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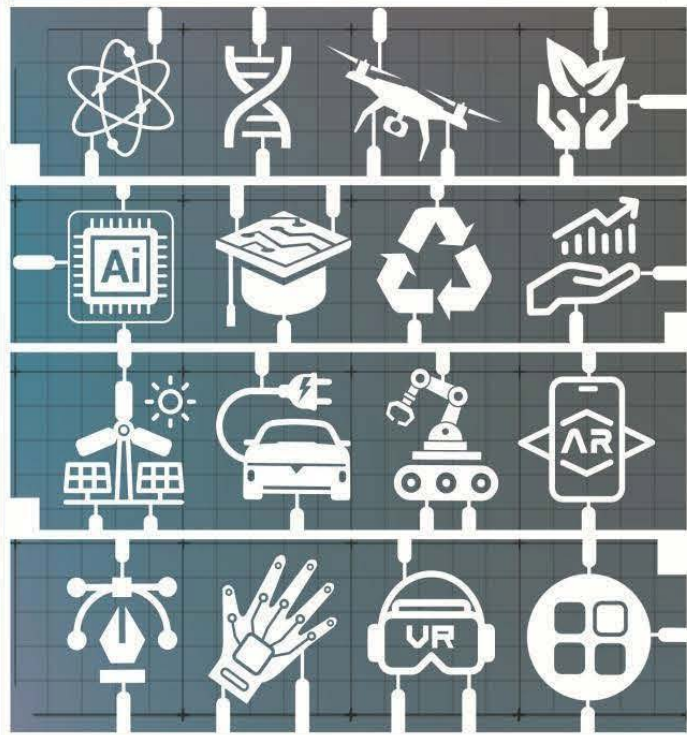
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THE 15TH INTERNATIONAL INVENTION, INNOVATION & DESIGN COMPETITION 2026

E-BOOK OF

EXTENDED ABSTRACT

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THE 15th INTERNATIONAL
INVENTION, INNOVATION &
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Organized by:
Office of Research, Industry,
Community & Alumni Network
UiTM Perak Branch

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Seri Iskandar Perak, Malaysia.

Perpustakaan Negara Malaysia Cataloguing in Publication Data

No e- ISBN 978-967-2776-67-3

Cover Design: Asrul Nizuan Ariffin

Typesetting : Georgia

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SERVESMART: A SMART DECISION-BASED CUSTOMER SERVICE RESPONSE SYSTEM FOR EXPERIENTIAL LEARNING

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ABSTRACT

Customer service education often faces challenges in bridging the gap between theoretical knowledge and practical application, particularly during role-play and simulation-based learning. Students frequently struggle to apply appropriate customer handling strategies in real-time situations involving diverse customer behaviours such as anger, confusion, and impatience. To address this issue, ServeSmart was developed as an adaptive decision-based learning system that supports experiential learning in customer service management education. Grounded in the SERVQUAL model, ServeSmart integrates service quality dimensions—tangibles, reliability, responsiveness, assurance, and empathy—into a structured digital learning environment. The system operates through adaptive branching logic, where users select the type of customer they are dealing with and are subsequently guided to scenario-based response strategies. This enables students to apply theoretical concepts in a practical and interactive manner during role-play activities. The innovation enhances student engagement, improves decision-making skills, and strengthens understanding of customer service principles. It also promotes consistency in service responses while supporting lecturers in delivering more effective experiential learning activities. ServeSmart is a low-cost, scalable solution with strong potential for adoption in higher education institutions and training environments. Overall, it bridges the gap between theory and practice by transforming traditional learning into an interactive, scenario-driven experience.

Keyword: ServeSmart; Customer Service Education; Experiential Learning

1. INTRODUCTION

In today's service-driven environment, customer service representatives are expected to respond effectively to diverse customer behaviours. However, in educational settings, students often face difficulties in translating theoretical knowledge into practical application. To bridge the gap between technical proficiency and professional readiness, the adoption of active learning approaches is essential. Methodologies such as flipped classrooms and experiential learning offer a robust framework for fostering 'power skills'. Case studies within technical disciplines indicate that engaging students in collaborative problem-solving not only reinforces core curriculum but also significantly strengthens their leadership and communicative capabilities.

Active learning is no longer optional; it has become essential in preparing students with the soft skills required by today's workforce. In the Malaysian context, where graduates are expected to be both knowledgeable and industry-ready, active learning plays a crucial role in developing communication skills, teamwork, critical thinking, and adaptability. Employers highly value these competencies, which align with the demands of 21st-century education (Caratozzolo et al., 2021; Otegui, 2025).

In conclusion, shifting from traditional teaching approaches to experiential learning, supported by real-time decision systems, can greatly enhance educational outcomes. This approach not only increases student engagement but also helps them become more adaptable and better equipped with practical skills (Kumar et al., 2024). As a result, students are more prepared to meet real-world challenges and expectations in today's dynamic environment.

2. PROBLEM STATEMENT

Despite structured academic instruction, several challenges continue to persist in customer service education within the Malaysian higher education context.

Firstly, students often face difficulty in applying theoretical concepts in real-time scenarios. When engaging in service simulations, many experience what can be described as “cognitive overload”, especially when trying to recall frameworks such as SERVQUAL while simultaneously managing demanding or irate customers. This situation affects their ability to respond effectively and confidently.

Secondly, there is a lack of guided support during role-play activities. While role-play is commonly used as a teaching strategy, it often lacks a structured feedback loop. As a result, students may unknowingly repeat the same mistakes without receiving timely or constructive guidance to improve their performance.

Lastly, there is an inconsistent understanding of customer handling strategies among students. Existing research indicates that in the absence of standardised digital tools or support systems, service delivery tends to vary significantly. Many students rely heavily on personal intuition rather than applying evidence-based principles, leading to inconsistencies in service quality.

Overall, these challenges highlight the need for more structured, technology-supported, and feedback-driven approaches to enhance the effectiveness of customer service education.

3. OBJECTIVES

This innovation aims to:

- Support students in applying customer service management principles during role-play activities.
- Provide adaptive, real-time guidance based on customer behaviour types.
- Enhance experiential learning and student engagement through digital interactivity.
- Improve consistency and effectiveness in service response training.

4. METHODOLOGY

This innovation is grounded in the SERVQUAL model, which evaluates service quality through five key dimensions: tangibles, reliability, responsiveness, assurance, and empathy (Zeithaml & Parasuraman, 2004). Service quality is widely recognised as a critical factor in shaping customer satisfaction, loyalty, and overall organisational performance across various industries. It is generally defined as the customer's overall evaluation of a service, based on the comparison between their expectations and their actual perceptions of the service delivered. In practice, when the service experience meets or exceeds expectations, customers are more likely to feel satisfied and remain loyal (Kasemsap, 2016; and Rengarajan et al, 2019)

ServeSmart integrates these dimensions into experiential learning by guiding students to apply appropriate service behaviours in real-time. The system enhances responsiveness through immediate decision support, strengthens empathy by encouraging emotional intelligence in responses, and improves reliability and assurance by standardising response strategies. By understanding and addressing the specific dimensions of service quality, businesses can enhance customer satisfaction, loyalty, and overall performance.

5. INNOVATION DEVELOPMENT

ServeSmart is an interactive digital decision-support system using adaptive branching logic. Students identify a customer archetype (e.g., "The Sceptic" or "The Angry Customer"). Based on their selection, the system directs them to a structured guidance page providing communication strategies and behavioural cues. Students receive immediate guidance and automated performance feedback based on their level of empathy and responsiveness. Real-time digital feedback in simulated learning environments significantly improves long-term skill retention and enhances students' confidence compared to conventional delayed evaluation methods

6. NOVELTY

ServeSmart introduces several innovative elements that enhance both teaching and learning in customer service education.

Firstly, it enables dynamic theory application. Unlike traditional textbooks that are often static in nature, ServeSmart requires students to apply SERVQUAL concepts in real-time situations. This approach strengthens their ability to connect theoretical knowledge with practical decision-making.

Secondly, it offers adaptive learning paths. Through the use of logic gates and branching scenarios, the system is able to simulate the unpredictability of real human interactions. As a result, students are exposed to a variety of possible customer behaviours, allowing them to develop more flexible and context-appropriate responses.

Finally, ServeSmart is designed with scalability in mind. It provides a more cost-effective alternative compared to advanced technologies such as virtual reality (VR) simulations. This makes it particularly suitable for higher education institutions with limited financial resources while still maintaining the quality of experiential learning.

7. IMPACT AND BENEFITS

The implementation of ServeSmart offers several meaningful contributions to both student learning and teaching practices.

Firstly, it improves students' understanding of service principles through a "learning by doing" approach. By actively engaging in simulated scenarios, students are able to internalise theoretical concepts more effectively compared to passive learning methods.

Secondly, it enhances student confidence in handling customer interactions. Evidence from prior studies suggests that simulated environments help to reduce performance anxiety, allowing students to practise and refine their responses in a safe and controlled setting before facing real-world situations.

Finally, ServeSmart strengthens teaching effectiveness by providing lecturers with a more structured and standardised tool for facilitating role-play activities. This not only ensures consistency in delivery and assessment but also supports more guided and meaningful feedback during the learning process.

8. CONCLUSION

ServeSmart effectively bridges the gap between theory and practice. By integrating SERVQUAL theory with scenario-based logic, it transforms customer service training from a passive lecture into an active, decision-driven experience, preparing students for the complexities of the 2026 service landscape.

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COMPETITION 2026

eISBN 978-967-2776-67-3



Date of Publication: 13 July 2026

UNIT PENERBITAN UITM PERAK

(online)