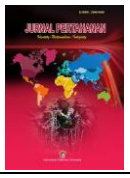

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The Impact of Indonesian Army Information and Data Processing Service Department Programming Training for Indonesian Army

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Abstract

This research discusses the importance of programming training for soldiers of the Indonesian Army in facing the era of globalization and digital transformation. In this context, programming is recognized as a tool for developing creative and logical thinking skills, which are key in overcoming complex challenges both in the military and society. The purpose of this study was to determine the impact of programming training for Indonesian Army soldiers. The methodological approach used combines quantitative and qualitative methods, through an initial survey to identify the number of soldiers taking programming training as well as an in-depth interview approach to explore the impact of programming on military assignments. The results showed that programming training had a positive impact, not only on improving problem-solving skills but also on the development of logical, systematic thinking and analytical skills. From a military perspective, programming gives The Indonesian Army soldiers a competitive edge in addressing modern challenges, such as technology development, intelligence analysis, and data management. Programming training also forms habits of logical thinking that are useful in making everyday decisions. Therefore, programming is not only a technical skill but also a tool to deal with the changing dynamics of future battles and adapt to technological developments.

INTRODUCTION

The ability to think creatively and logically is necessary in the current era of globalization, this allows soldiers who have these abilities to get used to facing complex problems in carrying out military service and in everyday life, so they will quickly find solutions systematically and logically. In recent years, interest in learning programming

has expanded even into the military. Teaching soldiers programming at their working age can help them develop the computational thinking needed to keep up with technology very well (Azmi, 2020). Ways and efforts are needed to encourage soldiers to be enthusiastic about learning programming languages, this is needed not only as technology users but also as technology developers.

Developers, computer scientists, or programmers, must already know very well about the benefits of learning programming languages. Learning programming languages for them is very beneficial for their work, especially for those who work on new projects that have never been touched before (Naufal, 2018). In previous research, the best method for learning coding was explained. The difference in this study is the impact. So research on the positive impact of learning programming can complement previous research on the best methods for learning coding (Naufal, 2018).

However, it is need to examine the benefits of learning programming languages for soldiers or someone who is learning. What is clear, learning a programming language for soldiers or someone who is learning is not limited only to improving the programming skills achieved, but also to various related problems. Apart from its great appeal, learning to code has several benefits that can be felt. These benefits cannot be felt directly by the soldiers who study them, but with proper learning, these benefits will be felt long after the process. Learning a programming language is a habit (Mutaqin, Admaja, & Mardhiyah, 2021). The habit of writing the right lines of code, the habit of using the right reasoning, and the habit of using the right formatting. This process also provides clear advantages for people learning programming languages (Zuraidah, Apriyadi, Fatoni, Al Fatih, & Amrozi, 2021).

METHODS

The research was conducted at the Army Information Department. With research subjects are Heads of the Army Information Department, Military Teachers, and Training Participants. The research methodology used in this study on the impact of programming training for Indonesian Army soldiers combined quantitative and qualitative approaches to gain a comprehensive understanding. First, the research began with an initial quantitative survey to identify the number of Indonesian Army soldiers who have attended programming training, the level of skills acquired, and their perceptions of the relevance and benefits of training in the context of military assignments. Respondents who were interviewed in this study were the Heads of the Information and Communication Service, Military Teachers, and several programming training participants.

Furthermore, a qualitative approach was used through in-depth interviews with several soldiers who have undergone programming training. This interview explores their experience in applying programming skills in military tasks, to what extent they feel an increase in efficiency or effectiveness in these tasks, as well as other positive impacts they feel in terms of technological adaptability (Arifin, 2011).

Data obtained from surveys and interviews were analyzed in a combinatorial manner. Quantitative data is processed using descriptive and inferential statistical analysis to identify general trends and patterns emerging from the survey results. Qualitative data from the interviews will be analyzed using a thematic approach, which will enable the identification of key findings and an in-depth understanding of soldiers' experiences in applying programming in a military context.

This methodology will provide a comprehensive picture of how programming training affects Indonesian Army soldiers from a quantitative and qualitative

perspective. The combination of these two approaches is expected to produce deeper insights into the positive impact of programming training on increasing military capability and adaptation to technological developments.

RESULT AND DISCUSSION

Improving Logical Thinking Skills

Programming training provides Indonesian Army soldiers with an in-depth understanding of programming languages, data structures, and algorithms, which in turn improves their ability to solve technical problems. This positive impact can be seen in increased efficiency in military operations, data analysis, and cybersecurity efforts. In addition, soldiers who master programming also have the potential to make a significant contribution to military technology innovation. With the ability to develop custom software for tactical analysis, military simulation, and resource management, they effectively strengthen the Indonesian Army's capabilities in facing modern challenges (Satava & Jones, 1996). Programming training also has a positive effect on improving soldiers' problem-solving skills. They become more skilled at analyzing situations, identifying problems, and designing effective solutions, these skills can be applied to many aspects of military tasks. In addition, aspects of team collaboration have also proven to benefit from this training. Through programming projects, Indonesian Army soldiers learn to work in cross-disciplinary teams and improve their skills in communication, leadership, and cooperation.

Furthermore, programming training also helps Indonesian Army soldiers to adapt more quickly to technological changes. In an era of rapid development of information technology, servicemen with programming knowledge are becoming more familiar with the latest developments, enabling them to understand and adopt those changes more efficiently. Thus, the implementation of programming training has a broad positive impact, not only on technical aspects, but also on innovation capabilities, team collaboration, problem-solving, and adaptation to technological changes (Tsai, 2018). Creating a product using a programming language, including applications, games, microcontrollers, or Internet of Things devices, cannot be separated from the programming logic used so that the product can work as expected. Logical algorithms and programming are very important when creating or developing a product. Logical errors used are certainly fatal to the product to be developed. In addition to errors, the product to be developed will certainly not run or run as desired (Abdillah, 2020). Therefore, learning programming logic is very important so that there are no obstacles when developing the product to be developed. Programming logic is an important part that needs to be learned by someone learning a programming language, regardless of the language they are learning (Kadir, 2017).

After choosing the right programming language or computer language, every personnel involved in learning a programming language needs to learn programming logic. This teaches the soldiers to think logically when facing problems. As mentioned earlier, learning code or programming language is a practice. If the soldier's mind is used to using logic, the soldier will unconsciously get used to using it in daily life as well. Soldiers unconsciously gain the ability to think logically as one of the benefits of learning a programming language. Soldiers are trained to think of different things to solve various problems that exist.

Developing a Systematic Way of Thinking

Apart from being able to closely observe how soldiers solve a problem, another benefit of learning a programming language is the opportunity to develop a systematic mindset. When someone creates a program, they will be faced with lines of code that must be arranged systematically. These lines of code must not be reversed either the arrangement or the writing of the code, so that the program built can run smoothly. This system applies to various programming languages that have existed from the past until now. Therefore, future programmers must learn to write code with real rules and systematics. Learning how to code systematically is a must-learn part when learning any programming language (Dantsin, Eiter, Gottlob, & Voronkov, 2001).

Learning a programming language offers more than just the chance to observe soldiers solving problems; it also provides the opportunity to cultivate a systematic mindset. As individuals create programs, they encounter lines of code that require systematic arrangement. Any alteration to the sequence or composition of these code lines can disrupt the smooth execution of the program. This principle is universally applicable across various programming languages, spanning from historical languages to contemporary ones. Consequently, aspiring programmers are tasked with mastering the art of coding within established rules and systematic structures. Proficiency in systematic coding stands as an essential skill for mastering any programming language (Cheah, 2020). In the military context, programming training gives Indonesian Army soldiers a competitive advantage in facing modern military challenges. The ability to develop technological solutions, analyze intelligence, and manage data is an important asset in the dynamics of future battles. In addition, learning programming creates the habit of logical and systematic thinking, which is proven to have a positive impact on everyday situations and making urgent decisions (Ambarita, 2015). So the positive benefit of learning programming languages is that soldiers who learn programming languages must be accustomed to a systematic way of thinking. This way of thinking carries over into everyday life, especially when it comes to urgent matters.

Practicing Meticulous Attention to Detail

In building a program, a programmer often faces problems that are not easy and complicated of course, one of which is the program that is built experiencing errors when verified or built. Solving this problem requires very high accuracy and concentration (Syihabuddin & Abidin, 2020). A developer should go back through the code and find the pieces of code that are causing problems and errors. If this does not solve the problem, a developer should still check various things related to the program to be built, such as checking the power consumption when creating a program for a hardware device or checking the Internet connection when the tool in use must be accessed online. (Prasetio, 2011). Especially for beginners or someone who is learning a programming language, this problem will be part of the success of the program created. Because they are not used to writing code or programming, typos in lines of code become routine and daily food for someone learning a programming language. However, if the soldier is used to finding bugs while writing code while learning, then the soldier will get used to it and be more careful in writing code when creating programs. This will certainly affect the soldier's daily activities as one of the benefits of learning programming languages (Sahary, Mutaqin, Mutaqin, & Dharmopadni, 2023).

Improving Problem-Solving Skills

By learning a programming language, soldiers will be trained to solve a problem, whether it is about how the product should work or how to solve errors that occur. Learning a programming language will train soldiers to solve problems, namely problems related to how a product works or resolve bugs that occur. Learning a programming language can have a positive impact on soldiers. Even tech giant Google believes that by learning the code of a programming language, one not only acquires programming skills but also develops a mind that can be used to solve various problems. Being able to solve such problems is one of the benefits of learning a programming language (Volkov & Varlamov, 2021). Distributing the concept of learning a programming language across soldiers can yield numerous advantages. Through the acquisition of a programming language, soldiers can hone their abilities to tackle a variety of issues, encompassing both the functionality of a product and the rectification of encountered errors. The process of learning and applying a programming language nurtures problem-solving skills, particularly in the realm of comprehending product operations and troubleshooting glitches. This holds significant potential to enhance the capabilities of soldiers positively. Notably, even industry-heavyweight Google attests to the fact that delving into programming not only fosters programming proficiencies but also cultivates a problem-solving mindset capable of addressing a diverse array of challenges. The capacity to effectively resolve such challenges stands as a pivotal advantage stemming from the acquisition of programming language skills (Arjuna, Irsan, & Sukisno, 2018). In addition, programming can also increase soldier's creativity, problem-solving, and teamwork, while opening up opportunities for innovation in the use of technology on the battlefield. Therefore, research that explores the positive impact of programming training on Indonesian Army soldiers will not only strengthen military capabilities but also lead to effective modernization and adaptation to the changing dynamics of future combat (Hidayati & Gultom, 2019).

The Importance of Programming Training for Army Information Department Personnel

Have the skills to run military applications and software. In this advanced age, everyone must keep up with technological developments so as not to be left behind. The scope of the field is wide, not only about clothing, food, and shelter. If you succeed in creating an application that is needed by the Indonesian Army agency, then soldiers can contribute and provide the best service for the Indonesian Army agency. But to achieve this success, soldiers must first learn coding and programming languages (Cholik, 2021). With website builder tools, every soldier has the same opportunity to create their website without the help of a web development service. However, to make a website that is more flexible, attractive, intuitive, and professional at the same time, you can create a website from scratch using code, such as HTML and CSS (Huang, Shu, Chen, & Jeng, 2017). It is undeniable that today all areas of life cannot be separated from the intervention of technology. To develop a career to accelerate, soldiers can learn self-taught coding to prepare themselves to contribute to developing technology in the Indonesian Army. Human resources for soldiers who master technology are still very much needed by the Indonesian Army, so positions in this field are still wide open and will continue to attract enthusiasts (Danuri, 2019). In conclusion, programming is not only a technical skill but also forms an essential mindset and mental attitude for Indonesian Army soldiers. By integrating technological capabilities into military tasks, soldiers can prepare for the increasingly complex challenges of the modern era. Therefore, investment in programming training has an impact not only on increasing military capabilities, but

also on the effective adaptation to inevitable technological developments (Rehardiningtyas, Firdaus, Prihantoro, & Sulistiyanto, 2022).

CONCLUSIONS, RECOMMENDATIONS, AND LIMITATIONS

In conclusion, the importance of programming training for Indonesian Army soldiers becomes clear as a strategic step in facing the era of globalization and digital transformation. With creative and logical thinking skills developed through programming, soldiers can quickly solve complex problems, both in military assignments and in everyday life. The results of the research that combines quantitative and qualitative approaches provide a comprehensive picture of the positive impact of programming training. Research on the positive impact of programming training for Indonesian Army soldiers has great significance in facing the current era of digital transformation. With rapid technological advances, programming capabilities give Indonesian Army soldiers a competitive edge in addressing modern military challenges. Programming training can equip soldiers with the skills to develop technological solutions that support tactical and strategic tasks, such as data management, intelligence analysis, and security system development. In addition, programming can also increase soldier's creativity, problem-solving, and teamwork, while opening up opportunities for innovation in the use of technology on the battlefield. Therefore, research that explores the positive impact of programming training on Indonesian Army soldiers will not only strengthen military capabilities but also lead to effective modernization and adaptation to the changing dynamics of future combat.

In the military context, programming training gives Indonesian Army soldiers a competitive advantage in facing modern military challenges. The ability to develop technological solutions, analyze intelligence, and manage data is an important asset in the dynamics of future battles. In addition, learning programming creates the habit of logical and systematic thinking, which is proven to have a positive impact on everyday situations and making urgent decisions.

In conclusion, programming is not only a technical skill but also forms an essential mindset and mental attitude for Indonesian Army soldiers. By integrating technological capabilities into military tasks, soldiers can prepare for the increasingly complex challenges of the modern era. Therefore, investment in programming training has an impact not only on increasing military capabilities but also on the effective adaptation to inevitable technological developments.

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