

APPROPRIATE TECHNOLOGY MACHINE INNOVATION TRAINING FOR HIGH SCHOOL-VOCATIONAL SCHOOL STUDENTS AS AN IMPORTANT ROLE IN INCREASING THE PRODUCTIVITY OF MSMEs IN BENOWO DISTRICT

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Abstrak.

Pemberdayaan teknologi tepat guna sangat penting untuk mendukung keberlangsungan usaha kecil di daerah. Pentingnya kegiatan ini untuk mengenalkan teknologi tepat guna kepada siswa-siswa SMA/SMK sebagai penggerak muda teknologi. Tujuan dari program pengabdian masyarakat ini adalah untuk memberikan pengetahuan bagi siswa tentang tata cara memanfaatkan teknologi tepat guna dalam kehidupan sehari-hari. Memberikan bimbingan dalam menyelesaikan pemanfaatan teknologi tepat guna sesuai dengan kebutuhan yang diinginkan oleh usaha kecil tersebut dengan baik dan benar. Metode pelaksanaan kegiatan pengabdian masyarakat ini dilakukan dengan memberikan bimbingan tentang bagaimana cara penerapan dan menyelesaikan alat yang akan digunakan di tingkat daerah. Tahap pertama, Pengembangan dan penerapan mesin TTG dalam pengelolaan sumber daya alam. Tahap kedua, Implementasi mesin TTG untuk pemberdayaan masyarakat (peluang dan tantangan strategis). Tahap ketiga, Pentingnya penerapan mesin TTG dalam pengelolaan potensi sumber daya alam yang melimpah. Tahap keempat, Promosi mesin TTG untuk pemberdayaan masyarakat dalam implementasi UU No. 6 tahun 2014. Tahap kelima, Desain dan cara pembuatan mesin TTG.

Kata kunci: mesin teknologi tepat guna, UMKM, siswa SMA.

Abstract.

Empowering appropriate technology is very important to support the sustainability of small businesses in the region. This activity is essential to introduce appropriate technology to high school/vocational school students as young technology drivers. This community service program aims to teach students how to use relevant technology in everyday life. Guiding in completing appropriate technology according to the needs the small business desires properly and correctly. The method for implementing community service activities is carried out by directing the Implementation and completion of the tools used at the regional level. The first stage is developing and applying TTG machines in natural resource management. The second stage is implementing the TTG machine for community empowerment (strategic opportunities and challenges). The third stage is implementing TTG machines to manage abundant natural resource potential. The fourth stage is the promotion of TTG machines for community empowerment in the Implementation of Law No. 6 of 2014. The fifth stage is the design and method of making the TTG machine.

Keywords: appropriate technology machine, MSMEs, high school student.

Introduction

In the current era of globalization, technological developments are increasingly rapid, like it or not, we have to improve the quality of human resources in various fields. One way to improve human resources is in the field of education. In other words, to prepare for the global era, we must have good quality education, so the quality of this education sector must be continuously improved. One way to find out how to improve the quality of education is by holding activities to implement/utilize appropriate technology at the village, sub-district, district, provincial and national levels [1][2].

The application of appropriate technology is a competitive arena that measures people's abilities in various fields and languages. The application of appropriate technology by the community is one form of effort by the government to realize the goal of using technology under existing conditions and improving the quality and ability of the way of thinking of the community in general. The quality and ability of thinking is defined as people's capacity to use scientific knowledge, identify questions and draw conclusions based on facts and data to understand the universe and make decisions about changes due to human activities [3][4].

Appropriate technology will always experience development, you also need to know that this technology can also cover various aspects. Starting from aspects of agriculture, animal husbandry, business, and even those related to shipping or fishing. The emergence of technology, especially the materials that are relatively easy to find and easy to put into practice, will usually immediately attract the public's attention. So, this can anticipate the emergence of appropriate technology with the latest models. If more and more appear and suit your needs, the benefits that can be obtained will certainly be much greater. The benefits obtained through the effectiveness of the performance or activities carried out and the benefits from earning a greater income [5][6].

When more and more appropriate technology emerges using simple materials or tools, this means that the technology is locally produced. Thus, obtaining it is certainly cheaper than imported technology. Moreover, the quality of the product produced from the machine is not much different. It means that if local technology is used by farmers, breeders or local entrepreneurs, the expenditure on this technology is not large but can obtain maximum results and income. We must be optimistic about using local technology. As long as you make the right choice through many considerations, appropriate technological machines related to your business will increasingly provide maximum benefits [7][8].

This community service activity is an implementation of the Faculty of Engineering-UWP program. This activity provides counseling/training about innovations in the use of appropriate technology machines for SMA-SMK students with the aim of providing education on the importance of appropriate technology machines in increasing production capacity and income for MSME traders, fishermen and farmers in the Benowo sub-district area, West Surabaya.

Implementation Method

Training is a part of education that involves the learning process to acquire and improve skills outside the education system, which prioritizes practice over theory [9]. Training is all efforts to provide, improve and maintain work skills, product output, attitudes and ethics at a certain level of ability and skill in accordance with the standards and qualifications of the position and job. A process to obtain and improve a person's workability and increase the productivity of an employee. Training is part of the process of increasing human capital capital that can support organizational goals [2], [10]–[15].

This community service activity uses a training or counseling method involving lecturers from the Faculty of Engineering as tutors, 30 students from SMA Wachid Hasyim 5 Surabaya as participants. Training will be held in March 2024 at the Faculty of Engineering-UWP Building. There are 15 appropriate technology machines used, which are the result of the final assignment of students from the Faculty of Engineering. This appropriate technology machine has been implemented by UNKM partners around the UWP campus. The training materials implemented are,

1. Development and application of TTG machines in natural resource management,

2. Implementation of the TTG machine for community empowerment (strategic opportunities and challenges),
3. The importance of implementing TTG machines in managing the abundant natural resource potential.
4. Promotion of TTG machines for community empowerment in the implementation of Law no. 6 of 2014.
5. Design and method of making the TTG machine.



Figure 1 Preparation for Appropriate Technology Machine Training

Results and Discussion.

The guidance provided for Wachid Hasyim 5 High School students in Surabaya was first supplied with material aimed at finding out the extent of students' understanding of the use of appropriate technology which is always desired by other students.

The material provided in the guidance by the resource person is the development and application of TTG machines in natural resource management and the implementation of the TTG machine for community empowerment strategic opportunities and challenges. The importance of implementing TTG machines in managing the abundant natural resource potential. Promoting TTG machines for community empowerment in the implementation of Law No. 6 of 2014. Design and method of making the TTG machine. When the resource person presented the material, students were very enthusiastic in following it. There is because the resource person conveys the material using pictures and directly demonstrating the material he is explaining. After the resource person finished providing the material, they continued with a discussion regarding the various types of equipment that had been presented which had been prepared by the service team at the mechanical engineering study program level as an illustration.



Figure 2. Explanation of appropriate technology machine innovation for targeted partners.



Figure 3. Explanation of 3D-Printing machines supporting appropriate technology.

Students are asked to ask as many questions as possible about the tools available according to the presentation from each presenter. After finishing answering questions from students, the resource person and the students discussed plans for future activities by providing detailed explanations so that in the future, they would be appropriately implemented. The implementation of guidance on appropriate technology for students experienced an increase in understanding of the material presented before the technical advice. It can be seen when the resource person delivers the material, several students are very enthusiastic about paying attention and asking questions about the material presented.

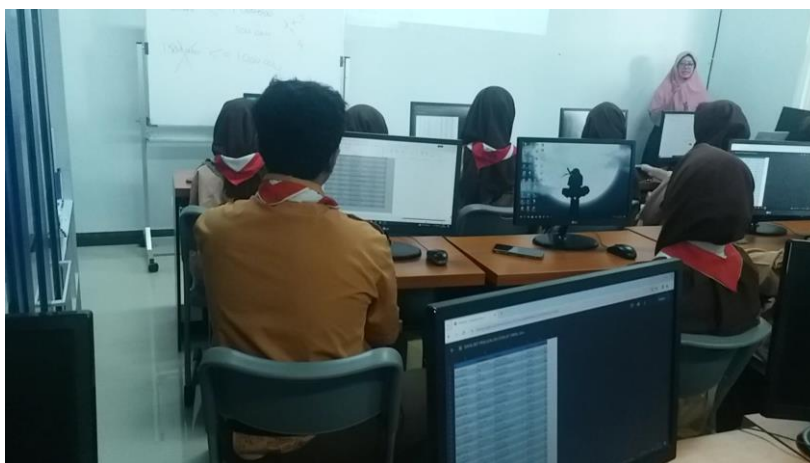


Figure 4. The role of digital systems in appropriate technology

The material presented by each resource person was different according to their expertise, including the use of multifunctional coffee equipment, multipurpose drying equipment, salted egg processing equipment, and fuel distillation equipment. Almost all students can answer it better than before being given guidance. Of all the students who took part, nearly all of them were able to respond and complete the assignments correctly, there were only a few that they considered difficult and had never been taught.

In this technical guidance, there are many similarities between the presenters and students regarding the material they have understood so far and the actual concepts. It makes it easier for us to answer correctly, but some students blame us. So, with guidance from the team from the mechanical engineering study program, students' understanding and insight into appropriate technology can be maximized

Conclusion.

The service activities that have been carried out can be concluded that from the delivery of the material available to Wachid Hasyim 5 Surabaya High School students who have always tended to

accept, now they can be seen to be active in asking questions according to what they understand and know, thus hopefully in the future the application of this appropriate technology can really be useful for all students in the city of West Surabaya, especially in the Benowo sub-district area.

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