

Increasing Safety Capacity at Special Education Schools in Semarang City

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Abstract

Special Education Schools (SLB) are formal educational institutions that provide services for students with special needs. Until now, SLB still faces significant challenges related to safety in the school environment. To overcome these challenges, mentoring activities are needed to increase safety capacity for teachers, staff and security officers at the Semarang City State SLB. This community service activity uses a participatory approach and is carried out in three stages: preparation, implementation and evaluation. Initial observations showed various problems such as inappropriate evacuation routes, invisible meeting points and expired fire extinguishers. Through mentoring and training activities that combine lecture, discussion and practice methods, participants experienced a 37% increase in knowledge. The evaluation results showed increased participants' knowledge and awareness regarding the importance of implementing safety in schools. This program is expected to be a model for strengthening safety capacity in SLB and encouraging a safe and inclusive learning environment.

Keywords: safety, capacity, Special Education School, good practice

INTRODUCTION

Special Education Schools (SLB) are formal educational institutions officially integrated into the national education system. The existence of SLB is essential because this institution was established specifically to serve students with special needs or people with disabilities. Students with disabilities such as the blind, deaf, physically disabled, mentally retarded and so on, have different learning needs from students in general. They need approaches, methods and learning environments tailored to their conditions to optimize their potential.

Students with disabilities are also a vulnerable group when faced with various potential dangers. This is due to their physical, sensory, or cognitive limitations, so their ability to recognize, avoid, or respond to the threat of danger is limited. School is a place where students spend most of their time. Schools are also one of the places with various potential risks that can threaten the safety and health of students. These potential hazards can range from the school's physical environment, such as slippery floors, unsafe stairs, or unsafe equipment, to potential hazards from social interactions, such as student violence or bullying.

In addition, school also plays a vital role as a place for students to undergo the learning process, develop their potential, increase their thinking, foster learning motivation, and form positive character. Students' character and habits formed at school age will be very influential and last until adulthood. Therefore, schools need to provide not only academic education, but also character education and safety education, so that students can grow into independent, responsible individuals and protect themselves from various threats of danger.

Special education at SLB has been specially designed to provide learning for students with special needs, such as the blind, deaf, physically disabled, mentally retarded, and so on,. The education provided is not only an academic aspect, but also includes a non-academic aspect that can be in the form of safety education. Safety education is an educational effort that aims to prevent, avoid, or minimize the risk of injury or accident in the school environment. Providing safety education from an early age can improve students' understanding of the various hazard risks. Safety education can be provided as training to reduce all disaster

risks that can befall students at school.

Safety education can be provided in various forms, including training to reduce all disaster risks that can happen to students at school. Safety education is not only a responsibility for teachers, but also for staff, security officers, parents of students, and even the students themselves. In addition, safety education can also be provided through simulations or good practices that can be applied, such as evacuation exercises, the use of light fire extinguishers (APAR), and handling emergencies involving all parties, so that it is hoped that a school environment that is safe from hazards, comfortable, and conducive for all school parties.

Implementing safety education in Indonesia still faces challenges, including non-optimal communication between teachers and students. In addition, the lack of special training for teachers and the limited facilities owned by SLBs are also significant obstacles. The lack of teachers' understanding of the safety aspects of students with special needs and the lack of supporting facilities, such as facilities for safety simulations that are easy to access, further weaken the effectiveness of safety learning in the SLB environment. Therefore, increasing teacher capacity through special training, procurement of adequate facilities and infrastructure, and strengthening communication between teachers and students is a strategic step urgently needed to support the creation of a safe and inclusive learning environment for all students in SLB.

SLB Negeri Kota Semarang is one of the SLBs in Semarang City that still has vulnerabilities in safety aspects. Students at school have the potential to be exposed to various types of hazards, ranging from physical, biological, ergonomic, to psycho-social risks (multi-hazards). The impact of the threat of multi-hazards can be in the form of minor to severe injuries, disease transmission, depression due to violent acts that may occur in the school environment, both detected and not officially reported, and others. However, until now, the school has not had an adequate safety management system to prevent or handle these various threats. In addition, it is still found that there are several problems found in schools, including the lack of understanding of school management and teachers on the implementation of Occupational Safety and Health (OSH/K3), lack of ability to identify and respond to various types of hazards, the absence of a structured OSH program, the absence of maintenance procedures for OSH facilities, and the lack of optimal collaboration network functions to ensure the sustainability of OSH programs in school. Therefore, efforts to increase the safety capacity of schools are extraordinary through the improvement of evacuation plans and routes, the preparation of standard operating procedures (SOPs) and checklists of light fire extinguishers (APAR), OSH training for teachers, staff, and security officers are urgently needed to strengthen the schools' resilience to face various multi-hazard threats.

METHOD

This community service activity was carried out at SLB Negeri Kota Semarang in 2025 and involved various internal school parties, namely principals, teachers, staff and security officers. The method of implementing activities prioritizes a participatory approach, so that all participants can be actively involved in every stage of the process. The implementation of the activity as a whole is divided into three main stages that are mutually sustainable, which are as follows.

Preparation stage

In the preparation stage, the community service team coordinates intensively with the SLB to obtain permits and provide a detailed explanation of the design and objectives of the service activities to be carried out. In addition, initial observations were also made on the condition and completeness of OSH facilities in the school environment, such as inspections of light fire extinguishers (APAR), evacuation routes and plans, meeting points and other safety facilities. This observation aims to identify problems and prepare an analysis of safety-related needs in SLB, so that the assistance and training provided can be adjusted to the actual conditions in the field.

Implementation stage

The second stage is the implementation stage, where activities consist of repairing and installing checklist forms in each fire extinguisher, repairing and installing evacuation maps and clear evacuation routes at various strategic points in the school environment, preparing safety SOPs, and occupational safety and health (OSH) training activities. The training activity begins with filling out an informed consent sheet as a form of consent for participants to participate in the activity. Furthermore, participants do a pre-test to measure the initial level of understanding related to the OSH material. After that, the training was carried out using the lecture method, which was complemented by direct practice in the form of OSH inspection simulations, especially correct and safe fire extinguishing inspection procedures. Furthermore, an interactive discussion session was held so that participants could exchange experiences and deepen their understanding

of school safety aspects. Teachers, staff and security officers attended the training series to increase their safety-related capacity at SLB.

Evaluation stage

The third stage is the evaluation stage, where the community service team assesses the success of the implementation of service activities through group discussions, analysis of pre-test and post-test results, and a question-and-answer session with the participants (the school). This evaluation stage aims to measure the capacity and enthusiasm of participants while involved in a series of activities and participating in training. On the other hand, it also assesses the extent of their improvement in their understanding and skills related to the OSH material that has been given. The results of this evaluation are essential input materials for the improvement and development of the program in the next stage.

This activity has received ethical approval through a certificate of ethical feasibility from the Health Research Ethics Commission of the Faculty of Medicine, Universitas Negeri Semarang, with No. 903/KEPK/FK/KLE/2025.

RESULTS & DISCUSSION

SLB Negeri Kota Semarang, one of the schools that handles students with special needs in Semarang City, faces significant challenges related to safety in the school environment. Potential physical, biological, ergonomic and psycho-social hazards can threaten school members' safety at any time. However, until now, schools do not have an adequate safety management system to anticipate and handle the threat of multi-hazards. Before the service activities, the team conducted initial observations to identify various safety problems in the SLB environment. Therefore, the community service team carried out a series of activities to assist the implementation of school OSH and training to increase school safety capacity based on the findings of problems.

The observations show that even though schools already have evacuation routes and maps, laying out evacuation routes is still inappropriate. Besides, adding several new infrastructures in the school area caused some points on the evacuation map to be inaccessible, so it was necessary to remake the evacuation map under the current conditions. The meeting point, which should be easy to reach and visible, was covered by a mango tree, so that it could not be seen clearly by all the school members.

In addition to problems on the path and assembly points, the observation results also found that the light fire extinguishers (APAR) available at SLB had passed the expiration date and were unsuitable. To overcome this, the community service team provided examples of good practices in preparing the fire extinguisher inspection system and making standard operating procedures (SOPs); it also assisted in creating a fire extinguisher inspection checklist as a guide for school officers. Regarding the emergency evacuation aspect, the community service team also updated the route/evacuation map to suit the current conditions in the school environment.

Implementation of the Series of Activities

The implementation of this service consists of repairing and installing checklist forms in each fire extinguisher, repairing and installing evacuation maps and clear evacuation routes at various strategic points in the school environment, preparing safety SOPs, and OSH training activities equipped with a simulation of Light Fire Extinguisher (APAR) inspections. This activity aims to increase the awareness and capacity of school members related to the importance of implementing safety practices in schools. Through a training method that combines lectures and hands-on practice, participants are invited to better understand and apply safety principles in daily life at school.

The training activity was held on Thursday, May 15, 2025, at the SLB N Multipurpose Room, Semarang City, for approximately 2 hours. This training was carried out in a participatory manner involving school principals, teachers, staff and security officers. Figure 1 shows the characteristics of the trainees presented in the form of a pie chart.

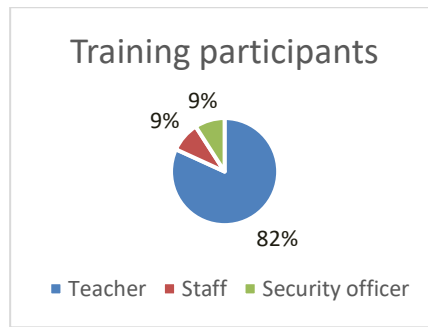


FIGURE 1. Trainees

Based on the pie chart in Figure 1, most participants in this training activity are teachers (18), followed by two staff members and security officers.

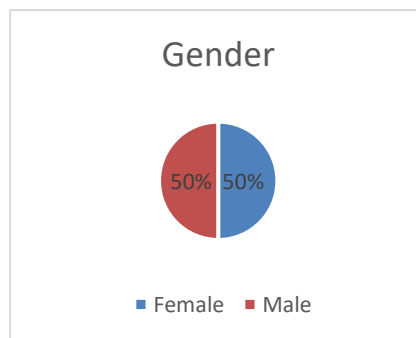


FIGURE 2. Trainee Gender

Based on the pie chart in Figure 2, the participants of the training activity who are female and male have the same number of 11 people, meaning that the representation of the two is balanced.

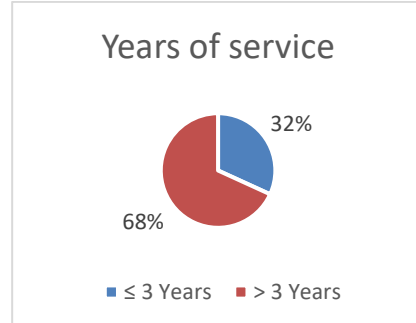


FIGURE 3. Trainee Working Period

The pie chart in Figure 3 shows that more training participants have a service period of > 3 years, which reaches 15 people. Meanwhile, seven people have a service period of ≤ 3 years.

Before the safety training begins, all participants, including teachers, staff and security officers, are asked to do a pre-test. This pre-test measures the participants' initial understanding of the safety material to be delivered. After the pre-test session, leaflets were distributed as supporting information materials from which the participants could learn during the training.

The training was then continued with the lecture method, where participants understood various potential hazards and disasters in the school environment. The material presented also emphasized the importance of safety principles, safety education, and the role of OSH facilities to prevent and minimize the risk of hazards that can endanger all school members. With a good understanding, it is hoped that participants can be more vigilant and proactive in maintaining safety in the school environment.

After the lecture session, the activity continued with the practice/simulation of the inspection of Light Fire Extinguishers (APAR) using the standard operating procedures (SOP) that had been prepared. This practice provides participants with direct experience properly inspecting and maintaining fire extinguishers. Furthermore, a question-and-answer discussion session was held, which took place interactively. Participants showed high enthusiasm by actively asking questions and sharing experiences related to safety in the school environment.

After the discussion session, participants returned to work on the post-test to measure the improvement of their understanding after participating in the training. The training activity was closed with a group photo session as a form of documentation of the implementation of the activity (in Figure 4).



FIGURE 4. Training Activity Documentation

As a follow-up, the community service team and the school installed evacuation routes, evacuation maps, SOPs and fire extinguishing checklists at various strategic points in the school environment. The results of this output are expected to be a practical guide for all school members in maintaining safety. With the series of activities that have been carried out, it is hoped that they will positively impact creating a safer, more comfortable and conducive school environment.

Training Activities

The results of the training activities can be seen from the pre-test and post-test scores in Figure 5.

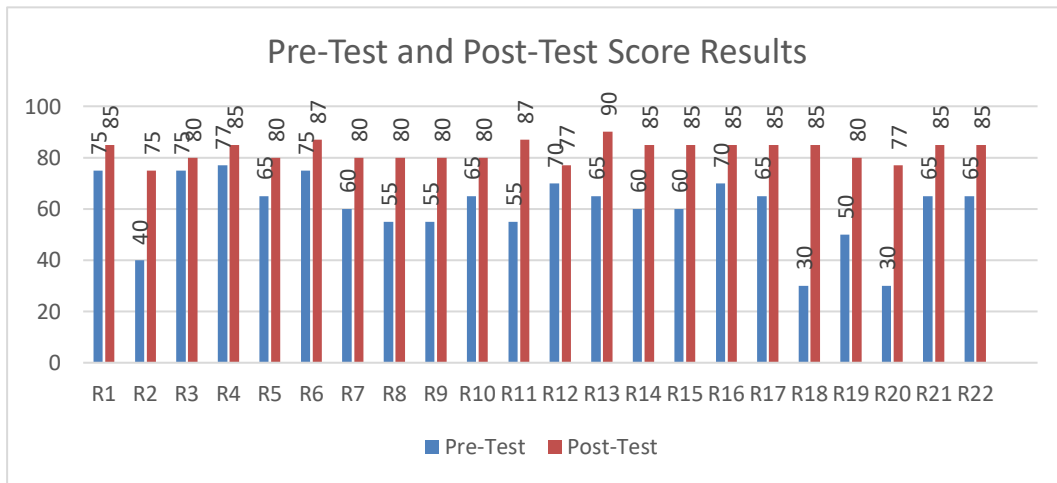


Figure 5. Graph of Pre-Test and Post-Test Score Results

Based on Figure 5, the average pre-test score was 60.3, and the average post-test score was 82.6. This means there is a significant increase in knowledge among teachers, staff and security officers after training, an increase of 22.3 points or 37%.

Discussion

A series of community service activities, including training, were participatory and attended by teachers, staff and security officers. Training has been proven to significantly increase participants' knowledge and understanding. The training emphasized the importance of safety principles, safety education and the role of OSH facilities in preventing and minimizing the risk of harm in the school environment. The risk of harm in the school environment is not only related to physical aspects, such as accidents or disasters, but also includes non-physical risks such as bullying, sexual violence and other forms of violence. Through training, participants will have adequate knowledge and understanding, so they can be helpful in the future and minimize the risk of hazards that may be faced. With a good experience, all school members can be more vigilant and proactive in maintaining safety.

The observation results showed several main problems, such as improper evacuation routes, meeting

points and expired fire extinguishers. The community service team updated the evacuation map, made a fire extinguisher inspection checklist, prepared SOPs, and trained participants to conduct inspections according to the SOP. Installing safety signs in the form of evacuation routes/routes and meeting points is intended as a guide when disasters and emergencies occur. Through this practice, teachers, staff and security officers understand the theory and can identify potential hazards in real life in their school environment. Implementing fire extinguishing inspections using periodic inspection checklists also encourages creating a sustainable safety culture, where every school resident feels that they have a shared responsibility in maintaining the safety of the learning environment. This kind of activity will strengthen the understanding that school safety is not only the task of one party, but the result of the collaboration of all elements of the school.

CONCLUSION

The series of Occupational Safety and Health (OSH) service and training activities carried out at SLB N Semarang has significantly increased the capacity and awareness of school members related to safety aspects, especially for teachers, staff and security officers. The increased safety capacity includes the ability to recognize and anticipate various potential hazards that exist in the school environment. This activity answers the urgent need for a better safety management system in Special education schools, especially in the face of the threat of multi-hazards in schools. Implementing practice-based and participatory training has proven effective in strengthening participants' understanding and skills in safety procedures, OSH inspections and handling emergencies. The success of this program opens up opportunities for implementing similar training models in other SLBs and other public schools, with adjustments to the characteristics and needs of each school. As a follow-up step, schools are advised to carry out routine maintenance related to their safety facilities, update SOPs periodically, and build collaborative networks with relevant stakeholders to ensure a safe, inclusive and friendly learning environment for all school members.

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DECLARATION OF CONFLICTING INTERESTS

The authors state that there is no conflict of interest in the publication of this article.

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