Implementation of Outcome-Based Education in a Leading High School
(a Case Study at SMA Taruna Bakti Bandung)

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ABSTRACT

Outcome-Based Education (OBE) is an approach to learner-centered learning that prioritizes achieving specific learning outcomes for all students. The approach ensures that students achieve set goals in their learning process. This study aims to determine the implementation of Outcome-Based Education (OBE) at SMA Taruna Bakti Bandung. The research method used is a qualitative case study approach. The results show that SMA Taruna Bakti Bandung prioritizes the cognitive aspects of learning in implementing Outcome-Based Education (OBE). The integration of OBE at SMA Taruna Bakti Bandung is carried out through intracurricular, extracurricular, and special programs. The professionalism of teachers and the availability of facilities and infrastructure support the successful implementation of OBE at SMA Taruna Bakti Bandung. The success of implementing Outcome-Based Education (OBE) at SMA Taruna Bakti Bandung is demonstrated by the achievements of students and graduates. The study concludes that the holistic implementation of Outcome-Based Education (OBE), considering the supporting factors, can encourage the achievement of educational goals. However, it is essential to focus on improving students' cognitive, affective, and psychomotor aspects for mastery of learning.

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1. INTRODUCTION

The world's openness to the influence of information technology development due to globalization has caused various fundamental changes in human life. Such conditions have led to new demands that must be faced and overcome. One of the challenges is related to the quality of human resources, particularly regarding competence as the output or outcome of education [1]. This situation also drives the need for qualified graduates to be able to compete globally and play an essential role in the progress or future of a [2]. Education is one of the primary means of realizing this hope, and it must be improved and renewed according to the demands of the times [3]. The renewal of education policies is the responsibility of society as a whole, including organizations that focus on education.

One international organization that promotes education's essential role is UNESCO. The organization states that the skills students need in the 21st century include four main pillars: learning to know, learning to do, learning to live together, and learning to be. Each of these pillars has its specificity that must be implemented with appropriate integration. Learning to know means that learning activities received by students should focus on what students need to know. Learning to do is a continuation of the last pillar, meaning that students must apply knowledge to become a fundamental ability that varies depending on different situations. Learning to live together means that the knowledge and skills possessed by students must be practiced, considering that humans...
are interdependent individuals and students must be able to understand the differences among themselves to realize peace among nations. Learning means that students must be able to actualize themselves as responsible individuals and be aware of their position in society [4].

Various efforts can be made to actualize the four pillars of 21st-century skills in the education system: implementing Outcome-Based Education (OBE). Outcome-Based Education (OBE) implementation in Indonesia was initiated with the Competency-Based Curriculum implemented in 2004. Outcome-Based Education (OBE) is an approach to learning that centers on students. This approach emphasizes the results of education implementation evenly across all students, even though not all students have the same potential achievements. Generally, the learning approach with Outcome-Based Education (OBE) aims to improve the quality of education while specifically aiming to ensure that there is an achievement in the learning process and what students should be able to do. The learning outcomes or achievements set in Outcome-Based Education (OBE) are achieved by identifying learning method planning and then determining the appropriate assessment. That shows that Outcome-Based Education (OBE) is a learning approach that differs from traditional learning approaches and emphasizes establishing observable and measurable education standards [5-12].

SMA Taruna Bakti Bandung is one of the leading schools in Bandung, West Java. Various programs have been established as leading schools to achieve the desired learning objectives. In response to the challenges of students' skills in the 21st century, SMA Taruna Bakti Bandung also implements Outcome-Based Education (OBE) in its education system. The implementation of Outcome-Based Education (OBE) at SMA Taruna Bakti Bandung can be seen through various learning programs that prioritize students' achievements, especially in the cognitive aspect. For example, implementing the TEBESMA learning program aims to prepare students for their next level of education. This program has been implemented at SMA Taruna Bakti Bandung for a considerable time, improving the students' cognitive competence. In addition to the TEBESMA program, SMA Taruna Bakti Bandung also prepares various other efforts to improve the cognitive competence of its students. Not only focusing on students' cognitive aspects, but the learning established at SMA Taruna Bakti Bandung also emphasizes how students can maximize the knowledge they have acquired. That can be seen through the various achievements of SMA Taruna Bakti Bandung students.

In line with the above explanation, this research aims to determine how Outcome-Based Education (OBE) is applied in academic units, specifically at the high school level (SMA) focused on SMA Taruna Bakti Bandung. In addition, a case study can identify the strengths and weaknesses of implementing Outcome-Based Education (OBE) at SMA Taruna Bakti Bandung. The basis for implementing Outcome-Based Education (OBE) refers to Bloom's Taxonomy theory, which contains three main domains: affective, cognitive, and psychomotor [13]. This theory reviews a student's ability from the lowest to the highest. Each level in this theory correlates with the other. To achieve the highest level, students must master the previous levels. Related to the cognitive domain, which is the main objective of education at SMA Taruna Bakti Bandung, if referring to Bloom's Taxonomy theory, there are six levels that students must be able to master: knowledge, comprehension or perception, application, analysis, or elaboration, and evaluation [14].

2. METHOD

This research used a descriptive qualitative approach with a case study method to describe Outcome-Based Education (OBE) implementation at SMA Taruna Bakti Bandung. The case study method was intended to provide an overview of events or incidents in real-life conditions but still used the theory as a reference [15]. The data collection techniques used in this research were observation, interview, and documentation. The type of interview used was a semi-structured interview. A semi-structured interview is an interview activity that refers to a pre-prepared list of questions. However, researchers can develop it according to the information needed to support the research analysis [16]. The research was conducted at SMA Taruna Bakti Bandung in November 2022 with the following steps: 1) Preparation phase, which included making interview indicators and contacting the school. 2) Implementation phase is the most crucial phase as it involves data collection activities. The activity was intended to observe the geographic location and environmental conditions, school vision and mission, strategies, and the human resources and supporting factors in SMA Taruna Bakti Bandung. Then, the interview activity was conducted by selecting two key informants, namely the School Principal and the Vice Curriculum of SMA Taruna Bakti Bandung, to obtain more in-depth information about the competencies that graduates want to achieve and the learning program at SMA Taruna Bakti Bandung. 3) The final phase included analyzing the information obtained by referring to the theory and previous research, then drawing general conclusions.

3. RESULT AND DISCUSSION

Result
Outcome-Based Education (OBE) at SMA Taruna Bakti Bandung

Implementing Outcome-Based Education (OBE) at SMA Taruna Bakti Bandung is carried out by integrating intracurricular, extracurricular, and special programs. The Outcome-Based Education (OBE) approach, which focuses on improving students' cognitive competencies at SMA Taruna Bakti Bandung, has produced several academic achievements in terms of the student's performance and the school's national and international ranking.

a. Implementation and Integration of Outcome-Based Education (OBE)

Implementing Outcome-Based Education (OBE) at SMA Taruna Bakti Bandung emphasizes cognitive competencies more. That is demonstrated through a series of learning activities established by SMA Taruna Bakti Bandung to enhance its students' competencies. The learning activities that support the implementation of Outcome-Based Education (OBE) are integrated into intracurricular, extracurricular, and special programs.

Firstly, in the intracurricular program, the overall learning activities are oriented toward mastery of the material at each educational level. That is not limited to the specific subject matter but encompasses all SMA Taruna Bakti Bandung curriculum subjects. In addition, to enhance students' cognitive abilities, SMA Taruna Bakti Bandung also organizes study tour programs in two countries, namely Malaysia and Japan. SMA Taruna Bakti Bandung has collaborated with an academic unit in those countries to improve students' cognitive competencies from a different teaching perspective.

Secondly, there is a unique program related to students' cognitive competencies in the extracurricular program, namely the Olympiad extracurricular. Although it is an extracurricular activity, there are specific requirements that students who wish to join the extracurricular must meet. Students who register must have an average report score of more than 80. To support the success of the learning process, SMA Taruna Bakti Bandung only allows each student to choose one extracurricular activity that aligns with their interests and abilities.

Thirdly, in the unique program, there is a program that specializes in learning towards the next educational level. This program is called the TEBESMA program. This program is initiated by the SMA Taruna Bakti Bandung foundation committee to improve students' cognitive competencies at SMA Taruna Bakti Bandung. This program is also mandatory for all SMA Taruna Bakti Bandung students from grades 10 to 12. However, there is a difference in the learning load in the TEBESMA program at each grade level, with one mandatory hour in grades X and XI, while grade XII has two mandatory hours.

b. The Success of Outcome-Based Education (OBE)

The success of Outcome-Based Education (OBE) implementation in Taruna Bakti Bandung High School is measured through students' learning outcomes, which are reviewed based on their cognitive abilities and academic achievements. In line with the interviews conducted with the Head of the School and the Curriculum Deputy in Taruna Bakti Bandung High School, it is mentioned that through the consistent achievement of students' cognitive abilities, Taruna Bakti Bandung High School has been able to experience...
periodic improvements in school rankings. Referring to the latest data in 2022, Taruna Bakti Bandung High School ranked 8th as one of the best schools in Bandung City. In addition, referring to the average score of the UTBK (National Entrance Test for Higher Education) obtained by Taruna Bakti Bandung High School students on the official LTMPT website also shows the success of Taruna Bakti High School in paying attention to the cognitive abilities of its students. Taruna Bakti Bandung High School students achieved an average UTBK score of 581.497 in 2022. The sustainable cognitive improvement of Taruna Bakti Bandung High School students has also increased the school's national ranking, where Taruna Bakti Bandung High School previously ranked 140th and now ranks 94th. Another achievement of Taruna Bakti Bandung High School related to improving its students' cognitive competencies is the success of its graduates in pursuing further education. The interviews mentioned that the combined percentage of male and female students accepted into leading domestic and international universities is approximately 60% of the total number of 12th-grade students. Not only that, based on the interviews, it is also mentioned that Taruna Bakti Bandung High School has successfully won various academic awards and championships every year.

The Supporting Factors of Outcome-Based Education (OBE) in SMA Taruna Bakti Bandung

Implementing the Outcome-Based Education (OBE) concept in SMA Taruna Bakti Bandung also considers supporting factors as an optimization step to achieve its intended goals. Some of the supporting factors considered in SMA Taruna Bakti Bandung include improving human resources (SDM) capabilities, namely the professionalism of educators and the availability of learning facilities.

a.Professionalism of Educators

Based on the conducted research, it is known that the number of educators and educational staff in SMA Taruna Bakti Bandung is 71 people. The human resources (SDM) organization in SMA Taruna Bakti Bandung is divided into the managerial team, homeroom teachers, and counseling guidance. The managerial team consists of the school principal, vice-principal of the curriculum, vice-principal of student affairs, and vice-principal of facilities and infrastructure. The managerial team, along with homeroom teachers and counseling guidance, is a critical factor in supporting the implementation of Outcome-Based Education (OBE) in SMA Taruna Bakti Bandung. However, educators with authority still hold a prominent role in learning and interacting directly with students. SMA Taruna Bakti Bandung always strives to improve the quality of its educators. Based on the conducted interviews, information was obtained that the improvement of the performance and professionalism of educators in SMA Taruna Bakti Bandung is carried out through three activities. First, improving abilities through the In-House Training (IHT) program is carried out at the end of each semester. Second, the improvement of abilities is measured from comprehensive evaluation and assessment through supervision activities every three months. Third, improving abilities through an exchange program with two countries, namely Malaysia and Japan. These three activities are carried out periodically and sustainably by prioritizing cooperation from all involved parties.

b. Facilities and Infrastructure
Another supporting factor in implementing learning at SMA Taruna Bakti Bandung is the availability of facilities and infrastructure. Based on observation results, it is known that the school environment at SMA Taruna Bakti Bandung is relatively clean, lush, and comfortable. In each level of class X, XI, and XII, technological devices that can support learning are provided in each classroom. For example, internet access, computers, projectors, and other technological devices are available. Through interviews that have been conducted, information was obtained that the school, together with the Taruna Bakti foundation, allocated around IDR 250 million to fulfill the needs of facilities and infrastructure to support technology-based learning. Implementation of technology-based learning was carried out by SMA Taruna Bakti Bandung before the COVID-19 pandemic so that when the pandemic hit, SMA Taruna Bakti Bandung was able to adapt to distance learning adjustments because they already had facilities and infrastructure.

Regarding developing a website to manage all learning components, SMA Taruna Bakti Bandung has developed a website that supports disseminating information and teaching and learning activities, including the school website and the “SICEKAS” application. The application was made to monitor the learning progress of SMA Taruna Bakti Bandung students. Through the application, students' parents can determine their children's progress or learning outcomes. The utilization of the SICEKAS media is also aimed at supporting the reporting of SMA Taruna Bakti Bandung students' learning outcomes that are carried out continuously every month. Not only the availability of technological devices, but SMA Taruna Bakti Bandung also accommodates the needs of practical work for students through laboratories consisting of a physics laboratory, chemistry laboratory, and biology laboratory.

**Discussion**

A sound education system should pay attention to three things, namely input, process, and output. Attention to output will focus on the educational product (graduates), known as Outcome-Based Education (OBE) [17]. The graduation criteria have been formed from the beginning as desired by the stakeholders involved. Through this research, it can be known that the purpose of Outcome-Based Education (OBE) in SMA Taruna Bakti Bandung is to improve students' cognitive abilities, which are specifically designed to prepare students for college entrance exams. Implementing Outcome-Based Education (OBE) in SMA Taruna Bakti Bandung is carried out by integrating intracurricular, extracurricular, and special programs. Outcome-Based Education (OBE) is implemented through instructional design, teaching process, and assessment tools [18].

The curriculum deputy head of SMA Taruna Bakti Bandung explains that the learning program in the classroom is designed to fulfill the cognitive skills of SMA Taruna Bakti Bandung students. Learning that focuses on cognitive aspects is in line with the principles of mastery learning, meaning that students must be able to master the material systematically to continue learning the following material. Mastery learning is one of the characteristics of Outcome-Based Education (OBE) learning because through the implementation of mastery learning, an educator can see the readiness of students to receive the following material, and this condition encourages opportunities for learning that can be used to fulfill student competency achievements [19]. That is because the comprehensive learning given to students will make it easier for them to understand the material systematically, thereby encouraging cognitive development or improvement of students [20].

In addition to applying mastery learning, improving the cognitive competence or skills of SMA Taruna Bakti Bandung students is also carried out through study tours to different countries. In this case, SMA Taruna Bakti Bandung collaborates with Malaysia and Japan. Regarding educators, the benefit of study tours is to provide new insights regarding the different types of teaching and their impact on students, considering that each educator in a different country has different teaching methods. In addition, when viewed from the students' perspective, study tours can motivate learning. That is because they can develop learning goals and plans as part of their personality development through cross-cultural learning. Students will also gain new and memorable experiences through study tours because they can exchange ideas with peers from different environments. This effort is in line with the principle of the learning pyramid, where teaching others is the highest level of learning and helps to instil a more positive learning attitude in line with the goals and ambitions of students [21].

Another effort made to improve students' cognitive abilities at SMA Taruna Bakti Bandung is through extracurricular activities, specifically the Olympiad program. Although not all students can participate or join in this extracurricular activity, it has been proven to contribute significantly to students' achievements at SMA Taruna Bakti Bandung. The Olympiad program encourages students to have High Order Thinking Skills (HOTS), which helps develop their higher-level thinking abilities through active engagement in logical reasoning and thinking [22]. The existence of the Olympiad program also helps students develop their analytical skills when dealing with problems. Analyzing involves breaking down materials into smaller parts and determining the relationships among them in a structured and cohesive manner, which enhances students' cognitive abilities such as distinguishing, organizing, and attributing [23].

Regarding Outcome-Based Education (OBE), it is known that this approach underpins the education system to ensure that it aligns with the desired outcomes or goals. At the end of the learning process, each

student is expected to achieve these goals, which are evaluated based on their abilities. However, implementing OBE focuses on the results and considers all aspects of education, from planning to assessment [24]. Another planning approach SMA Taruna Bakti Bandung adopted to support improving students' cognitive abilities is through a unique program known as TEBESMA. This program is similar to the distinguished class program commonly found in other schools. What sets TEBESMA apart from the distinguished class program is that it is implemented in all classes and educational levels at SMA Taruna Bakti Bandung without considering the students' cognitive levels in each class. The TEBESMA program adopts the distinguished class theory, where learning is implemented outside of the curriculum through enrichment and extension programs, remedial teaching, quality counseling, and creativity development [25].

In addition to integrating learning implementation, the Outcome-Based Education (OBE) implemented at SMA Taruna Bakti Bandung also focuses on supporting factors, including improving teachers' professionalism and the availability of facilities and infrastructure. Attention to these factors is an effort to produce students with optimal competence and follow education goals. Based on the results of interviews, it was found that improving the performance and professionalism of teachers at SMA Taruna Bakti Bandung is still an area that needs further improvement, particularly in Information and Communication Technology (ICT). Teachers' ICT abilities are essential to support learning to become more effective. Teachers' ICT abilities can help them create more engaging learning experiences and innovate in creating learning media [26]. It was also found that not all teachers at SMA Taruna Bakti Bandung have the same level of ICT capability.

The efforts made by SMA Taruna Bakti Bandung in addressing these issues are achieved through the development of teacher competence, which is actualized in the In-House Training (IHT) program at the end of each semester, comprehensive evaluation and assessment through supervisory activities conducted every three months, and exchange programs with two countries, namely Malaysia and Japan. The achievement of educational goals is primarily influenced by the professional performance of teachers, especially in the learning process, as teachers play a direct role in student learning. Professional teachers are expected to have adequate work skills to develop the quality of learning and the abilities of their students. Teachers' performance is the ability to perform their duties as educators and teachers [27]. The three implementations of teacher professionalism improvement programs at SMA Taruna Bakti Bandung are our efforts to improve the development of KASAH (Knowledge, Ability, Skill, Attitude, Habit) [28].

In addition to improving teacher competencies to achieve the expected Outcome-Based Education (OBE) at SMA Taruna Bakti Bandung, the availability of facilities and infrastructure in learning is also noticed. The information obtained in interviews, learning facilities, and infrastructure is provided cooperatively with the Taruna Bakti foundation and parents. Several learning facilities provided for each class at each level include the availability of internet access, computers, projectors, and other technological devices. The urgency of this is based on three things: 1) the ability to function learning facilities properly so that clear and easily understandable information can be provided, which will certainly provide convenience for the improvement of the organization until learning outcomes; 2) the ability to improve and direct the attention of students to increase their learning motivation, make interactions between students and teachers more effective, and accommodate the needs of students regarding their interests and talents; 3) the ability to provide the experiences needed by students, especially regarding learning environments, events, and connections with various parties, both parents and society, thus helping to improve the competence of students [29].

The implementation of Outcome-Based Education (OBE) holistically applied at SMA Taruna Bakti Bandung provides evidence of real achievements that are in line with the objectives of the educational program implementation at SMA Taruna Bakti Bandung. That is because cognitive abilities are one of the essential aspects that can determine the achievements that students will obtain, as cognitive abilities integrate the thinking abilities of individuals [30]. The awareness in the school of the importance of cognitive abilities toward learning outcomes encourages the formation of learning plans that prioritize this aspect. Although it has produced many achievements, implementing Outcome-Based Education (OBE), which focuses on the cognitive aspects of students at SMA Taruna Bakti Bandung, still requires much evaluation. Considering these affective and psychomotor aspects also contribute to the completion of learning in line with the primary basis of implementing Outcome-Based Education (OBE), which is Bloom's Taxonomy theory.

4. CONCLUSION
The Outcome-Based Education (OBE) approach to learning aims to prepare students to have skills that align with the development of the times. As one of the leading schools, SMA Taruna Bakti Bandung integrates this concept comprehensively into its learning activities. Several things can be concluded based on the research that has been conducted. Firstly, the Outcome-Based Education (OBE) applied at SMA Taruna Bakti Bandung is cognitive competence intended to prepare students for university entrance exams. Secondly, implementing Outcome-Based Education (OBE) at SMA Taruna Bakti Bandung maximizes the role of educators, counseling guidance, the curriculum vice principal, and the school principal cooperatively in overseeing students' cognitive
development. Thirdly, implementing Outcome-Based Education (OBE) at SMA Taruna Bakti Bandung is actualized through intracurricular programs that are mastery learning, extracurricular programs that accommodate students' potential, and special programs, namely "TEBESMA" which aims to prepare students for the UTBK test. Fourthly, in addition to focusing on the learning process carried out by students to achieve outcomes for the UTBK test. Likewise, further review is needed regarding the performance of educators and the availability of facilities and infrastructure. However, the improvement of the professionalism of educators, particularly in the field of Information and Communication Technology (ICT), still needs to be enhanced. Likewise, further review is needed regarding the Outcome-Based Education (OBE) learning in SMA Taruna Bakti Bandung on the affective and psychomotor aspects as part of Bloom's Taxonomy theory, which is the basis for implementing Outcome-Based Education (OBE).

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