



## Quantitative Skills Training for SNBT Preparation at SMA Negeri 2 Parepare South Sulawesi

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**Abstract:** This service activity aims to improve students' quantitative abilities, especially in the SNBT test. The method of implementing this service used training, test simulations and discussions, as well as tips and strategies for solving quantitative ability questions. Assessment tools used during the activity included a pretest, posttest, and questionnaire. The analytical technique to assess the activity's success involved comparing the outcomes of the pre-test and post-test administered. The Results showed that there was an average increase in the scores of the participants' Quantitative Skills test. Overall, the average percentage increase in the participants' Quantitative Skills test scores was 13% from the pre-test scores. It can be concluded that the quantitative skills training provided positively enhanced the student's knowledge and skills, particularly in solving scholastic problems related to the Quantitative Skills test for the upcoming SNBT. Based on the survey, 53.1% of participants were highly satisfied with the conducted training activities and agree that such activities should be continued.

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### Introduction

The national selection process for new student admissions (SNPMB) has changed compared to before. The UTBK-SNBT route (Computer-Based Written Exam - Test-Based National Selection) has been revised to focus more on measuring reasoning and problem-solving abilities. In this context, three tests will be administered: scholastic tests, mathematical reasoning, and literacy in English and Indonesian. The Scholastic Potential Test assesses cognitive abilities deemed crucial for success in formal education, particularly higher education. One segment of this test in the SNBT is quantitative ability, which evaluates knowledge and proficiency in basic mathematics (BPPP Kemdikbud, 2023).

A foundational grasp of mathematics is indispensable for understanding various principles, including mathematics. Proficiency in mathematics evolves through the utilization of its language (Sabasaje & Oco, 2023). Mathematical literacy denotes an individual's capability to reason mathematically, utilizing and interpreting mathematics to solve real-world problems across diverse contexts. It encompasses concepts, procedures, facts, and tools to describe, explain, and predict phenomena. It aids individuals in comprehending mathematics' role in the world and making informed judgments essential for engaged and reflective 21st-century citizens (Golla & Reyes, 2022).



Quantitative skills are basic skills that use mathematical thinking in a specific context, i.e., to analyze numerical data and solve mathematical problems (Tariq, 2013). It necessitates logical thinking expressed through numbers and symbols. Quantitative skills are essential to professionals to provide a way to measure and compare variables (Indeed, 2022, 2023). The quantitative ability test assesses the depth of knowledge related to mathematical subjects. Developing quantitative mathematical ability is akin to cultivating any habit; it requires consistent practice in various contexts. Mastery denotes comprehension or the capacity to apply knowledge effectively. This proficiency is gained through repeated study, enabling a genuine understanding of the subject matter. Mastery of mathematics involves fundamental processes such as addition, subtraction, multiplication, and division. These foundational processes significantly impact learning across various branches of mathematics (Indrawati, 2017). Studies have indicated that interest and learning awareness influence students' cognitive ability in mathematics (Sitorus et al., 2022; Yulianti et al., 2022). The provision of guided practice can enhance students' mathematics skills, one such method being by offering training in the form of simulated tests (Farid et al., 2021; Jansen et al., 2013; Manalaysay, 2021; Prialita, 2019; Wongupparaj & Kadosh, 2022). In addition, simulation is one method used for practice and education, which is versatile, applicable, and effective in enhancing problem-solving skills (Lateef, 2010).

The service activities concentrate on enhancing quantitative abilities, integral to the Scholastic Potential Test, and essential preparation for the SNBT, particularly for students opting for the UTBK-SNBT route. Community Service (PkM) team from Mathematics Study Program of Institut Teknologi Bacharuddin Jusuf Habibie conducts quantitative skills training. This program encompasses test simulations, discussions, and tips and strategies for solving quantitative ability questions. The aim is to equip participants with a thorough understanding of concepts, procedures, facts, and mathematical tools, fostering efficient problem-solving abilities and mathematical thinking, especially for the UTBK-SNBT.

The target audience for service partners is 12th-grade students at SMA Negeri 2 Parepare. SMA Negeri 2 Parepare, a public high school in Parepare City, does not offer specific extracurricular activities to enhance students' quantitative skills. However, SNBT has updated its test format, now including a section focusing on assessing quantitative abilities. This service activity aims to increase student's knowledge and competence for the UTBK-SNBT exam, particularly focusing on the quantitative ability aspect and providing simulated practice tests for the Scholastic Test in readiness for UTBK-SNBT.

## Method

The method of implementing this service used training, test simulations and discussions, as well as tips and strategies for solving quantitative ability questions. The service activity was carried out for three months. The implementation method of community service activities from the work program has been arranged as follows:

### *Preparation*

Community service preparation started with identifying the partners' needs, followed by gathering information regarding the issues faced by SMA Negeri 2 Parepare partners, specifically related to the preparation for the quantitative ability test in UTBK-SNBT.

### *Planning*

This stage involved drafting the community service work program based on analyzing the issues present at SMA Negeri 2 Parepare.



### Training

This phase was carried out through Quantitative Skills Training at SMA Negeri 2 Parepare. The training provides simulated tests for quantitative ability in UTBK-SNBT.

### Evaluation

The analytical technique to assess the activity's success involved comparing the outcomes of the pre-test and post-test administered. Besides that, the community service team collected questionnaire responses from student participants regarding their quantitative ability training at SMA Negeri 2 Parepare.

## Result and Discussion

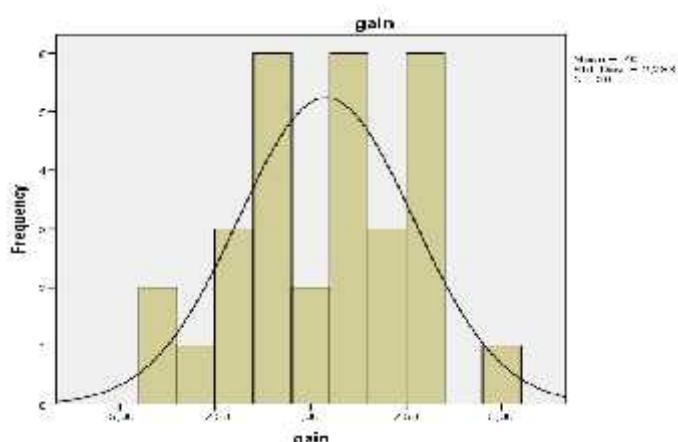
The core training activity commences with administering a pre-test to the participants, specifically in the form of a UTBK-SNBT simulation, consisting of 15 quantitative ability test questions to be completed within 20 minutes. Following the pretest, the PkM Mathematics team comprehensively discusses each question, offering insights, mathematical understanding, and tips and tricks to tackle these types of questions effectively. After the discussion, the participants' reasoning abilities are assessed through a posttest comprising the same questions and time limit as the preceding pretest. The quantitative ability training garnered remarkable enthusiasm from the participants, evident in their focused approach to solving the questions and attentive engagement during the discussions.

Each correctly answered question was awarded 1 point for the evaluation test, while incorrect or unanswered ones receive 0 points. The overview of the results of the pre-test, post-test, and gain in participants' quantitative abilities is illustrated in Table 1.

**Table 1. The Results of Pre-Test, Post-Test, and Gain**

	Minimum	Maximum	Mean
Pre-test	2,0	9,0	5,533
Post-test	1,0	10,0	5,933
Gain	-4,00	5,00	,4000
Gain Percentage	-80%	100%	13%

Based on Table 1, it can be observed that the average quantitative abilities of participants increased after the training, with an average gain of 0.4 points and average of gain percentage is about 13%. The following Graph 1 is depicting the gain in participants' quantitative abilities.



**Graph 1. Gain of Quantitative Abilities**



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Each correctly answered question is awarded 1 point for the evaluation test, while incorrect or unanswered ones receive 0 points. The overview of the results of the pre-test, post-test, and gain in participants' quantitative abilities is illustrated in Table 1. (Lateef, 2010). This is because test simulation activities can provide new experiences and increase learning motivation so that they can improve students' quantitative abilities (Sitorus et al., 2022; Yulianti et al., 2022).

## Conclusion

The results of this service concluded that there was an average increase in the scores of the participants' Quantitative Skills test. Overall, the average percentage increase in the participants' Quantitative Skills test scores was 13% from the pre-test scores. The quantitative skills training provided positively enhanced the students' knowledge and skills, particularly in solving scholastic problems related to the Quantitative Skills test for the upcoming SNBT. Based on the survey, 53.1% of participants are highly satisfied with the conducted training activities and agree that such activities should be continued.

## Recommendation

We suggest that schools create a training program in the form of SNBT preparation simulations for students. Besides that, we recommend teachers to provide guided practice and reinforcement to students regarding fundamental mathematical calculations such as algebra. Due to quantitative skills are a fundamental skill that can only be acquired through consistent practice.

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