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“Optimizing Innovation in Knowledge, Education and Design”

EXTENDED ABSTRACT



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Assalamualaikum warahmatullahi wabarakatuh,



First and foremost, I would like to express my gratitude to the organizing committee of i-Spike 2023 for their tremendous efforts in bringing this online competition a reality. I must extend my congratulations to the committee for successfully delivering on their promise to make i-Spike 2023 a meaningful event for academics worldwide.

The theme for this event, 'Optimizing Innovation in Knowledge, Education, and Design,' is both timely and highly relevant in today's world, especially at the tertiary level. Innovation plays a central role in our daily lives, offering new solutions for products, processes, and services. By adopting a strategic approach to 'Optimizing Innovation in Knowledge, Education, and Design,' we have the potential to enhance support for learners and educators, while also expanding opportunities for learner engagement, interactivity, and access to education.

I am awed by the magnitude and multitude of participants in this competition. I am also confident that all the innovations presented have provided valuable insights into the significance of innovative and advanced teaching materials in promoting sustainable development for the betterment of teaching and learning. Hopefully, this will mark the beginning of a long series of i-Spike events in the future.

It is also my hope that you find i-Spike 2023 to be an excellent platform for learning, sharing, and collaboration. Once again, I want to thank all the committee members of i-Spike 2023 for their hard work in making this event a reality. I would also like to extend my congratulations to all the winners, and I hope that each of you will successfully achieve your intended goals through your participation in this competition.

Professor Dr. Roshima Haji Said
RECTOR
UiTM KEDAH BRANCH



WELCOME MESSAGE (i-SPIKE 2023 CHAIR)



We are looking forward to welcoming you to the 3rd International Exhibition & Symposium on Productivity, Innovation, Knowledge, and Education 2023 (i-SPIKE 2023). Your presence here is a clear, crystal-clear testimony to the importance you place on the research and innovation arena. The theme of this year's Innovation is "*Optimizing Innovation in Knowledge, Education, & Design*". We believe that the presentations by the distinguished innovators will contribute immensely to a deeper understanding of the current issues in relation to the theme.

i-SPIKE 2023 offers a platform for nurturing the next generation of innovators and fostering cutting-edge innovations at the crossroads of collaboration, creativity, and enthusiasm. We enthusiastically welcome junior and young inventors from schools and universities, as well as local and foreign academicians and industry professionals, to showcase their innovative products and engage in knowledge sharing. All submissions have been rigorously evaluated by expert juries comprising professionals from both industry and academia.

On behalf of the conference organisers, I would like to extend our sincere thanks for your participation, and we hope you enjoy the event. A special note of appreciation goes out to all the committee members of i-SPIKE 2023; your dedication and hard work are greatly appreciated.

Dr. Junaida Ismail

Chair

3rd International Exhibition & Symposium Productivity, Innovation, Knowledge, and Education 2023 (i-SPIKE 2023)

STANDARD OPERATION PROCEDURES: SYSTEMATIC SPECIAL EQUIPMENT RESERVATION SYSTEM AT UiTM CAWANGAN NEGERI SEMBILAN

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ABSTRACT

Standard operating procedures (SOPs) play a crucial role in controlling human errors and ensuring efficient and safe operations in various industries. This article explains the relationship between SOPs and human error control, highlighting their significance in mitigating errors and promoting a culture of systematic processes. Through a review of existing literature, the article explores the key elements of effective SOPs and their impact on reducing human errors. Additionally, it examines strategies for designing and implementing SOPs that incorporate human factors considerations to enhance their usability and effectiveness. The findings emphasize the importance of clear and concise SOPs, training programs, and ongoing evaluation and revision processes in minimizing human errors. By implementing robust SOPs and integrating human error control measures, organizations can enhance operational reliability, and organizational workflow, optimize performance, time, resource, and cost-saving as well as foster a culture of systematic processes. The article concludes with recommendations for future research and practical implications seeking to optimize their SOPs to effectively control human errors.

Keywords: standard operation procedure, booking system, human error, customer satisfaction

INTRODUCTION

Standard operating procedures act as tools for assessing work progress, and it is imperative for the organization's management to prioritize efficient work processes that encompass resource, financial, and time management. At UiTM Negeri Sembilan Branch, the special equipment unit serves and plays a pivotal role in teaching and learning activities, and some areas in management activities. Nevertheless, there are a few areas that have been identified for improvement to enhance customer satisfaction in the reservation system at the special equipment unit.

STANDARD OPERATING PROCEDURES

Standard operating procedures (SOPs) are developed to ensure consistency, efficiency, safety, and quality in the execution of various activities within an organization. SOP, as various writers have defined it, entails a set of written and detailed instructions documenting routine or repetitive activities within an organization to ensure consistent performance of specific functions. It outlines a series of steps that individuals or groups must adhere to when completing a task and eliminating variations. Additionally, it serves as a process document to

guide the operators on how to perform their tasks effectively and provides clear definitions of roles, responsibilities, procedures, and objectives. All in all, SOP is a comprehensive document that elucidates the “who, what, where, how, and why” of organizational activities (Amare, 2012).

According to Maulana, Dengen and Hairah (2018), organizations and individuals greatly require accurate, fast, and relevant information, but the current state of the information system used does not align with their desires and expectations. Ramadhan and Nurraharjo (2023) in their recent study found that a web-based studio space rental and information system can be fully functioned with a 100% success rate. Prior to the Covid-19 outbreak, the manual booking system brings hassle to organizations and individuals as they face challenges due to the lack of a planned information system. Potential users must physically visit the location to inquire about studio availability, make reservations and conduct cash transactions which consume time. Additionally, the administrative team struggles with manual reservation processes, considering them ineffective. They spend considerable time explaining facilities and rental prices directly to customers. These inefficiencies are a result of damage or limitations in the information system used. Therefore, there is a pressing need for a web-based rental application to address these issues.

RESOURCES AND QUALITY CONTROL

In project management, a resource is characterized as any essential element required for the successful completion of a project. The key types of resources include labor, equipment, materials, money, space, services, and time. To efficiently handle resources, organizations need to possess data about projected resource demands over future time periods, the necessary resource configurations to meet those demands, and a forecast of resource supply in the future, (Raja, 2015). According to Bouchrika (2023), resource-managing organizations can avoid unforeseen obstacles in resource allocation, prevent burnout of human and non-human resources, establish a safety net, promote transparency within the organization, and monitor efficiency. These benefits stem from the effective implementation of resource management practices.

Quality control refers to the series of steps or procedures undertaken by a company to ensure that its product adheres to established standards and specifications. Each organization typically maintains an internal quality control department or engages an external entity to oversee the manufacturing process and address any flaws or shortcomings, (The Economic Times, 2023). The essential characteristics of a quality control system are its documented nature, comprehensible structure, stability, reliability, and capacity to facilitate continuous improvement in quality. The entity should demonstrate the existence of a cohesive "system" rather than just a collection of disconnected activities. Additionally, these activities must undergo external and internal audits and reviews to ensure their effectiveness, (Badrick, 2008).

HUMAN ERROR PROCESS

Human error is a significant challenge in various systems, from complex technology to everyday tasks. Understanding its causes and consequences is crucial for developing strategies to prevent and mitigate errors. According to Mohammadi Sarableh et al (2021), in an industrial process, there is the possibility of errors in every activity. These errors can be classified as either system errors, which can be corrected to prevent their recurrence, or human errors, which

persist despite proper training and understanding due to the complex nature of the system's operations. Human errors are one of the most important factors that lead to accidents in various industries. To prevent and limit consequences caused by human error, it is important to predict, identify and find their cause (Halvani et al, 2017).

Quality improvement is crucial in reducing human error. One of the ways is through applying PDCA (Plan-Do-Check-Act) method to meet quality and stakeholders' expectations. According to Nguyen, Chau, and Tran (2023), PDCA cycle, also known as the Shewhart cycle, is an iterative design and management method used widely in organizations to improve processes and products continually. PDCA has recently been highlighted in manufacturing, services, and other sectors when it comes to improving quality thus it is very related to human error management.

TIME MANAGEMENT

Time management is a crucial skill that enables individuals and organizations to optimize productivity, efficiency, and overall performance. Ugwulashi (2011) agreed that time decides the importance of achieving the set targets and objectives. In today's fast-paced and competitive world, effective time management has become a critical factor for personal and organizational success. According to Gordon & Borkan (2014), managing time builds one's efficiency, limits burnout, advances progression and improves individual and expert fulfillment.

Time management techniques have been proposed and practiced enhancing productivity and streamlining workflow. There are several various methods of time management such as the Eisenhower Matrix, Pomodoro Techniques, and the Getting Things Done (GTD) approach (Daniel, 2014). These techniques emphasize prioritization, focus, and task completion, which directly align with the objective of having standard operation procedures in achieving efficient and consistent outcomes. As the standard operation procedure provides structured guidelines and workflows that facilitate the effective allocation of time for specific tasks, the time management practices help the employees adhere to it by allocating appropriate time slots for each step in a process. This alignment ensures that tasks are completed efficiently and consistently, minimizing error and at the same time promoting a culture of continuous improvement.

CONCLUSION

Good organizational management is known to be an essential approach for an organization to increase its competency and accelerate its performance. Previous studies have shown that there is a correlation between good resource management and organizational performance (Katou & Budhwar, 2010; Lengnick-Hall et al, 2011; Katou, 2012; Phanwattana & U-on, 2017). Clear instructions and procedures developed by the management can provide a clear understanding of roles and responsibilities that need to be undertaken. Future research for this paper is needed to change the reservation system that transforms manual reservations into a highly cost-effective reservation system and increases the customer satisfaction index by improvising the standard operating procedure.

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