

EDUCATION PROGRAM ON SAFE AND HALAL FOOD PROCESSING FOR STUDENTS, TEACHERS, AND EDUCATIONAL STAFF AT PASUNDAN 1 SENIOR HIGH SCHOOL, CIMAHI CITY

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Abstract

This community service program was carried out at SMA Pasundan 1 Cimahi and aimed to increase awareness of safe and halal food among students, teachers, and school staff. The activity included educational sessions and practical workshops involving sample testing for food safety. The pre-test average was 50.50%, while post-test scores increased to 86.51%, indicating significant knowledge improvement. This result shows the effectiveness of combining theoretical and practical methods in community education. The program concluded with poster distribution and the development of teaching modules to sustain the impact.

Keywords: Food Safety, Halal Food, Community Service

INTRODUCTION

Food is a basic human need that greatly determines the quality of life. Amid growing public awareness of health and halal lifestyles, the issues of food safety and halal compliance have become increasingly important, including within educational environments. Students, teachers, and education personnel, as part of the school community, play a strategic role in shaping a culture of food consumption that is healthy, safe, and aligned with halal principles.

The limited understanding of food safety standards—such as the importance of hygiene in food processing, identification of hazardous substances (e.g., borax, formalin, and synthetic dyes), and knowledge regarding halal certification and principles—may lead to risks of consuming unsafe or non-halal food. This poses negative impacts on both the health and ethical consumption behavior of students.

Therefore, a structured educational program is needed to provide practical knowledge to the school community on how to select and process safe and halal food through community service

activities. Community service is one of the three main obligations of higher education institutions in Indonesia, alongside education and research. This is mandated in Law No. 12 of 2012 on Higher Education, which states that universities have the responsibility to carry out community service activities as a contribution to addressing societal problems.

This Community Service Program (Pengabdian kepada Masyarakat/PPM) is designed as an academic contribution to support the improvement of food literacy in schools and as a preventive effort to reduce the risk of unhealthy food consumption among students. The activity also aims to meet the needs of the community by providing education related to safe and halal food to the academic community of Pasundan 1 Senior High School, Cimahi. Based on preliminary surveys, the lack of understanding among students and teachers regarding safe and halal food underscores the urgency of this program. Furthermore, this initiative aligns with Universitas Pasundan's mission to deliver research-based solutions to society.

The key principles in its implementation include contributing to the advancement of science and technology, fostering student character development through lecturer involvement, building synergy and collaboration with stakeholders, and strengthening the societal relevance of Universitas Pasundan. The core of community service implementation is to provide problem-solving approaches derived from the downstream application of research products that can be applied and bring real benefits to society. This became the basis for developing the Community Service Program dedicated to students and education personnel at Pasundan 1 Senior High School, Cimahi.

It is expected that this program will not only raise awareness but also cultivate positive habits in the processing and consumption of safe, healthy, and halal food within the school environment.

IMPLEMENTATION METHOD

The program was carried out through four main stages:

1. Pre-Test: Conducted to assess participants' knowledge prior to the activity.
2. Counseling Session: Delivered through interactive lectures using engaging visual media on the topic of safe and halal food.
3. Practical Workshop: Direct testing of school canteen food samples was performed by university students together with high school students, focusing on the detection of hazardous substances such as borax and rhodamine B.
4. Post-Test: Conducted to evaluate the improvement of participants' knowledge after the activity.

RESULTS AND DISCUSSION

1. Pre-test

In a series of training activities, an initial assessment is generally conducted related to the material to be delivered. The purpose of this initial assessment is to examine the extent of students' cognitive development in relation to the material that will be and has been taught. According to Suciati & Irawan (2001), the learning process consists of three stages: assimilation, accommodation, and equilibration. Assimilation refers to the process of integrating new information into the existing cognitive structures already present in students' minds. Accommodation is the adjustment of cognitive structures to fit new situations, while equilibration is the continuous balancing process between assimilation and accommodation.



Figure 1. The students took a pre-test

In this activity, it is expected that the results of the initial assessment will help integrate (assimilation) students' prior knowledge with new information, allowing the teaching materials to be adjusted to the students' existing abilities. Alternatively, if the students have no prior knowledge of the topic, cognitive adjustment (accommodation) occurs as they adapt to the new material.

According to Ramayulis (2005), initial assessment serves as an evaluation tool for the material to be taught to students. Sudijono (2008) also explains that conducting an initial assessment motivates students to prepare themselves, meaning they engage in learning before the formal teaching process begins at school. This preparation enables students to better understand the subject matter presented.

With the motivation generated by the initial assessment, students' engagement increases, curiosity about the material deepens, and the desire to achieve higher scores encourages active learning. Consequently, students' understanding improves, which is reflected in higher post-test scores.

2. Counseling session

The counseling session was conducted in the auditorium of Pasundan 1 Senior High School, Cimahi, and was attended by 12th-grade students and teacher representatives. The session, themed on halal and safe food, aimed to enhance the younger generation's understanding of the importance of food safety and halal compliance in daily consumption. This counseling is essential because many students still lack understanding of these issues. Therefore, it is expected that the session will broaden students' knowledge, considering that adolescence is a critical period for developing critical thinking skills and responsible consumption habits.



Figure 2. Presentation on Safe and Halal Food by the PPM Team

The habit of selecting safe food—safe chemically, physically, and biologically—needs to be understood and applied by students. Chemical safety is indicated by the absence of chemical contaminants such as pesticides, heavy metals, excessive or prohibited food additives. Physical safety is indicated by the absence of foreign objects such as hair, dust, or other non-food materials. Biological safety is indicated by the absence of microbiological contamination or metabolites from living organisms that cause disease (Lestari, 2020). This understanding is expected to make

students more selective in choosing snacks that are safe for health and to develop habits that maintain food safety in consumption.

Counseling on halal food is crucial considering that Indonesia has a majority Muslim population. According to Muslihuddin (2016) and the Halal Product Law (UU JPH), halal food refers to food products that are declared halal according to Islamic law. This means that the food product does not contain prohibited ingredients and is free from impurities. The importance of providing material on halal food is underscored by the widespread availability of snacks sold freely in school environments, so students need to be more cautious and selective in choosing and consuming food in accordance with halal principles.

3. Workshop

The workshop is a form of training that integrates theory and practice directly, emphasizing a "learning by doing" approach, in which participants are guided by instructors to apply the material in real situations. This activity is designed to be interactive and collaborative, allowing participants to share ideas, understand work procedures, and gain hands-on experience that reinforces the mastery of specific skills or knowledge (Muslihuddin, 2016).



Figure 3. Workshop on Borax and Rhodamine B Identification

Borax and Rhodamine B are two types of hazardous chemicals that are often misused in food products, particularly traditional snacks sold freely. Borax, also known as sodium tetraborate ($\text{Na}_2\text{B}_4\text{O}_7 \cdot 10\text{H}_2\text{O}$), is an inorganic compound in the form of white crystals, which should only be used in industrial applications such as detergents, wood preservatives, and metal soldering materials. Meanwhile, Rhodamine B is a synthetic red-violet dye commonly used in the textile, paper, and cosmetic industries. Both substances are prohibited in food due to their toxic properties and potential long-term health impacts. Borax is usually added to food to provide a chewy texture and extend shelf life, while Rhodamine B is used to enhance the visual appeal of food by giving it a more attractive color (Asmi, 2023).

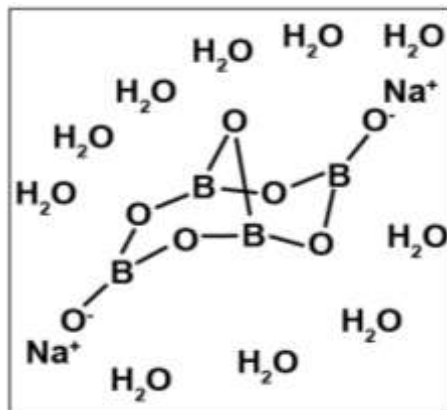


Figure 4. Structure of Borax (Source: Okimya, 2018)

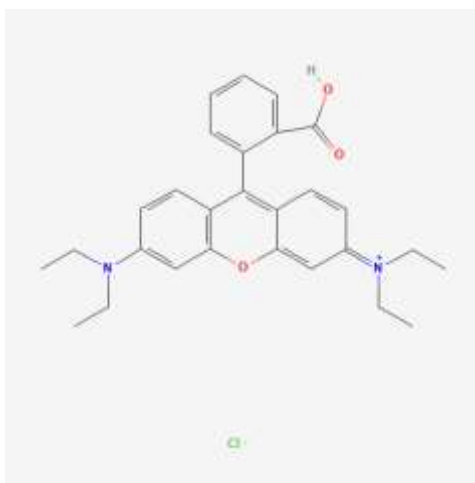


Figure 5. Structure of Rhodamine B (Source: National Center for Biotechnology Information, 2025)

The illegal use of borax is often found in products such as meatballs (bakso), cilok, crackers, and fresh noodles. Rhodamine B is commonly detected in products such as red crackers, counterfeit chili sauces, and brightly colored red market snacks like sugar candies. Foods containing borax generally have a very chewy texture and long shelf life without refrigeration. In contrast, foods containing Rhodamine B tend to exhibit an unnaturally bright red color and may leave stains on hands or packaging (Chikmah & Maulida, 2019).

The long-term consumption of these substances is highly hazardous. Excessive ingestion of borax can be absorbed in the small intestine and accumulate in organs such as the liver and kidneys, causing functional disorders and even cell damage. Continuous consumption may result in carcinogenic and mutagenic effects. Rhodamine B is also known to be carcinogenic, and toxicity tests on laboratory animals (mice) show that its ingestion can damage colon and kidney tissues and cause inflammation in internal organs. Early symptoms may include nausea, vomiting, and irritation of the digestive and respiratory systems (Maharani et al., 2024).

4. Post-Test

One common form of evaluation in learning activities is the post-test, which is administered after the learning process to measure students' understanding and achievement of the material presented. According to Ratnawulan & Rusdiana (2014), evaluation refers to an action or process to determine the value of something. Educational evaluation is the activity or process of determining value in order to assess quality or outcomes. To determine the success of learning, evaluation is conducted. This test is carried out at the end of the learning process or after material presentation to assess students' comprehension of the content. The test material corresponds to the material previously delivered. The purpose of this test is to allow the instructor to determine whether students understand the material presented (Magdalena et al., 2021).

In data analysis, there are three stages: data reduction, data presentation, and data verification. Data reduction aims to simplify abstract data into a clear and detailed summary. Data presentation involves organizing the data into an appropriate framework. Finally, data verification entails drawing conclusions from the collected data, with conclusions summarizing the essence of the data in concise statements that convey broad meaning (Magdalena et al., 2021).

In education, the main goal of evaluation is to observe and understand the processes occurring during learning. In this context, the learning process consists of three key components: input, transformation, and output, which are assessed through evaluation.

The post-test at Pasundan 1 Senior High School, Cimahi, was conducted using a Kahoot! quiz consisting of 15 questions. This aimed to evaluate whether students had understood the material presented. The results of the post-test showed that 86% of the 43 students answered correctly. This indicates that the instructor successfully delivered the material effectively. The high percentage of correct responses reflects the ease of comprehension of the material and the effectiveness of the teaching methods, demonstrating active student engagement during the activity and showing that the learning objectives were successfully achieved.

Table 1. Recapitulation of Pre-Test and Post-Test Results

Type of Test	Total of Student	True Answer Percentage
Pre-Test	87	50,50%
Post-Test	43	86,51%

The difference in the number of students between the pre-test and post-test was due to several unavoidable technical and situational factors, including students being absent during the post-test session due to health reasons, conflicting activities, or technical issues. Nevertheless, the post-test data that were successfully collected still represent the majority of participants and can serve as a sufficiently valid indicator to evaluate students' understanding of the material that was presented.

CONCLUSION

This educational program successfully enhanced students' and education personnel's knowledge of halal and safe food, as evidenced by the increase in post-test scores, higher participation, and participants' enthusiasm throughout the activities. The combined theoretical and practical approach was considered effective and suitable for replication in other schools. The program will continue with publication efforts, the development of teaching modules, and training of halal food ambassadors among students.

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