Research

ChM. Dr. Wan Norfazilah's LabQuest: Enhancing students' understanding of laboratory quality management

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PEKAN, 14 October 2024 – A lecturer at the Faculty of Industrial Science and Technology (FSTI), Universiti Malaysia Pahang Al-Sultan Abdullah (UMPSA), ChM. Dr. Wan Norfazilah Wan Ismail, 36, has developed a board game called LabQuest to address students' difficulties in understanding the concept of laboratory quality management through lectures and theoretical learning.

LabQuest is specifically designed to enhance students' understanding of laboratory quality management based on the ISO 9001:2015 and ISO/IEC 17025:2017 standards.

According to her, this research evaluates the effectiveness of using board games as a learning medium compared to traditional teaching methods.

"Through the combination of game-based learning theory and gamification elements, this game provides an interactive and enjoyable learning experience.

"This research was conducted to find a more effective and engaging alternative method through a game-based learning approach," she said.

The research, which began at the end of 2023 and was fully completed in August 2024, was also supported by FSTI lecturers Dr. Shariza Jamek and Dr. Siti Umairah Mokhtar, as well as Centre for Modern Languages (PBM) language teacher Mohd Shafeirul Zaman Abd Majid.



She added that LabQuest simulates real laboratory quality management scenarios.

"Players need to purchase a laboratory sector, recruit personnel, provide training, buy equipment, and carry out calibration, all in line with ISO standards.

"Reward and non-conformity cards are included to simulate the challenges and rewards inherent in

laboratory management, while player results are evaluated based on compliance with the relevant ISO requirements.

"The ultimate aim of LabQuest is to serve as a learning tool that can help students and industry professionals gain a deeper understanding of laboratory quality management concepts.

"It addresses the issue of limited understanding of ISO standards among students and laboratory workers through a more practical and accessible learning approach," she said.

The research was funded by the UMPSA Teaching and Learning Grant under the Centre for Academic Innovation and Competitiveness (CAIC) and is currently under discussion with the UMPSA Innovation and Commercial Management Centre for a Lab2Market grant application to support product marketing.

According to ChM. Dr. Wan Norfazilah, LabQuest is currently at Technology Readiness Level 6 with the copyright number LY2024C05116.

"Our hope is for LabQuest to be marketed and widely used in educational institutions, training centres, and laboratories across the country.

"We also plan to collaborate with industry to adapt this game for professional use, making it an effective training tool for enhancing ISO compliance understanding among laboratory workers.

"Several agencies, including UCYP University, MARA Poly-Tech College, and MARA College of Higher Skills, have invited us for product information sessions, while Sirim Academy Sdn. Bhd. is evaluating this product for validation purposes," she said.

She noted that in the future, LabQuest is intended to be developed in digital format to enhance accessibility and flexibility.

"In addition, game variations can also be created for other related sectors, such as laboratory safety and risk management," she said.

Previously, the research team had developed several other educational and training products, including mobile applications for self-learning, online Massive Open Online Courses (MOOCs), and training modules for lecturers to integrate gamification into teaching and learning (T&L).

At the Invention, Innovation and Entrepreneurship Idea Exhibition (IIEE) at Kolej Poly-Tech MARA, Kuantan on 15 August 2024, LabQuest won a gold medal and the Best Category Award.

Meanwhile, on the international stage, at The International Learning Innovation Competition (PIP2024) at Universiti Utara Malaysia (UUM) from 7 to 9 October 2024, LabQuest secured a gold medal and the Best of Best Award.

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