

Implementation of 5S Methodology in Educational Institutions: Benefits, Challenges, and Strategies for Sustainability Enhancement

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Article History

accepted 1/5/2024

approved 1/6/2024

published 30/6/2024

Abstract

Problem statement: The integration of quality management methodologies like the 5S principles into educational institutions presents both opportunities and challenges. This study addresses the potential benefits and obstacles of implementing 5S at Politeknik Pariwisata Makassar. This study used qualitative research methods. Thematic analysis was conducted to derive insights into perceptions, challenges, and opportunities associated with 5S implementation. The study revealed significant advantages of incorporating 5S at Makassar Tourism Polytechnic, including enhanced operational efficiency, improved discipline among students, strengthened teamwork, and increased campus safety. However, challenges such as awareness gaps, resource constraints, and cultural adaptations were identified as potential barriers to successful implementation. To effectively implement 5S principles at Makassar Tourism Polytechnic, strategies focusing on awareness enhancement, resource allocation, cultural adaptation, and sustainability integration are recommended.

Keywords: 5S principles, Educational Institutions, Quality Management, Politeknik Pariwisata Makassar

Abstrak

Integrasi metodologi manajemen kualitas seperti prinsip 5S ke dalam lembaga pendidikan menawarkan peluang serta tantangan. Studi ini mengkaji manfaat potensial dan hambatan implementasi 5S di Politeknik Pariwisata Makassar. Penelitian ini menggunakan metode penelitian kualitatif. Analisis tematik dilakukan untuk mengungkap persepsi, tantangan, dan peluang terkait implementasi 5S. Studi ini mengungkapkan beberapa keuntungan signifikan dari integrasi 5S di Politeknik Pariwisata Makassar, termasuk peningkatan efisiensi operasional, disiplin yang lebih baik di kalangan mahasiswa, penguatan kerja tim, dan peningkatan keamanan kampus. Namun, tantangan seperti minimnya kesadaran, keterbatasan sumber daya, dan adaptasi budaya diidentifikasi sebagai hambatan potensial dalam implementasi yang sukses. Untuk efektif menerapkan prinsip 5S di Politeknik Pariwisata Makassar, disarankan untuk mengembangkan strategi yang berfokus pada peningkatan kesadaran, alokasi sumber daya, adaptasi budaya, dan integrasi keberlanjutan.

Kata kunci: Prinsip 5S, Institusi Pendidikan, Manajemen Mutu, Politeknik Pariwisata Makassar



INTRODUCTION

In recent years, there has been a notable focus on the adoption of quality management structures like the 5S methodology in a wide range of industries, including academia. The 5S principles - which include sort (seiri), set in order (seiton), shine (seiso), standardize (seiketsu), and sustain (shitsuke) - originated from Japanese workplace methodologies and stress the importance of establishing an organized, effective, and secure setting (Abu Bakar et al., 2019; DOĞAN et al., 2014). This approach has found extensive acceptance in optimizing processes, reducing inefficiencies, and boosting productivity in various organizational contexts. Particularly in educational institutions, the integration of 5S principles is geared towards maximizing resource allocation, enhancing operational efficacy, and cultivating a supportive learning and working ambiance (Narassima et al., 2023; Ramdass, 2015). Studies have highlighted the advantages of incorporating 5S into academic ecosystems such as universities and vocational schools. Through the systematic arrangement of physical spaces, standardization of procedures, and encouragement of continual enhancement, establishments can amplify their overall efficiency in dispensing educational services and overseeing administrative tasks (Ismara et al., 2019; Oktafiani et al., 2022; Ulum et al., 2023). Prior research has delved into different aspects of 5S integration, emphasizing its contribution to bolstering safety measures, decreasing mistakes, and uplifting general workplace morale (Abeje & Luo, 2023; Abu Bakar et al., 2019; Srinivasan et al., 2016). Nonetheless, obstacles persist in tailoring these principles to meet the distinct demands and intricacies of educational settings, especially in terms of faculty operations, student engagements, and facility supervision (Gupta, 2022; Kirani et al., 2023).

This study explores the utilization of 5S quality management at Politeknik Pariwisata Makassar, focusing on its capacity to revolutionize campus environments into exemplars of efficiency and sustainability. By scrutinizing prevailing literature and real-world implementations, this research endeavors to offer novel perspectives on adapting 5S principles to address the distinctive requirements of academic communities, thus fostering a culture of distinction and ecological responsibility. Through a thorough examination and evaluation, this investigation endeavors to establish a framework for the implementation and evaluation of the efficiency of 5S methodologies in academic settings, with the overarching goal of augmenting institutional performance and endorsing sustainable campus growth.

In recent years, there has been an increasing focus on the notion of green campuses within educational institutions globally, to reduce their environmental impact and advocate for sustainable behaviors (Dagiliūtė et al., 2018; Zhao & Zou, 2023). At the core of this initiative lies the incorporation of high-quality management frameworks like the 5S methodology, which presents a methodical strategy for arranging physical spaces and enhancing operational processes (Vasudevan et al., 2022). Originally conceived within industrial settings, the 5S principles—sort (seiri), set in order (seiton), shine (seiso), standardize (seiketsu), and sustain (shitsuke)—are now being acknowledged for their ability to cultivate a culture centered on tidiness, effectiveness, and ongoing enhancement (Abu Bakar et al., 2019; DOĞAN et al., 2014).

This manuscript delves into the framework of 5S quality management customized particularly for university ecosystems, emphasizing the attainment of green campus initiatives. By conducting a methodical examination of existing literature and case studies, the research aims to clarify the strategic benefits of incorporating 5S in educational settings, while also tackling the obstacles and prospects linked to its implementation. Through the proposition of a comprehensive assessment framework, this study endeavors to offer practical insights and suggestions for academic institutions looking to adopt sustainability and quality management principles utilizing the 5S methodology.

It is crucial to comprehend the importance of how the implementation of 5S quality management can effectively address the specific obstacles present in educational institutions (Nurcahyo et al., 2019), particularly concerning the adoption of 5S quality as an organizational culture to achieve the objective of a sustainable campus. The primary aim of this investigation is to scrutinize the implementation of 5S principles at Makassar Tourism Polytechnic, focusing on its impact on campus sustainability and operational effectiveness. By reviewing current literature and empirical data, this research endeavors to underscore significant discoveries regarding the utilization of the 5S approach in an academic setting. Initially, the manuscript will elucidate the rationale for incorporating 5S in a university setting, followed by an evaluation of its benefits and difficulties, substantiated by case studies and practical examples. Subsequently, a methodical strategy will be delineated to evaluate the effectiveness of 5S in improving organizational culture practices in campus administration and promoting ecological responsibility.

METHOD

The data utilized in this research investigation was gathered via structured interviews carried out with the primary informant Maruyama Isamu, whose initials are MI, a Japanese Language Instructor and JICA Volunteer at Politeknik Pariwisata Makassar from April 2024 to April 2026. The dialogues occurred in June 2024, during which the researcher proposed inquiries that the informant responded to in written form. The questions posed during the interview encompassed various topics, including delineating perceptions of work culture in Japan, viewpoints on the 5S principles (seiri, seiton, seiso, seiketsu, shitsuke), possibilities for implementing these principles within the specific context of educational activities at Politeknik Pariwisata Makassar, obstacles encountered in applying these principles at the institution, advantages of Politeknik Pariwisata Makassar that facilitate the integration of these principles, and an overarching outlook on work ethics from a Japanese perspective.

In terms of data analysis, a qualitative methodology was employed to decipher and scrutinize the responses garnered from the interviews (Lexy J. Moleong, 2019; Sugiyono, 2020). The amassed data underwent thematic analysis, concentrating on identifying recurrent themes and patterns associated with perceptions, hindrances, and opportunities concerning the adoption of 5S principles within an academic environment. This approach enabled a comprehensive comprehension of how the tenets of 5S quality management could be seamlessly assimilated into the operational structure of Politeknik Pariwisata Makassar, to bolster organizational efficacy and foster a conducive educational milieu.

RESULTS AND DISCUSSION

This study delves into the utilization of the Japanese 5S work philosophy within the realm of facilitating educational endeavors at the Japan Tourism Polytechnic. The 5S framework, encompassing seiri (sorting), seiton (systematic arrangement), seiso (cleaning), seiketsu (standardizing), and shitsuke (sustaining), is embraced to enhance efficacy, orderliness, and a methodical educational setting. Through the application of these precepts, the primary objective of this study is to establish a more efficient learning milieu and harmonize students' learning encounters with proficient and structured work methodologies, consistent with the principles of the Japanese work ethos that have demonstrated a favorable influence across diverse industrial domains.

1) Perceptions of Japanese Work Culture

This inquiry was directed towards the Key Informant, Maruyama Isamu (MI), a Japanese language educator and a volunteer of the Japan International Cooperation Agency (JICA) assigned at Makassar Tourism Polytechnic from April 2024 to April 2026. While not possessing expertise in 5S practices and lacking direct involvement in its

implementation in professional settings, MI highlighted the renown of the Japanese work ethos characterized by diligence, adherence to rules, collective mindset, accountability, and extended work hours. Despite contemporary trends emphasizing work-life equilibrium and recognition of individuality, enduring principles like industriousness and accountability persist as fundamental aspects of Japanese work demeanor. An excerpt from the conversation is presented below:

“First of all, I’m not a 5S expert myself, and I don’t know much about Makassar Tourism Polytechnic either. I have never really experienced 5S in the workplace. So please forgive me for giving a generalized answer. I would also like to add that I received help from generative AI in answering this question. Japanese work culture is famous for its hard work ethic, discipline, collective consciousness, sense of responsibility, and rather long working hours. Although in recent years, values such as work-life balance and respect for the individual have started to gain attention, hard work and a sense of responsibility remain at the core of Japanese work culture.”

The statement reflects the perspective of the interviewee regarding Japanese work culture and their disclaimer about expertise in the 5S methodology and specific knowledge of Makassar Tourism Polytechnic. They acknowledge the assistance from generative AI in formulating their response. The interviewee highlights the renowned characteristics of Japanese work culture, emphasizing its strong work ethic, discipline, collective awareness, sense of duty, and historically long work hours. They also note recent shifts towards valuing work-life balance and individual respect alongside these traditional values of diligence and responsibility, which continue to form the foundation of Japanese work culture.

2) Outlook on the 5S Working Principle (Seiri, Seiton, Seiso, Seiketsu, Shitsuke)

MI unveiled that the fundamental concepts of 5S methodologies play a crucial role in diminishing disarray, enhancing efficiency, and upholding organization within a workplace or educational setting. Specifically, the significance of cleanliness and tidiness is emphasized as pivotal in establishing a secure and productive ambiance. An excerpt from the conversation is presented below:

“The fundamental principles of 5S methodologies play a crucial role not only in enhancing operational efficiency but also in upholding organization and neatness within a professional setting or educational context. Through the implementation of these principles, one can diminish disorderliness and enhance overall productivity. Particularly, the significance of cleanliness and organization cannot be overstated in ensuring a secure and hazard-free environment”

The statement elucidates the crucial significance of 5S methodologies in optimizing operational efficiency and upholding orderliness within professional or educational environments. Through adherence to these principles, the orator posits that disorderliness can be reduced and productivity can be heightened. Particularly, the stress on cleanliness and organization highlights their pivotal role in ensuring a safe and risk-free atmosphere. This viewpoint showcases a profound comprehension of how methodical approaches to the workplace or educational structuring can result in concrete enhancements in efficiency and safety, thereby positively impacting both operational procedures and the welfare of individuals in these settings.

Various studies have consistently demonstrated that the implementation of 5S principles results in a reduction of waste, enhancement of workflow, and increased productivity in diverse sectors such as manufacturing, healthcare, and education (Abdalrazig Sati & Ibrahim Adam, 2019; Ramdass, 2015; Sati & Adam, 2019). Through its emphasis on cleanliness and organization, 5S fosters a structured and hazard-free

setting, in line with research indicating improved safety outcomes and enhanced operational performance in workplaces and educational settings (Gupta, 2022; Singh et al., 2022). This viewpoint emphasizes the widespread agreement in academic literature regarding the systematic methods of organizing workplaces, which not only improve efficiency but also support workplace safety and employee well-being, thus encouraging sustainable organizational behaviors.

3) Potential implementation of the 5S methodology at Makassar Tourism Polytechnic

MI emphasized the potential advantages of incorporating 5S principles at Makassar Tourism Polytechnic, specifically focusing on enhancing the organized educational setting, student conduct, collaboration, and safety within the academic environment. An excerpt from the conversation is presented below:

“The incorporation of the 5S principles within educational practices at Makassar Tourism Polytechnic is anticipated to yield various advantages. Enhancing the learning environment is one of these benefits, as a well-organized setting can enhance students' concentration and productivity. Additionally, promoting discipline is another positive outcome, whereby the application of 5S principles aids in instilling traits like punctuality and accountability among students. Furthermore, fostering teamwork is facilitated through 5S activities, encouraging collaboration and mutual support among students. Lastly, enhancing safety is a crucial advantage, as a systematic and orderly learning environment can mitigate the occurrence of accidents and injuries”

The assertion made by the interviewee highlights the potential advantages of incorporating 5S principles into educational methodologies at Makassar Tourism Polytechnic, in line with pertinent scholarly discoveries. Scholarly investigations suggest that a well-structured educational milieu bolsters students' focus and efficiency through the mitigation of diversions and the establishment of a conducive learning ambiance (Kartika et al., 2019; Pomarida & Nagoklan, 2022). Furthermore, the application of 5S principles within educational environments cultivates discipline among students, nurturing characteristics like timeliness and answerability, which play a pivotal role in academic accomplishments and prospective professional pursuits (Kartika et al., 2019).

Furthermore, research supports the idea that 5S activities enhance teamwork among students by encouraging collaboration and mutual support, which are essential skills for their future careers (Chandrayan et al., 2019; Witt et al., 2019). Finally, integrating 5S principles in educational institutions like Makassar Tourism Polytechnic not only aims to optimize learning environments but also cultivates essential skills and promotes safety, contributing to overall student development and institutional effectiveness.

4) Challenges in Implementing 5S at Makassar Tourism Polytechnic

MI further recognized several obstacles that could potentially arise during the application of 5S methodologies at Makassar Tourism Polytechnic. These obstacles encompass a deficiency in knowledge, insufficient time allocation, limited staffing, and disparities in cultural norms between Japanese and Indonesian professional environments. An excerpt from the conversation is presented below:

“First, there may be a lack of awareness among students and staff regarding the significance of 5S, which could hinder active engagement. Second, the demanding academic schedule may pose difficulties in allocating sufficient time and resources for 5S activities. Third, a shortage of leadership and human resources capable of facilitating 5S initiatives might impede their smooth implementation. Lastly, the differences in Japanese and Indonesian work cultures necessitate adapting 5S principles to fit the local context to ensure

acceptance and effective practice among the academic community at Makassar Tourism Polytechnic."

The quotation underscores several difficulties that could potentially surface during the application of the 5S principles within an academic setting, particularly within the confines of Makassar Tourism Polytechnic. To commence with, a lack of cognizance regarding the significance of 5S may result in diminished involvement from both students and faculty, by earlier studies suggesting that an incomplete grasp of methodologies such as 5S can obstruct the efficacious execution (Beerepoot et al., 2023; Radzali et al., 2019). Subsequently, obstacles associated with time limitations and the availability of manpower to oversee 5S initiatives also mirror findings from previous research highlighting how packed timetables and insufficient allocation of resources can obstruct the uptake of sustainability practices like 5S (Soares et al., 2023).

Moreover, the cultural differences between Japanese and Indonesian work cultures present significant challenges that need to be addressed in the context of education at Makassar Tourism Polytechnic. Research has shown that adapting management principles such as 5S to local cultures is crucial for successful implementation (Choy & Jain, 1987; Jia et al., 2016; Soehardjojo & Delbridge, 2023). Therefore, a deep understanding of these barriers can help in devising appropriate strategies to promote effective and sustainable implementation of 5S in educational settings. As such, the challenges highlighted underscore the potential hurdles in implementing 5S principles within the academic environment at Makassar Tourism Polytechnic, emphasizing the need for tailored strategies to address awareness gaps, resource limitations, and cultural differences for successful and sustainable implementation.

5) Makassar Tourism Polytechnic's Capital in Implementing 5S

MI highlighted the capital possessed by Makassar Tourism Polytechnic, such as student discipline, spirit of cooperation, and motivation to learn and develop, which support the potential for implementing 5S principles in the academic environment. An excerpt from the conversation is presented below:

"Politeknik Pariwisata Makassar has several strengths that support the implementation of 5S principles, including the discipline among its students, which provides a solid foundation for applying these principles. Additionally, Indonesians are known for their strong spirit of cooperation, which can enhance teamwork in 5S activities. Furthermore, the students' eagerness to advance and learn new things motivates them to enthusiastically study and practice the 5S principles".

The argument in the quotation highlights that Makassar Tourism Polytechnic possesses several internal strengths that can support the implementation of the 5S principles. Firstly, the discipline among its students is seen as a solid foundation for adhering to these principles, reflecting a readiness to follow rules and procedures crucial for maintaining an organized and efficient environment as per the 5S framework. Secondly, the high spirit of cooperation among Indonesians is considered another supportive factor. Strong interpersonal collaboration within the academic community can facilitate teamwork, coordination, and mutual support in implementing 5S activities aimed at achieving common goals. Thirdly, the students' enthusiasm for progress and learning new things is seen as a primary motivation for adopting and internalizing the 5S principles. This eagerness indicates an intrinsic drive among students to enhance the quality of their environment and educational processes at their institution.

From an analytical perspective, these strengths illustrate that the implementation of the 5S principles at Makassar Tourism Polytechnic has a strong and potentially successful foundation. The emphasis on discipline and cooperation demonstrates a commitment from the academic community to maintain a well-structured environment, which is fundamental to the 5S principles. Furthermore, the enthusiasm for learning and progress indicates an internal motivation that can drive the adoption of new principles

aimed at improving efficiency and safety in the academic setting. Therefore, the combination of these strengths presents a compelling argument that Makassar Tourism Polytechnic has significant potential for success in implementing the 5S principles, with a focus on cultivating discipline, cooperation, and innovative spirit in their efforts. As a volunteer Japanese teacher at Makassar Tourism Polytechnic, MI provided valuable insights into perceptions of Japanese work culture, the 5S principle, the potential and challenges of implementing this principle in an educational setting, and views on work ethic in general. Further analysis of these interviews will provide a deeper understanding of the implementation and adaptability of the 5S principles in this specific educational context.

The research was limited by the reliance on one informant, Maruyama Isamu, whose perspective, although insightful, may not have fully captured the diversity of opinions and experiences within Makassar Tourism Polytechnic regarding the implementation of 5S principles. In addition, the qualitative nature of the data collected through structured interviews may have introduced biases or limitations inherent to self-reported responses. Recommendations for future research include expanding the participant group to include a broader cross-section of faculty, students, and administrative staff to gain a more comprehensive understanding of the challenges and opportunities associated with integrating 5S methodologies in educational settings. In addition, This research should adopt a blended approach that combines quantitative and qualitative data to evaluate the effectiveness of the 5S model in improving operational efficiency and creating a conducive learning environment in the institution. Delving deeper into learners' profiles is necessary to determine their readiness to accept innovations. Previous research has revealed the importance of understanding learner profiles (Salimi, (Liao et al., 2022; Salimi et al., 2021; Snyman & van den Berg, 2018)2022). It is also recommended to conduct classroom action research to test the effectiveness of the learning model. According to (Pratiwi et al., 2023; Saptono et al., 2023; Semathong, 2023), classroom action research not only improves students' learning experience but also opens up opportunities for more dynamic and relevant curriculum development. As well as utilizing quantitative research using correlation research methods in testing a model (Liu et al., 2023; Onwuegbuzie, 2022; Susiani et al., 2022), so that the application of the 5S work culture approach at the Makassar Tourism Polytechnic can be measured properly.

CONCLUSION

In recent years, the adoption of quality management frameworks like the 5S methodology has gained significant attention across various sectors, including academia. Originating from Japanese workplace practices, the 5S principles—sort, set in order, shine, standardize, and sustain—offer systematic approaches to enhancing organizational efficiency and fostering a conducive learning environment. This study focused on exploring the potential implementation of 5S at Politeknik Pariwisata Makassar, aiming to transform its campus into a model of efficiency and sustainability. The findings underscored several key benefits of integrating 5S principles into educational settings, such as improving operational efficiency, fostering discipline among students, enhancing teamwork, and promoting campus safety. However, challenges were also identified, including the need for increased awareness, adequate resources, and adjustments to local cultural norms. Despite these challenges, Makassar Tourism Polytechnic possesses inherent strengths, including student discipline, cooperative spirit, and enthusiasm for learning, which provide a solid foundation for successful 5S implementation.

To effectively implement 5S principles at Makassar Tourism Polytechnic, several recommendations are proposed. Firstly, enhancing awareness through workshops and

training sessions can educate faculty, students, and staff about the benefits and methodologies of 5S. Secondly, allocating sufficient resources—such as time, manpower, and financial support—is crucial to sustain ongoing 5S activities and initiatives. Thirdly, adapting 5S principles to fit local cultural norms and educational practices will ensure acceptance and effective implementation. Fourthly, establishing a systematic framework for monitoring progress and evaluating the impact of 5S implementation on operational efficiency and student outcomes is essential. Finally, integrating sustainability goals into 5S practices can align with global initiatives for environmental conservation and resource optimization. By addressing these recommendations, Makassar Tourism Polytechnic can enhance organizational effectiveness, promote a safer and more productive learning environment, and contribute to the development of sustainable campus practices. This comprehensive approach not only supports academic excellence but also prepares students for future professional endeavors in an increasingly competitive global landscape.

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