



Comparative Study: Use of Learning Languages in Mastering Printing Machine Operation Competencies (Case Study of Indonesian and Malaysian Printing Study Programs)

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ABSTRAK

Perkembangan mesin cetak telah mengalami transformasi yang luar biasa seiring dengan kemajuan teknologi. Salah satu kemajuan terbesar dalam teknologi mesin cetak adalah peralihan dari metode pencetakan tradisional ke pencetakan digital. Proses produksi menjadi lebih cepat dan efisien. Teknologi mesin cetak masa kini sudah dilengkapi dengan fitur-fitur canggih yang meningkatkan kualitas hasil cetak. Teknologi percetakan yang semakin maju membutuhkan tenaga kerja yang kompeten. Mesin modern dilengkapi dengan sistem kendali cerdas dengan bahasa pengoperasian dan instruksi dalam bahasa Inggris, keterlibatan manusia dalam tahap produksi adalah mutlak. Penelitian ini menggunakan metode analisis deskriptif kualitatif. Studi banding menggunakan dua negara, Indonesia dan Malaysia. Hasilnya, pelajar Malaysia yang menggunakan bahasa Inggris sebagai bahasa pengantar memiliki kemampuan memahami instruksi pengoperasian mesin cetak lebih baik dibandingkan pelajar Indonesia. Mengoperasikan mesin cetak memiliki kemampuan serupa dengan siswa dari dua negara. Studi ini menggarisbawahi pentingnya mengintegrasikan bahasa Inggris ke dalam kurikulum teknik, dengan rekomendasi untuk meningkatkan penguasaan bahasa Inggris siswa Indonesia. Meningkatkan kemampuan bahasa Inggris di bidang teknis dapat meningkatkan daya saing global.

ABSTRACT

The development of printing machines has undergone an extraordinary transformation along with advances in technology. One of the biggest advances in printing machine technology is the transition from traditional printing methods to digital printing. The production process becomes faster and more efficient. Today's printing machine technology is equipped with advanced features that improve print quality. Increasingly advanced printing technology requires a competent workforce. Modern machines are equipped with intelligent control systems with operating language and instructions in English, human involvement in the production stage is absolute. This research uses descriptive qualitative analysis methods. The comparative study used two countries, Indonesia and Malaysia. As a result, Malaysian students who use English as the medium of instruction have the ability to understand printing machine operating instructions better than Indonesian students. Operating a printing machine has similar abilities to students from two countries. This study underscores the importance of integrating English into engineering curricula, with recommendations for improving Indonesian students' command of English. Improving English proficiency in technical fields can increase global competitiveness.

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1. INTRODUCTION

The development of printing machines has undergone an extraordinary transformation in line with rapid technological advances. In the past, the printing process was mainly done manually using a method of printing letters one by one. However, with the advent of digital technology, printing machines have become increasingly sophisticated and efficient. Currently, modern printers and printing machines are capable of printing at high speed and excellent quality. 3D printing technology is also the latest innovation that changes the printing paradigm by making it possible to create detailed three-dimensional objects. This development not only increases production efficiency but also provides greater flexibility in printing various types of media, from paper to more complex materials (Ainul, 2022). Overall, this transformation reflects how technology continues to drive innovation in the printing industry, opening up new opportunities and improving overall production capabilities.

One of the important milestones in the history of printing machine technology is the transition from traditional printing methods to digital printing (Ali, 2019). As computer and digital technology advances, printing machines have undergone significant changes in the way they operate and produce prints. Traditional printing methods, such as offset printing, often involve a more manual and complex process, using metal plates or stones to apply ink to the printing medium. However, with the advent of the digital era, modern printing machines use computer technology to control the printing process, from design to final output.

Digital printing enables faster, more accurate, and more efficient production. Graphic designs can be created and modified easily using special software, and the results can be printed immediately without requiring a complicated preparation process. High flexibility in printing various types of materials and sizes is one of the main advantages of digital printing. In addition, the ability to produce prints in smaller quantities at relatively low costs opens the door to more on-demand production (Amri, 2022; Anwar, 2022).

The transition to digital printing has not only changed the way the printing industry operates but has also impacted various sectors, including publishing, advertising, and the creative industry as a whole (Amri, 2022). This innovation has a positive impact on production efficiency, and print quality, and provides new opportunities for exploring design creativity. These developments also expanded accessibility to the world of printing, allowing individuals and small businesses to print their own materials more easily and affordably. Thus, the transition to digital printing laid the foundation for a significant revolution in the world of printing and related industries.

Modern printing machines not only include advanced printing technology but are also equipped with intelligent control systems. These systems often use an intuitive user interface with operating language and instructions in English, making it easy for operators to manage and monitor the printing process. Even though automation has become an integral part of production, human involvement remains absolute in the production stage. Printing machine operators play an important role in ensuring smooth operations and quality printing results (Mahendra, 2023). They are responsible for managing and monitoring machines, ensuring the availability of raw materials, and handling problems that may arise during the production process. Operator skills in understanding and interpreting the information displayed by the control system are crucial to maintaining quality and production efficiency.

Even though the presence of automation technology helps increase efficiency, human presence cannot still be replaced (Rahmat, 2022). The ability to exercise judgment, quick adjustments, and problem-solving are aspects that only humans can provide. Therefore, although modern printing machines are equipped with advanced technology, human involvement is not only necessary but also valued as an element that ensures success and quality in the printing industry. With the synergy between technology and human skills, mold production can continue to grow and meet increasingly complex market demands.

In the context of the development of printing machine technology, research related to the provision of human resources (HR) becomes very important, especially in terms of the use of English in the world of education. English, as an international language, is becoming increasingly relevant in the ever-growing printing industry. Therefore, research that focuses on the mastery of English by workers, especially printing machine operators, can provide valuable insight into the extent to which human resources are trained in understanding printing machine instructions and operations (Maduwinarti, 2023).

The use of English is not only limited to operational guidance documents, but also involves aspects of communication between operators, understanding technical terminology, and the ability to follow developments in printing technology that uses international standards. Therefore, this

research will help identify specific training needs and design educational programs that can strengthen English language skills in the context of operating printing machines (Azlan, 2015).

In addition, this research will also discuss the direct influence of English language skills on understanding printing machine instructions and operational skills. Operators who are able to understand and follow instructions well will be able to increase production efficiency, prevent possible errors, and optimize printing machine performance. Therefore, this research is not only about the level of language mastery but also about its direct impact on production results and the sustainability of the printing industry (Subkhan, 2023).

Overall, research into human resource provision with a focus on the use of English in educational contexts will provide a more holistic view of how improving language skills can improve the operational effectiveness of printing machines and ensure that the workforce is well-trained to meet the demands of the ever-growing printing industry. It is believed that language training programs will produce a competent workforce.

2. METHOD

This research is based on the descriptive qualitative analysis method, a research approach that aims to describe and analyze phenomena or events without manipulating variables. This method allows researchers to gain a deep understanding of the context and complexity of the topic being studied (Sugiyono, 2011).

In conducting this research, we chose to use a comparative study between two countries, namely Indonesia and Malaysia. The selection of these two countries was based on differences in cultural characteristics, education systems, and development of the printing industry in each country. Comparative studies provide an opportunity to compare and analyze differences and similarities in the use of English in education related to printing machines (Amri, 2022; Ali, 2019).

Indonesia and Malaysia have different historical backgrounds, but both are countries in Southeast Asia that have experienced rapid economic and technological growth. By involving both countries in this research, it is hoped that a better understanding will emerge of the impact of the use of English in education regarding printing machines at the international level.

Descriptive qualitative analysis will allow us to detail and draw comparisons between educational practices and the use of English in the operation of printing machines in Indonesia and Malaysia. It is hoped that the information resulting from this research will provide in-depth and conclusive insight into the role of English in the context of printing machine education in these two countries (Taali, 2023). The conclusions from this research can provide a valuable contribution to developing education and training strategies that suit the needs of the printing industry in each country.

3. RESULT AND DISCUSSION

Result

3.1 Ability to Understand Printing Machine Operating Instructions

This study revealed significant differences in the abilities of Malaysian and Indonesian students who use English as the language of instruction, especially in understanding printing machine operating instructions. These findings provide an overview of the direct influence of the use of English in the educational context of printing presses in both countries.

Malaysian students who use English as a medium of instruction seem to have an advantage in understanding printing machine operating instructions. This can be attributed to educational environments that encourage more intensive practice of English or teaching methods that focus more on mastery of the language. Increasing the ability to understand printing machine instructions can contribute to operational efficiency and print quality in the printing industry.

On the other hand, Indonesian students may face certain challenges in understanding printing machine instructions due to the use of Indonesian as the medium of instruction. Even though Indonesian is the official language, the limited use of English in the context of printing machine education can affect students' ability to deal with technical instructions which are often written in English.

These findings provide a further understanding of the importance of integrating English in engineering and industrial education curricula, especially in dealing with high-tech equipment such as printing machines (Taali, 2023; Ali 2019). Steps to improve English language mastery among Indonesian students could be a focus for improvement in efforts to equalize or even improve the quality of engineering education in both countries. These conclusions form the basis for

recommending more in-depth educational policies and teaching strategies that support improving English language skills and understanding of printer instructions among Indonesian students. The integration of English in the printing curriculum is very necessary to support the development of printing technology and increase workforce capabilities.

3.2 Printing Machine Operation Capability

Although there are differences in the ability to understand printing machine operating instructions between Indonesian and Malaysian students who use English as the language of instruction, this research shows that there are similarities in aspects of printing machine operation between the two groups of students. The results highlighted that despite differences in language aspects, students from both countries demonstrated similar abilities in terms of operating printing machines.

Students from Indonesia and Malaysia demonstrated relatively equal understanding of printing press operating tasks, including technical steps, equipment handling, and general troubleshooting. This ability may be influenced by the technical education curriculum which has uniform standards in both countries, as well as the increasingly widespread use of information and communication technology in presenting learning material.

The similarity in the ability to operate printing machines between Indonesian and Malaysian students has positive implications, namely showing that basic technical skills in operating printing machines can be recognized as a relatively uniform standard among students from both countries (Anwar, 2022; Ali, 2019). This provides a positive picture that students, even though they come from different cultural and linguistic backgrounds, can have equal printing machine operational skills.

These findings can help support collaboration between educational institutions of the two countries in exchanging knowledge and experience in operating printing machines. This kind of collaboration can enrich educational experiences and improve the quality of engineering and industrial learning at an international level. The similarity in operational capabilities of printing machines between students also shows that learning and training experiences in both countries can be a positive reference in preparing curriculum or technical education programs in the future.

Discussion

It is important to recognize that the ability to understand printing machine operating instructions does not only depend on the language of instruction but also involves a number of other factors. Although English-speaking Malaysian students may have an advantage in terms of understanding written instructions, factors such as practical experience, specialized training, and technical understanding also play a role in improving printing machine operating skills (Amri, 2022).

In addition, the educational environment, curriculum, and teaching methods applicable in each country can play a significant role in shaping student abilities (Taali, 2023). It is possible that the differences in learning approaches in Malaysia and Indonesia influence the way students deal with and master the skills of operating a printing machine.

Therefore, while the language of instruction may be an influencing factor, it cannot be ignored that other contextual and educational factors contribute to shaping the abilities of students from both countries. Further study and in-depth analysis of these variables may be needed to gain a more comprehensive understanding of the comparative abilities of Malaysian and Indonesian students in operating printing machines.

4. CONCLUSION

Significant differences in the ability to understand printing machine operating instructions between Malaysian and Indonesian students who use English as the language of instruction. Malaysian students showed superiority in comprehension, perhaps due to an educational environment that supports English language practice. In contrast, Indonesian students, using Indonesian, face challenges in understanding technical instructions in English. This study underscores the importance of integrating English into engineering curricula, with recommendations for improving Indonesian students' command of English. Despite language differences, research shows similarities in aspects of printing press operation between the two groups of students. However, it is important to consider other factors such as practical experience and special training in shaping student abilities. Further studies are needed to understand the role of these variables in a comprehensive comparison of the abilities of Malaysian and Indonesian students.

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