28<sup>th</sup> day of February 2021 at Sariaya, Quezon, Phillipines.

  
MA. ANALYN M. GUNO  
FIRST Party

CEI: PRC  
0710534

Valid Until: 03/25/2023

MARIA DOLORES D. ATIENZA  
Second PARTY

CEI: \_\_\_\_\_

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 SCHOOLS DIVISION OF QUEZON PROVINCE

Approved by:

**ELIAS A. ALICAYA JR. Ed.D**  
 Assistant Schools Division Superintendent  
 Office In-Charge  
 Office of the Schools Division Superintendent

CEI: \_\_\_\_\_

Witness

**MARBIN JERAMIL D. FRAGATA**  
 Planning Officer III

**WILBERT A. PORTEZA**  
 IT Officer I

**ACKNOWLEDGEMENT**

REPUBLIC OF THE PHILIPPINES }  
 \_\_\_\_\_ } S.c

**A C K N O W L E D G E M E N T**

BEFORE ME, Notary Public for and in the \_\_\_\_\_,  
 personally appeared \_\_\_\_\_ and \_\_\_\_\_ with their Competent Evidence of  
 Identity above-indicated below their names, who known to me be the same persons who executed the  
 foregoing instrument and they acknowledge to me that the same is their own free and voluntary act and  
 deed.

This instrument consists of \_\_\_\_\_ ( ) pages signed by the parties on each of the pages  
 hereof.

WITNESS MY HAND AND SEAL this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_ at \_\_\_\_\_,  
 Philippines.

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