

“Math Hugot”: An Intervention for Improving Attitudes toward Mathematics

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Author Note

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This research proposal is for approval by the Schools Division Office, Quezon City, Metro Manila.

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## Abstract

One or two sentences providing a **basic introduction** to the field, comprehensible to a scientist in any discipline.

Two to three sentences of **more detailed background**, comprehensible to scientists in related disciplines.

One sentence clearly stating the **general problem** being addressed by this particular study.

One sentence summarizing the main result (with the words “**here we show**” or their equivalent).

Two or three sentences explaining what the **main result** reveals in direct comparison to what was thought to be the case previously, or how the main result adds to previous knowledge.

One or two sentences to put the results into a more **general context**.

Two or three sentences to provide a **broader perspective**, readily comprehensible to a scientist in any discipline.

“Math Hugot”: An Intervention for Improving Attitudes toward Mathematics

The introduction states the topic and the main questions to be explored

The researchers supply background information by discussing past research on the topic.

The researchers explain how their study will add to past research on the topic

The researchers state their initial hypotheses.

First address the problem! State the overall area of concern (populations-at-risk for injustice or discrimination; need for more functional affiliations for individuals and groups; unethical policies/practices; lack of knowledge in the field, etc.). Arouse the reader’s interest; tell the reader what to expect in the rest of your paper. Provide brief statistics to indicate the incidence of the problem. Next, discuss how this problem area affects individuals, communities, and society as a whole (what are issues of physical and economic health). The potential utility of your study can be: 1) an addition to current knowledge of a problem or a vulnerable population; 2) to put theory to an empirical test; 3) to better understand the relationship between variables (e.g., adherence and technology); or 4) to determine the effectiveness of a treatment method, technology, or program.

As you begin, you need to share your theory base with the readers so they understand how what you are presenting is influenced by that theory base. As you read articles on your topic look for what other authors have to say about a theoretical framework for understand the problem and pointing a direction for solutions.

Make sure it is clear to the reader how information is related to your experimental hypotheses or procedure. So, if you are using their method, then talk about their method; if they found similar results, talk about their results; if they operationally defined their DV like you want to, then talk about that, etc. To make this section of your paper effective, you

should explicitly relate information from various sources to each other and to your proposed research. After you discuss past research, you should make it clear how your study is the next logical one, that your study improves upon past studies, that your study fills obvious holes left by the others.

As many teachers have observed,

Attitudes toward Mathematics affect the junior high school students' choice of academic track in senior high school which in turn determines their choice of academic program in college and their future career choice.

Most women avoid Math-intensive careers due to negative attitudes toward Mathematics.

“And while it was initially an expression of sentimentality, sorrow or spite, hugot eventually took on playful undertones as usage became more and more widespread . . .”  
Verayo-De Villa, N. (2018). A Game of Love and Hugot. *Philippine Daily Inquirer*.  
Retrieved from <https://lifestyle.inquirer.net/287410/game-love-hugot/>. Alkan, 2013

parencite (Verayo-De Villa, 2018)

textcite Alkan (2013)

## **Attitude and its Components**

### **The Concept and Phenomenon of “Math Hugot”**

input{chap1-hugot-concept}

### **Changing Attitudes**

input{chap1-changing-attitudes}

### **Attitudes toward Mathematics and their Effects}**

input{chap1-atm-effects}

## Limitations of These Studies

input{chap1-limitations}

In the closing two – three paragraph of the introduction, establish the need for future study related to this topic. That is, why did you decide to review this topic? What did your review of literature tell you (summary)? What do we need to study next to advance knowledge in this area?

After you present what is already known, make your case for your research either answering a new question, getting a new answer to an old question, answering a question about a new population, etc. After you have made your case that your research is going to give new information, you will summarize the major points. Remember that the Introduction discusses the problem. The review of literature should concentrate on solutions (those that exist, those that are still required). Finally, you will formulate (in the last sentence) your research question or your hypothesis.

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## Methods

We report how we determined our sample size, all data exclusions (if any), all manipulations, and all measures in the study.

## Participants

The respondents of this research will include two sections from Grade 10 students of Sauyo High School, S.Y.~2019–2020 with ages 15 to 17.

## Materials

In order to measure the students' attitudes, this study will utilize the Attitudes toward Mathematics Inventory (ATMI) by (Tapia & Marsh, 2000). This instrument obtained a reliability coefficient Cronbach  $\alpha$  of 0.95 which indicates a high degree of reliability. It was originally designed to measure the attitudes of a sample of middle school students toward

Mathematics, therefore, it is the most appropriate instrument to be used in this research. The ATMI consists of 40 statements to which the learner responds based on 5-point scales ( $A = \textit{strongly disagree}$  and  $E = \textit{strongly agree}$ ).

The ATMI is divided into four subscales : Self-confidence, Value, Enjoyment, and Motivation. The sum of the subscales gives the total score of a student's attitudes towards Mathematics. The lowest possible score is 40 points while the highest possible score is 200 points. The higher the score obtained by the respondents, the more positive attitudes they exhibit towards Mathematics. Since the ATMI was originally developed using a sample of students from a Mexican school, a reliability test will be conducted using a small sample of students in Sauyo High School so as to determine whether the instrument can be used in Philippine context. A copy of the Attitudes toward Mathematics Inventory is included in Appendix A1

## **Procedure**

After acquiring the necessary permits and determining the two sections that will serve as the respondents of this study, the researcher will teach both the control group and the experimental group using direct instruction while incorporating "Math Hugot" in teaching the experimental group. The pretest results will be used to determine the two sections.

During the intervention period, the researcher will present a "Math Hugot" before giving the seatwork for each lesson. The presentation involves 1. reading aloud the "Math Hugot" posted on the board, 2. asking the students to identify the Mathematics concept and the human experience being compared, and 3. prompting the learners to determine other Mathematics concepts discussed in the lesson which they may use to create their own "Math Hugot".

After answering the seatwork, the students will be asked to make their own "Math Hugot" in a 1/4 sheet of paper which will be submitted the following school day. The

researcher will then collect the papers and rate each “Math Hugot” using a rubric. The scores will be recorded as points for recitation.

At the end of the intervention period, the post-test will be given to both groups and the scores will be tallied for data analysis.

### **Statistical Analysis**

In order to achieve the goals of this study, the following statistical measures and tests will be computed using R version installed in an Android smartphone. The level of statistical significance is set at 5%.

We used R (Version 3.6.1; R Core Team, 2019) for all our analyses.

### **Results**

### **Discussion**

## References

- Alkan, V. (2013). Reducing Mathematics Anxiety: The Ways Implemented by Teachers at Primary Schools. *International J. Soc. Sci. & Education*, 3(3), 795–807. Retrieved from [https://www.academia.edu/3993708/Reducing\\_Mathematics\\_Anxiety\\_The\\_Ways\\_Implemented\\_by\\_Teachers](https://www.academia.edu/3993708/Reducing_Mathematics_Anxiety_The_Ways_Implemented_by_Teachers)
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## Appendix

### ATTITUDES TOWARD MATHEMATICS INVENTORY

Directions: This inventory consists of statements about your attitude toward mathematics. There are no correct or incorrect responses. Read each item carefully. Please think about how you feel about each item. Darken the circle that most closely corresponds to how the statements best describes your feelings. Use the following response scale to respond to each item.

PLEASE USE THESE RESPONSE CODES:

A – Strongly Disagree
B – Disagree
C – Neutral
D – Agree
E – Strongly Agree

1. Mathematics is a very worthwhile and necessary subject.
2. I want to develop my mathematical skills.
3. I get a great deal of satisfaction out of solving a mathematics problem.
4. Mathematics helps develop the mind and teaches a person to think.
5. Mathematics is important in everyday life.
6. Mathematics is one of the most important subjects for people to study.
7. High school math courses would be very helpful no matter what I decide to study.
8. I can think of many ways that I use math outside of school.
9. Mathematics is one of my most dreaded subjects.
10. My mind goes blank and I am unable to think clearly when working with mathematics.
11. Studying mathematics makes me feel nervous.
12. Mathematics makes me feel uncomfortable.
13. I am always under a terrible strain in a math class.
14. When I hear the word mathematics, I have a feeling of dislike.
15. It makes me nervous to even think about having to do a mathematics problem.
16. Mathematics does not scare me at all.
17. I have a lot of self-confidence when it comes to mathematics.
18. I am able to solve mathematics problems without too much difficulty.
19. I expect to do fairly well in any math class I take.
20. I am always confused in my mathematics class.
21. I feel a sense of insecurity when attempting mathematics.
22. I learn mathematics easily.
23. I am confident that I could learn advanced mathematics.
24. I have usually enjoyed studying mathematics in school.
25. Mathematics is dull and boring.
26. I like to solve new problems in mathematics.
27. I would prefer to do an assignment in math than to write an essay.
28. I would like to avoid using mathematics in college.
29. I really like mathematics.
30. I am happier in a math class than in any other class.
31. Mathematics is a very interesting subject.
32. I am willing to take more than the required amount of mathematics.
33. I plan to take as much mathematics as I can during my education.
34. The challenge of math appeals to me.
35. I think studying advanced mathematics is useful.
36. I believe studying math helps me with problem solving in other areas.
37. I am comfortable expressing my own ideas on how to look for solutions to a difficult problem in math.
38. I am comfortable answering questions in math class.
39. A strong math background could help me in my professional life.
40. I believe I am good at solving math problems.

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*Figure A1.* Attitudes Toward Mathematics Inventory, used with permission