

Improving Mathematical Competence of Prospective Police Non-Commissioned Officer Students at the Socrates Learning House

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Abstract

The low mathematical competence of students was one of the problems faced by students in educational units, including at the Socrates Learning House. Various strategies had been carried out by institutions to optimize this competence, one of which was collaborating with universities to improve students' mathematical competence. The implementation of community service activities in the form of training then became one of the quite relevant solutions. The training activity was attended by ten prospective students (17–20 years old and all male) with three teachers (5–10 years of teaching experience and all male) who served as their companions during the training activity. The success rate of the community service activity was measured by ensuring that 80% of prospective students passed the 2024 Police NCO psychological test. The training activity was conducted over three months. The result of this activity was that 100% of prospective students passed the psychological test with a minimum score of 67 and a maximum score of 83. However, future community service was expected to produce output in the form of a book that could be used by prospective students and teachers as a reference to pass the Police selection.

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1. Introduction

Indonesia is one of the countries in Asia that has a high unemployment rate. In addition to the lack of jobs, inadequate wages are also one of the reasons why workers cannot stay in a particular job. This is because everyone hopes to have a decent living so that they can live a better life. Every parent certainly hopes that their child will get a good job so that they can get a decent living. There are quite a few professions that are the dream of parents and children, one of which is the police. The police are the main choice for several reasons. First, there is an assumption that the police have a high status in society. Second, the nominal salary of the police is considered sufficient to get a decent living. Third, families and communities feel safer when they have family members who are members of the police (Dobrzinskiene et al., 2021; Lumsden, 2017).

Various institutions or course places organize or open tutoring classes to prepare students for the police selection. One of these course institutions is the Socrates Learning House. Rumah Belajar Socrates is a non-formal educational institution that has eight years of experience in providing tutoring to students who want to take part in various types of selection, including the police entrance selection. Along the way, Rumah Belajar Socrates experienced several obstacles. One of them is the low mathematics competence of prospective students (casis) who will take part in the police selection. This problem is a common problem (Isnawan, Alsulami, & Sudirman, 2024; Isnawan et al., 2023; Isnawan, Mastoor Alsulami, Nugroho Yanuarto, et al., 2024; Isnawan, Suryadi, et al., 2022c; Sridana et al., 2025; Sukarma et al., 2024). In fact, in the context of mathematics learning in formal schools (Isnawan, 2023; Isnawan, Suryadi, et al., 2022b, 2022a).

Furthermore, on several occasions, teachers and the community service team held discussions to determine the best solution to overcome the problem. The results of the discussion resulted in a collaborative activity between teachers and the community service team in order to optimize the mathematical abilities of the candidates. The activity began with observations of the implementation of learning at the Socrates Learning House to then determine the factors that caused the low mathematical abilities of the candidates (Prabowo et al., 2022; Suryadi, 2019b, 2019a) and finally in providing appropriate learning to optimize the mathematical abilities of the candidates. The collaboration is in the form of providing training activities to candidates who will take part in the 2024 Police NCO selection. Therefore, the purpose of this community service activity is to optimize the mathematical competence of candidates so that they can pass the 2024 Police NCO selection, especially during the psychological test. To achieve this goal, several devotion questions were raised, including:

- 1.1. What are the factors that cause low mathematical competence of prospective police students?
- 1.2. How is the implementation of training activities carried out to optimize the mathematical competence of prospective police students?
- 1.3. How does the training activity impact the passing of prospective police students when taking the psychological test selection?

2. Method

The method used in this community service was training. Training was chosen because it had a direct impact on the participants and aligned with their needs (Isnawan, Alsulami, & Sukarma, 2024; Isnawan, Kuswara, et al., 2022; Tju & Murniarti, 2021). The training included providing additional materials to prospective candidates who participated in the National Police Bintara selection and were registered as students at the Socrates Learning House, Mataram, Indonesia. Socrates Learning House had more than eight years of experience with dozens of alumni who had become police officers.

The training activities were conducted over three months with two meetings per week, from October 2023 to January 2024. Ten prospective candidates participated in the training activities. These candidates were aged 17 to 20 years, and all were male. They came from various ethnic groups, namely Sasak, Samawa, Mbojo, Balinese, and Javanese. Their parents had diverse professional backgrounds, including teachers, nurses, police officers, farmers, and others. Three prospective candidates were still in grade XII of high school, while seven others had studied at several universities and private institutions in Mataram, Indonesia.

The success of the community service activities was measured by ensuring that, out of the ten participants, approximately 80% passed the 2024 Police NCO psychological test. The training activities were outcome-oriented, aiming for at least 80% of the candidates to pass the test. To achieve this, two teachers with experience in psychological tests or SKD and SKB in CPNS or P3K activities were engaged. These teachers had educational backgrounds in Mathematics Education at the master's (S2) and doctoral (S3) levels. They were lecturers with significant expertise and strategies to optimize the candidates' mathematical competencies. It was hoped that their competence and experience would provide a distinct advantage during the training activities for the candidates.

3. Results and Discussion

3.1 What are the factors that cause low mathematical competence of prospective police students?

Based on the results of discussions with the manager and after analyzing several chassis registration files, as well as observations of the chassis, it was obtained that out of 10 chassis, most of the chassis had poor mathematical competence. In fact, the chassis' basic mathematical operation skills were quite low. For example, when the chassis was asked about multiplication or division operations, the chassis took quite a long time to answer. The results of this service are then in line with the theory that states that a person's basic mathematical operations must be good when expecting good mathematics learning outcomes (Palmquist, 1987). The results of this service are also in line with several previous studies which revealed that the ability to perform basic mathematical operations greatly determines a person's success in taking a mathematics exam (Ballard & Johnson, 2004; Fonseca, 2020).

3.2 How is the implementation of training activities carried out to optimize the mathematical competence of prospective police students?

As previously described, this training activity was conducted for three months with two meetings each week. The training activities were divided into several materials, such as intelligence, accuracy, and personality. The intelligence material contains content related to word analogies, basic mathematics and story problems, series, images, analytical, and several other forms of questions. Accuracy contains missing numbers, missing letters, missing symbols, or a combination of the three types. Personality is related to several statements that reflect the personal condition of the casis. Figures 1, 2, and 3 show some documentation of the training activities.

Figure 1.

Prospective police students are working on questions



In general, the training activities went smoothly. However, the level of student attendance is still not optimal. When providing training, teachers usually use problem-solving methods to optimize students' ability to answer questions. The problem-solving method was chosen because this method is quite effective, especially when you want to optimize mathematical abilities when completing practice questions (Barham, 2020; Dorimana et al., 2022; Isnawan, Mastoor Alsulami, Nugroho Yanuarto, et al., 2024; Rahayuningsih et al., 2021). In addition to the problem-solving method, the discussion method is also used by teachers. The discussion method is used because this method can create social interaction so that students can more easily complete practice questions (Ahmad, 2021; Corfman & Beck, 2019; Wester, 2020). Teachers also use several ICT integrations, such as the use of Kahoot! to optimize mathematical competence, increase student motivation, and get students used to answering questions online. This integration is based on several theories and research results which reveal that the use of online test applications can optimize student learning outcomes (Khasanah & Lestari, 2021; Salsabila et al., 2020; Yanuarto & Hastinasyah, 2022; Zainudin & Zulkiply, 2023).

Figure 2.
The teacher is giving directions



Figure 3.
Teachers and police students are discussing



3.3 How does the training activity impact the passing of prospective police students when taking the psychological test selection?

Based on information from the candidates, it was obtained that all 10 candidates passed the psychological test. The minimum score for candidates was 67 with a maximum score of 83. If the percentage is calculated, it is obtained that 100% of candidates passed the psychological test. In other words, the training activity is categorized as successful because more than 80% of candidates passed. There are several factors that caused this to happen. However, this service did not reach the stage of analyzing the graduation. In fact, it was obtained that there were 3 candidates who passed to the final stage and were entitled to take part in education at the NTB Regional Police SPN. Here are some excerpts of gratitude from the candidates.

Figure 4.

Excerpt from police student candidate's thank you speech 1

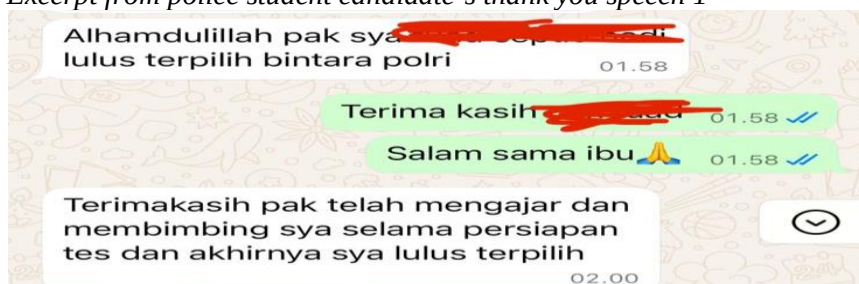
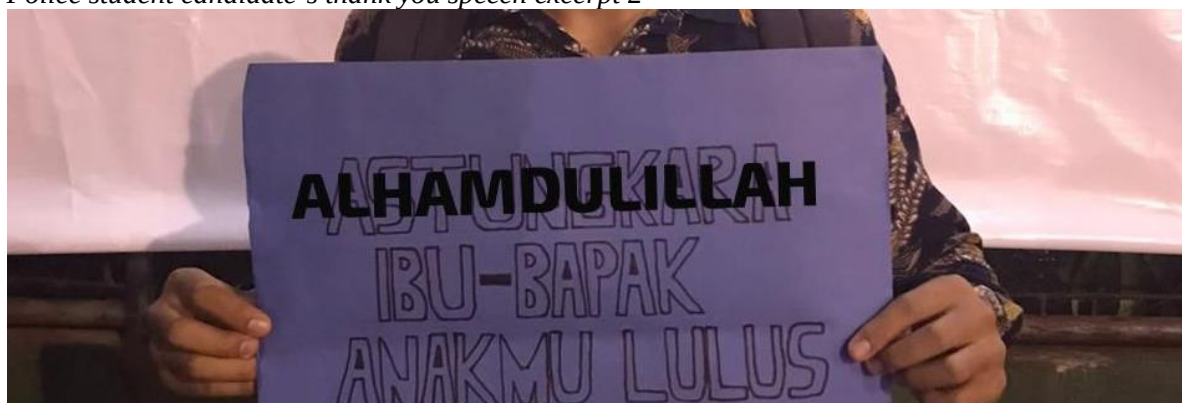


Figure 5.

Police student candidate's thank you speech excerpt 2



The results of this community service are then in line with several previous studies (Isnawan, Alsulami, & Sudirman, 2024; Sridana et al., 2025; Sukarma et al., 2024) which revealed that the use of problem-solving strategies, discussions, and ICT integration can optimize student learning outcomes. After the training activities were completed, the community service team conducted an evaluation related to the community service activities carried out. Some notes that became evaluation materials for the community service team were the lack of synchronization in the delivery of material between one teacher and another. The teachers used during the training activities tended to do less coordination after the training meeting. Although, several coordination activities were carried out, the follow-up to the results of the coordination was still not clearly visible. In addition, teachers did not have books that were the main references in carrying out training activities so that the direction of learning was less focused. Teachers were only given outlines related to the material to be taught and were given as many opportunities as possible to use references from various sources. The hope for the future is that the community service team will compile a book that will be a reference for teachers and also casis in participating in learning activities. Monitoring activities are carried out by checking the percentage of teacher and casis attendance during learning activities. In addition, monitoring is also carried out by checking the mathematical competence of the casis periodically. At least the exam activity is carried out at the end of each month.

4. Conclusion

In general, the community service activities ran optimally. Evidently, the attendance rate of teachers and prospective candidates exceeded 85%. The training activities carried out for three months actually had an impact on the graduation rate of prospective candidates. Evidently, 100% of prospective candidates who studied at the Socrates Learning House and took part in the 2024 National Police Bintara selection passed the psychological test. The lowest score for prospective candidates was 67 with the highest score being 83. In other words, this community service activity can be categorized as successful because the percentage of passing the psychological test exceeded 80%. However, there are several recommendations regarding the implementation of other relevant community services in the future. First, the community service team should coordinate periodically by providing definite follow-up to the obstacles experienced by teachers or prospective candidates during training activities. Second, the community service team compiles a reference book that will be used by teachers or prospective candidates as a guide in carrying out learning activities.

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