Human Machine Interface-Based Control Training Kit as Innovative Learning Media to Enhance Students' Automation Control Skills in the Industry 4.0 Era

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***Abstract* – This research investigates the effectiveness of the Human-Machine Interface-based control (HMI-BC) training kit as an innovative learning media in enhancing the Automation Control Skills (ACSs) of Industrial Electrical Engineering (IEE) students in the Industry 4.0 Era. The study focuses on evaluating the students' ACSs in the Electrical Machine Control Course (EMCC) after using the HMI-BC training kit as a practical learning media. The research adopts a quasi-experimental design with a One-Group Pre-test and Post-test design. The student's ACSs data is collected using a performance assessment instrument. The impact of the HMI-BC training kit in enhancing ACSs was evaluated based on the differential analysis of pre-test and post-test scores using the paired-sample t-test. Furthermore, the effect size of the HMI-BC training kit on the learning process was determined using Cohen's d effect size analysis.**

The results reveal a significant improvement in the students' ACSs as evaluated through the assessment of the performance indicators. Based on the evaluation, the findings demonstrate a notable enhancement in students' ACSs. The HMI-BC Training Kit, developed to align with the characteristics of the learning material and industrial advancements, proves to be effective in enhancing students' ACSs, aligning with the evolving needs of the industry. These findings highlight the importance of incorporating the HMI-BC Training Kit in the learning process of motor control to equip students with relevant automation control competencies, ultimately preparing them for the industrial demands of the future.

***Keywords* – Automation control skills, HMI-BC training kit, industrial electrical engineering, electrical machine control course.**

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1. Introduction

Industrial automation has witnessed significant advancements through the integration of human-machine interface (HMI) technology. Within the context of Industrial Electrical Engineering (IEE) education, it is crucial to equip students with the essential skills to effectively operate and control automated systems. However, traditional teaching methods in automated control often rely solely on theoretical lectures and limited hands-on experience, which may not fully prepare students for the ever-changing demands of the industry [1], [2]. Therefore, an innovative approach is necessary to enhance the ACSs of IEE students [3], [4]. The development and utilization of the HMI-BC training kit present a promising solution to address this challenge by providing students with practical experience and exposure to real-world automated control scenarios.

Through engaging in practical exercises using the HMI-BC training kit, students can acquire a deeper understanding of automation control principles and develop the competencies required to excel in a rapidly evolving industry.

The rapid expansion of industries such as manufacturing, energy, and transportation necessitates continuous advancements in automated control techniques [4], [5]. With the emergence of technologies in the Industri 4.0 Era such as the Internet of Things (IoT), industrial processes are increasingly interconnected and heavily reliant on automated systems [3], [5]. Therefore, it is of utmost importance for IEE students to acquire comprehensive ACSs that align with industrial requirements, particularly in the realm of electrical machine control. By incorporating the HMI-BC training kit into the learning process, educators can create simulated learning environments that mirror real-world industrial settings, exposing students to the challenges and practical complexities of automated control. This approach not only enhances students' technical expertise but also cultivates their problem-solving abilities, teamwork skills, and adaptability in facing the dynamic field of industrial automation [1], [3], [6].

In this study, the authors propose an innovative approach by developing an HMI-BC training kit to enhance the ACSs of IEE students in the Industry 4.0 Era. Previous research has identified the pressing need to strengthen the implementation of electric machine control learning by providing more comprehensive practical experience in the field of automation control [7], [8], [9]. To address these deficiencies, the HMI-BC training kit capitalizes on advanced HMI technology, enabling students to directly interact with automated systems and assess their control capabilities in a real-world environment [10], [11]. Within the context of rapid industrial development, particularly in the era of the IoT, this approach facilitates a deeper comprehension of utilizing HMI technology to control increasingly interconnected automated systems [11], [12]. Thus, this research assumes a pivotal role in shaping the latest teaching and learning approaches for automation control while making a substantial contribution to the development of a relevant IEE curriculum that aligns with ever-evolving industrial needs.

This study investigates the enhancement of ACSs among IEE students through the implementation of the HMI-BC training kit in the learning process. The overall objective of this research is to explore an innovative and practical learning approach to reinforce students' ACSs using the HMI-BC Training Kit.

Specifically, this study aims to achieve the following objectives: (1) Evaluate the improvement in students' ACSs after incorporating the HMI-BC Training Kit in the learning process; (2) Assess the effectiveness of utilizing the HMI-BC Training Kit in enhancing human-machine interface utilization, reaction time, system integration, and user experience; (3) Examine the role of the HMI-BC Training Kit in cultivating automated control skills that align with industry advancements and IoT requirements. By formulating clear research objectives, this study aims to make a valuable contribution to the development of innovative learning approaches and enhance the preparedness of IEE students to address the challenges in the ever-evolving field of automation control.

This research is expected to yield significant benefits and make valuable contributions in several areas. It aims to enhance students' comprehension and proficiency in the field of automation control, particularly in the context of HMI technology, which holds increasing importance in today's industry. By utilizing the HMI-BC Training Kit as an innovative learning tool, students will be able to cultivate practical skills in operating and controlling intricate automated systems. This will effectively equip them for careers in a dynamic and evolving industry. Additionally, this research endeavors to contribute to the advancement of learning implementation in the field of IEE that aligns with industrial developments and IoT requirements. By incorporating the HMI-BC Training Kit into the learning process, educators can foster greater student engagement in exploring the latest technologies and industry trends in automated control. This will ensure that graduates of IEE possess relevant competencies and are well-prepared to confront the challenges of the professional world. Overall, it is hoped that this research will provide tangible benefits to students, educators, and industry alike. By augmenting students' comprehension and skills in automated control, this research will facilitate the production of graduates who are prepared to navigate the challenges of a continually evolving industry with cutting-edge technology.

2. Literature Review

The literature review was conducted to elucidate the primary aspects underpinning this research. The two primary points of this study are the students' automation control skills and the HMI-BC Training Kit. Both of these aspects are expounded upon by various literature sources.

2.1. Student's Automation Control Skills

ACSs are crucial for students to possess as they navigate the operation and management of automated systems in various industrial settings. These skills encompass a comprehension of fundamental automation control concepts, the ability to apply control principles to systems, and proficiency in operating the devices and technologies utilized in automation control [13], [14]. Students must attain mastery of diverse control techniques and algorithms while grasping the integration of hardware and software in automated systems. Moreover, they should demonstrate the capability to analyze and resolve issues about automated control. By acquiring comprehensive ACSs, students are equipped to confront the progressively intricate challenges of the industrial landscape, enabling them to design, develop, and maintain efficient and dependable automated systems [7], [15], [16]. The assessment of ACSs can be carried out through four key dimensions: (1) Effective utilization of automation control technologies; (2) Reaction time; (3) Utilization of automation control technologies; and (4) Integration with the system in automation control technologies [17], [18].

2.2. HMI-BC Training Kit

The HMI-BC Training Kit utilized in this study is a specialized learning tool designed and developed to enhance the ACSs of IEE students. This kit employs HMI technology, enabling human-machine interaction for the control of automated systems. Through HMI, students can intuitively and interactively configure, monitor, and manage automation systems [2], [12]. The HMI-BC Training Kit incorporates various supportive features and hardware, including development equipment, a programmable logic controller (PLC), and a variable speed drive (VSD). It also encompasses software that facilitates simulation, programming, and performance analysis of automation control systems and is integrated with IoT, enabling remote control of systems via Internet connectivity [2], [11]. By utilizing the HMI-BC training kit, students can deepen their understanding of automation control concepts and refine their practical skills in operating and controlling complex automated systems. The kit offers hands-on experience in using HMI to regulate automated systems, allowing students to observe the real-time effects of their actions and enhance their ability to seamlessly integrate components of automated systems [10], [19]. As a result, the HMI-BC Training Kit emerges as an innovative and effective learning tool that advances students' comprehension and proficiency in automated control, while equipping them to tackle the ever-evolving demands of the industry.

3. Methodology

This research takes the form of a quantitative study conducted at the EMCC, designed as a pre-experimental research approach. The choice of this research type is grounded in the research objectives and a comprehensive review of the existing literature. Detailed explanations regarding the research design, research instruments, participants, and data analysis techniques are provided below.

3.1. Research Design

The experimental study using a pre-experimental design is used in this study, specifically the One-Group Pre-test Post-test design as presented in Figure 1 [20], [21], [22]. The pre-test is conducted before the implementation of the research activities to assess students' initial abilities (O_1) before being exposed to the research intervention. The research intervention implemented in this study is the use of the HMI-BC training kit in the learning process to enhance students' ACSs (X). The post-test is administered after the implementation of the research intervention to measure the final of students' ACSs in EMCC (O_2).

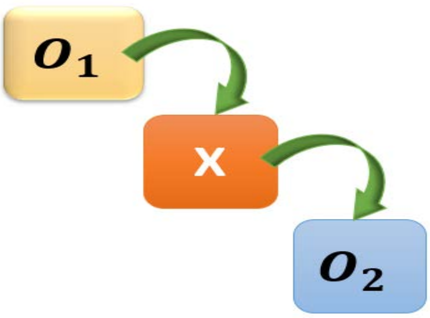

Figure 1. Research design

3.2. Research Instruments

This study employs a Likert scale-based Performance Assessment Instrument (PAI) with four key dimensions to evaluate students' automation control abilities. The dimensions include effective utilization of automation control technologies, reaction time, utilization of automation control technologies, and integration with the system in automation control technologies as presented in Table 1. The instrument is meticulously designed to systematically collect relevant data and gauge students' progress in developing ACSs. By utilizing this instrument, the research aims to gain an in-depth understanding of the extent to which the HMI-BC training kit enhances students' ACSs. The validity and reliability of this research instrument have undergone careful analysis.

Content validity was ensured through expert reviews from professionals in the field of ACSs, resulting in a Content Validity Index (CVI) value of 0.92, indicating that the instrument encompasses aspects relevant to the measured construct [23], [24]. Construct validity was assessed through exploratory factor analysis, which revealed significant loading factors with a cumulative eigenvalue of 0.75.

The instrument's reliability was evaluated using Cronbach's alpha method, indicating a high level of internal consistency with an alpha value of 0.88 [23], [24]. Hence, this research instrument demonstrates strong construct validity and reliability, affirming its accuracy and consistency in measuring students' ACSs.

Table 1. Indicators of performance assessment instrument

Dimensions	Indicators	Theoretical Framework
Effective Utilization of Automation Control Technologies	EU.1. Students demonstrate the ability to effectively and accurately complete tasks using the HMI interface. EU.2. Students correctly program the HMI according to established standards. EU.3. Students set control parameters by assignment requirements. EU.4. Students operate HMI buttons and controls accurately. EU.5. Students interpret displayed status and information correctly. EU.6. Students successfully execute required commands and actions through the HMI interface with a high level of success. EU.7. Students proficiently assemble HMI hardware cabling with other automation components.	[6], [17], [25]
Student Reaction Time	RT.1. Students promptly respond to changes in the HMI interface within the specified time frame. RT.2. Students quickly address programming errors occurring in the HMI within the set time. RT.3. Students promptly react to HMI performance issues within the designated time limits. RT.4. Students rapidly resolve errors in the HMI hardware cabling within the prescribed time.	[7], [17]
Utilization of Automation Control Technologies	UA.1. Students effectively leverage HMI features to control automation systems. UA.2. Students appropriately utilize buttons, sliders, and other controls to set and control parameters. UA.3. Students effectively employ graphs or visual displays to monitor and interpret data. UA.4. Students possess an understanding of and effectively use advanced HMI features, such as setting modes, multi-screen displays, and error alerts. UA.5. Students take advantage of integrated HMI programming features with other control devices. UA.6. Students utilize IoT features on HMI devices for automation control of electric machines.	[6], [17], [25]
Integration with the System in Automation Control Technologies	IS.1. Students proficiently integrate HMI interfaces with other automation system components. IS.2. Students successfully carry out tasks involving the integration of HMI interfaces with sensors/monitoring systems. IS.3. Students adeptly utilize HMI to properly control and monitor the automation system as a whole.	[2], [26]

3.3. Participants

This study involved a group of 30 engineering students who participated in the learning process of the EMCC from the IEE study program in the Electrical Engineering Department, Faculty of Engineering at Universitas Negeri Padang. All of these students participated in the study as the experimental group and followed the research procedures according to the research design, which included a pre-test, action research, and post-test.

3.4. Data Analysis Technique

The data collected in this research pertains to students' ACSs in the EMCC. The research data is divided into pre-test and post-test data. Before conducting the effectiveness analysis, normality tests were conducted using the Kolmogorov-Smirnov Z normality analysis on both the pre-test and post-test data [20], [27]. The students' ACSs were assessed using four key dimensions of ACSs and evaluated using the paired sample t-test analysis [20], [24].

This analysis aimed to determine whether there is a significant difference in students' automation skills between the pre-test and post-test. Additionally, Cohen's d Effect Size analysis was performed to assess the impact of the HMI-BC training kit as a practical learning medium for the EMCC [23], [24]. All data analyses were conducted using the SPSS data analysis application. The effect size value obtained from Cohen's d effect size analysis was interpreted using the effect size criteria table presented in Table 2. This interpretation was carried out to determine the impact category of the HMI-BC training kit in enhancing the ACSs of IEE students. Based on the interpretation results, the level of impact of the HMI-BC training kit can be determined.

Table 2. Effect size criteria

No.	d Value	Categories
1	0,8 ≤ d ≤ 2,0	Big Categorize
2	0,5 ≤ d < 0,8	Medium Categorize
3	0,2 ≤ d < 0,5	Small Categorize

4. Results

This study utilizes the HMI-BC Training Kit as a practical learning medium to enhance students' ACSs. The HMI-BC training kit is a dedicated training kit designed and developed to offer hands-on experience in utilizing an HMI for controlling automation systems. The kit focuses on improving students' ACSs, which are highly relevant to the industry's control advancements. The HMI-BC training kit enables students to explore and practice various HMI features, including programming, configuring control parameters, operating buttons and controls, and interpreting displayed information. Through the HMI interface, students can execute commands and actions with a high success rate. Moreover, the HMI-BC training kit facilitates the integration of the HMI interface with other automation systems components, such as PLC, VFD, protection devices, relays, and contactors. Students are taught to effectively integrate the HMI interface with these components to create a comprehensive industrial automated control system, enabling them to control and monitor the entire automation system. The HMI-BC Training Kit is a valuable resource in the education of automated control engineering. It not only imparts theoretical knowledge but also provides practical training to prepare students for the challenges they will encounter in automated control environments. By utilizing the HMI-BC training kit, students can refine their skills and become proficient professionals in this field. The display of the HMI-BC training kit is presented in Figure 2.

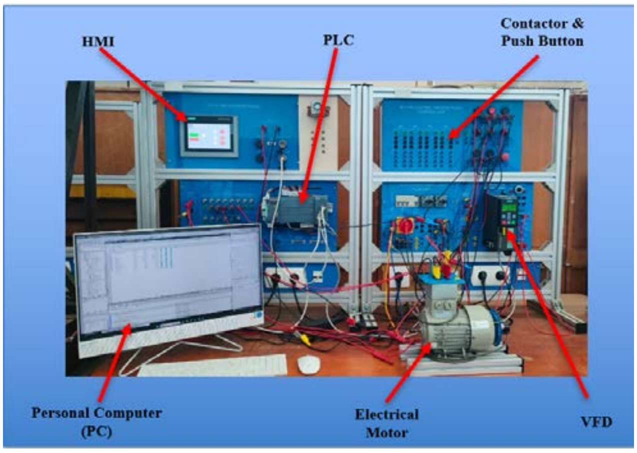

Figure 2. The HMI-BC training kit

4.1. Research Data

The data for this study comprises quantitative data obtained from the assessment of students' ACSs using the performance assessment instrument. The assessment was conducted by a lecturer who observed the performance of each student during the learning process. According to the research design, data collection using the research instruments was carried out twice: before (pre-test) and after (post-test) the implementation of learning in the EMCC using the HMI-BC training kit. The pre-test and post-test data serve as a basis for analyzing the impact of the HMI-BC training kit on enhancing IEE students' ACSs in the EMCC.

4.2.1. Pretest Data

The pre-test data analysis was conducted to assess the students' ACSs before using the HMI-BC Training Kit in the learning process at the EMCC. The results of the pre-test data analysis provided valuable insights into the distribution and characteristics of the pre-test scores, ensuring the reliability of further analysis. A total of 30 students participated in the pre-test, and their ACSs scores ranged from a minimum of 48 to a maximum of 76. The average score obtained by the students was 64.67, with a standard deviation of 7.284. These statistics provide a comprehensive overview of the student's initial proficiency level in ACSs. To ensure the suitability of the data for further analysis, a normality test was conducted on the pre-test data. The normality test used the Kolmogorov-Smirnov Z formula, and the results are presented in Table 3. The pre-test data histogram, accompanied by a normal curve, is presented in Figure 3. Upon observing the results of the normality test, a significance value of 0.623 was obtained, which exceeds the predetermined alpha value of 0.05. Therefore, it can be concluded that the pretest data follows a normal distribution ($\alpha = 0.623 > 0.05$) [20], [24].

Table 3. Normality test analysis of pre-test data

		Pre-test score
N		30
Normal Parameters[a,b]	Mean	64,67
	Std. Deviation	7,284
Most Extreme Differences	Absolute	0,143
	Positive	0,090
	Negative	-0,143
Kolmogorov-Smirnov Z		0,516
Asymp. Sig. (2-tailed)		0,623

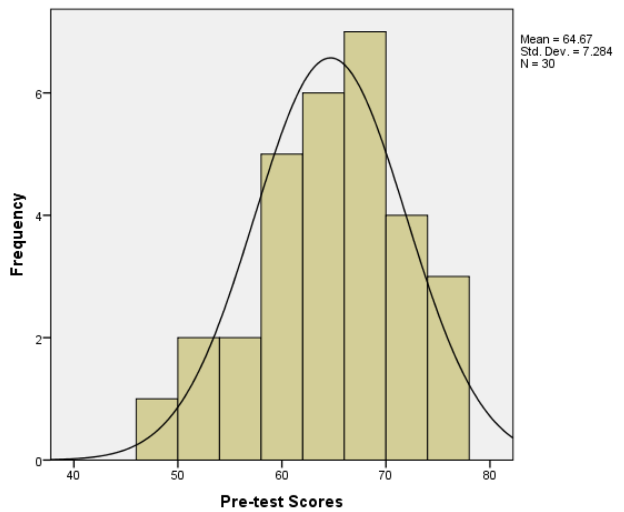

Figure 3. Distribution of pre-test data for student's ACSs

Verification of the normality assumption is crucial for parametric analyses that rely on this assumption. Given that the pretest data satisfy the normality requirements, an effect size analysis and paired t-test can be conducted to assess the impact of the HMI-BC training kit on the enhancement of students' ACSs in the learning process at the EMCC. The pre-test data serves as a baseline measurement, establishing a reference for comparison with post-test data. By examining the changes in ACSs between the pre-test and post-test, a comprehensive evaluation of the improvement in ACSs through the utilization of the HMI-BC training kit can be achieved.

The post-test data comprises the assessment of students' ACSs conducted by the lecturer as an observer after students have utilized the HMI-BC training kit in the learning process at the EMCC. The analysis of the post-test data reveals that the minimum score for student ACSs after utilizing this training kit is 60, while the maximum score is 92. Out of the 30 participating students, an average score of 80 is obtained, with a standard deviation of 7.575. This data provides an overview of the level of progress achieved by students in ACSs after their participation in the learning process using the HMI-BC training kit. Before analyzing the post-test data, a normality test was conducted to ensure that the data used followed a normal distribution. The normality test for the post-test data are presented in Table 4.

The results show a significance value of 0.597, which is higher than the alpha value set at 0.05. Therefore, it can be concluded that the post-test data follows a normal distribution ($\alpha = 0.597 > 0.05$) [20], [24]. Additionally, the histogram of the post-test data distribution is accompanied by the normal curve, as depicted in Figure 4.

Table 4. Normality test analysis of post-test data

		Post-test Score
N		30
Normal Parameters[a,b]	Mean	80,00
	Std. Deviation	7,575
Most Extreme Differences	Absolute	0,135
	Positive	0,079
	Negative	-0,135
Kolmogorov-Smirnov Z		0,617
Asymp. Sig. (2-tailed)		0,597

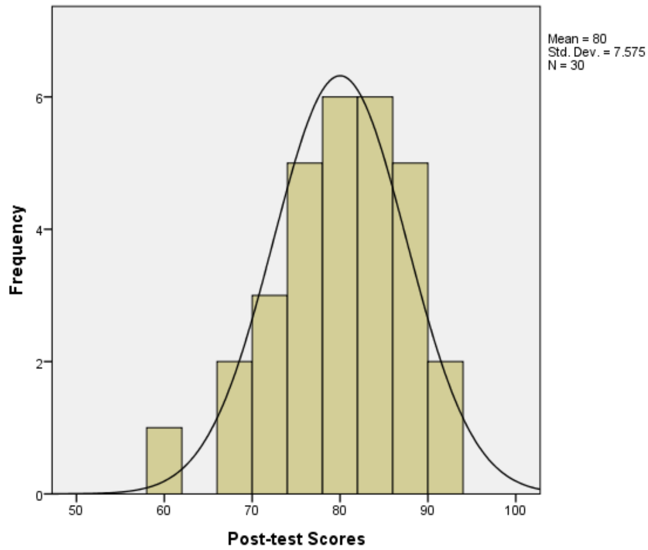

Figure 4. Distribution of pre-test data for student's ACSs

Verifying the normality of the post-test data is crucial for analyzing to evaluate the improvement in students' ACSs using paired t-test analysis and examining the impact of the training kit through effect size analysis. The post-test data also serves as a measurement taken after the intervention with the HMI-BC training kit. By comparing the post-test data with the pretest data, we can identify and analyze the changes that occur in students' ACSs after they participate in the learning process. This comprehensive analysis provides valuable insights into the impact of the training kit in developing students' skills.

4.2. Enhancement of Students' ACSs

The improvement in students' ACSs was assessed through an analysis of the differences in pre-test and post-test data using the paired-sample t-test analysis method.

The purpose of this analysis was to determine significant differences in the ACSs of IEE students before and after utilizing the HMI-BC training kit in the learning process at the EMCC. The results of the paired-sample t-test analysis presented in Table 5 revealed that the t-value (10.772) exceeded the critical t-value from the t-table (1.699), and the alpha significance value (0.000) was below 0.05. Thus, it can be concluded that there is a significant difference between students' ACSs in the pre-test and post-test, indicating an improvement in students' ACSs in the post-test compared to the pre-test [20], [24]. This conclusion is supported by the fact that the average score of students' ACSs in the post-test (85) is higher than the average in the pre-test (64.67) [1], [20], [24]. Consequently, there was a substantial increase in the ACSs of IEE students after utilizing the HMI-BC training kit in the learning process, as indicated by improvements across the four key dimensions of ACSs. These findings demonstrate the effective enhancement of students' ACSs through the use of the HMI-BC training kit. The utilization of this training kit yields tangible benefits in the development of student's skills in operating automation control systems.

Table 5. The results of the paired-sample t-test analysis

	Paired Differences				
	Mean	Std. Deviation	t	df	Sig. (2-tailed)
Post-test Scores - Pre-test Scores	15.333	7.796	10.772	29	.000

4.3. *Impact of HMI-BC Training kit on Enhancing Students' ACSs*

The analysis of the effect size between the pre-test and post-test data resulted in an effective index value of 1.77 (d = 1.77). According to the effect size criteria table, this effect size falls into the category of a large effect [1], [20], [24]. Therefore, based on the effect size analysis and the effect size categories, it can be concluded that the HMI-BC training kit has a positive impact on improving the ACSs of IEE students [1], [20]. The results of this analysis indicate that the utilization of the HMI-BC training kit has a significant impact on enhancing students' ACSs. The large effect size suggests that the use of this training kit has a substantial effect on the development of students' skills in operating automation control systems.

With a significant improvement in their ACSs, students can become more competent and better prepared to tackle challenges in the field of automation control engineering in real-world scenarios.

5. Discussion

This study utilizes the HMI-BC training kit as a practicum learning tool to enhance students' automation control skills in the Industry 4.0 Era. The HMI-BC training kit is specifically designed to align with the learning materials at the EMCC, providing students with practical experience in utilizing the HMI to control automation systems. The purpose of developing this training kit is to improve students' ACSs that are relevant to the industry's control advancements. The results demonstrate a significant enhancement in students' ACSs through the utilization of the HMI-BC training kit. The analysis of the pre-test and post-test data reveals a substantial difference, indicating that students' ACSs in the post-test surpass those in the pre-test. Moreover, the average score of students' ACSs in the post-test also exhibits a noteworthy increase. These findings align with previous studies, which highlight that the design and development of practicum learning tools tailored to specific learning material requirements can effectively enhance students' practical capabilities [25], [28]. Furthermore, it is crucial to make adjustments that align with the industry's ongoing developments, ensuring that engineering students' skills are adaptable to the evolving industrial landscape [6], [17].

The impact of utilizing the HMI-BC training kit to enhance students' ACSs was assessed using Cohen's d-effect size analysis. The findings of the analysis reveal a substantial impact associated with the use of this training kit, indicating its effectiveness in developing student skills in operating automation control systems. Employing the HMI-BC training kit as a strategy proves to be effective in enhancing the quality of student learning in the field of automation control systems. By experiencing a significant improvement in their skills, students become more competent and better prepared to tackle challenges in the realm of automation control engineering in real-world scenarios. These results align with previous research, demonstrating that a training kit specifically designed for the learning process positively influences student abilities [25], [28]. While some studies indicate a moderate level of impact, the overall findings still highlight the positive effects of improving student capabilities [9], [29].

In this study, quantitative data obtained from the assessment of students' ACSs using performance assessment instruments were utilized.

The pre-test and post-test data were analyzed to evaluate the impact of the HMI-BC training kit on improving students' ACSs. The pre-test data provides insights into the students' initial proficiency level in ACSs, while the post-test data measures the progress achieved after using the training kit. Data analysis was conducted using the paired-sample t-test analysis method, revealing a significant difference between students' ACSs in the pre-test and post-test. To measure the extent of the impact of the HMI-BC training kit in increasing students' ACSs, Cohen's d-effect size analysis was employed. Cohen's d effect size quantifies the magnitude of the difference between the pre-test mean and the post-test mean, relative to the variability of the data. A higher Cohen's d value indicates a stronger influence of the independent variable on the dependent variable [1], [20].

The results of Cohen's d effect size analysis revealed that the utilization of the HMI-BC training kit has a significant impact on enhancing students' ACSs. This indicates that incorporating the training kit yields substantial advantages in nurturing students' proficiency in operating automated control systems. It is worth noting that the effect size of Cohen's d is influenced by the sample size. A larger sample size requires a smaller Cohen's D effect size to achieve statistical significance. Therefore, to generalize the findings of this study to a broader population, further investigations with larger sample sizes are needed. Moreover, it is essential to acknowledge the limitations of this study, including the restricted sample size and limited coverage of specific student subjects. Consequently, additional research is necessary to validate and expand upon these findings.

6. Conclusion

This study unveils the enhancement of students' ACSs in the Industry 4.0 era facilitated by the utilization of the HMI-BC training kit as a practicum learning medium at the EMCC. The training kit is specifically designed to provide practical hands-on experience in utilizing an HMI for controlling automation systems. Through the HMI-BC training kit, students can refine their proficiency in executing commands and actions via the HMI interface with a high success rate. Additionally, the kit incorporates the integration of the HMI interface with other components of the automation system, enabling students to control and monitor the system holistically. The data analysis demonstrates a significant disparity between students' ACSs before and after employing this training kit, with a notable improvement observed in students' ACSs post-implementation.

This study establishes the effectiveness of the HMI-BC training kit in enhancing students' ACSs, as evidenced by four key dimensions: (1) Effective utilization of automation control technologies, (2) Reaction time, (3) Utilization of automation control technologies, and (4) Integration with the system in automation control technologies. Consequently, this research provides valuable insights into the advantages of training kits for fostering students' competence in automated control. Furthermore, the effect size analysis results highlight the significant impact of utilizing this training kit in improving students' ACSs. Consequently, integrating the HMI-BC training kit can serve as an effective strategy for enhancing the quality of student learning in the field of automation control. Educational institutions can utilize the findings of this study to enrich the curriculum and teaching methodologies about the application of the HMI-BC training kit.

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