International Journal for Multidisciplinary Research (IJFMR)
E-ISSN: 2582-2160 ● Website: www.ijfmr.com ● Email: editor@ijfmr.com

Development and Acceptability of Web-based Module in Cookery

Jonna Mai T. Iniego

Graduate Student in MAED-TVLE Home Technology Education, Mindanao State University-Iligan Institute of Technology, Philippines

Abstract

This study delves into the development and acceptance of a web-based cookery module, aiming to enhance culinary education, particularly in the face of challenges such as the pandemic. These modules offer promising avenues for effective learning experiences and the promotion of self-regulated learning among students. Employing a mixed-method approach utilizing the Input-Process-Output design model, the study involves the validation of the developed module by eight expert practitioners in cookery. Subsequently, its acceptability will be assessed among Senior High School (SHS) Technical-Vocational-Livelihood (TVL) students enrolled in cookery subjects during the academic year 2023-2024. Evaluation of the module by teacher experts utilizes a four-point rating scale, drawing from the Guidelines and Processes for Learning Resource Management and Development System (LRMDS) Assessment & Evaluation – Evaluation Rating Sheet for Non-Print Materials (DepEd, 2009), focusing on content quality, instructional quality, technical quality, and other pertinent factors. Similarly, student feedback is gathered through a five-point scale adapted from Venkatesh et al. (2003) and modified by Namoco, S. (2021) to align with the Unified Theory of Acceptance and Use of Technology (UTAUT) model, offering both rating scale responses and descriptive interpretations. Both teacher experts and student users are purposefully selected for their insights. Initial findings from the expert evaluation indicate a high recommendation for implementing the web-based module in cookery education. However, ongoing data collection and analysis are underway to gauge student-user acceptability comprehensively. This study underscores the significance of well-designed interactive learning modules in fostering self-regulated learning and enhancing student performance in cookery subjects, notwithstanding the challenges posed by the pandemic and economic constraints.

Keywords: Web-based module Cookery Education, Technical-Vocational-Livelihood (TVL), LRMDS Assessment & Evaluation, Unified Theory of Acceptance and Use of Technology (UTAUT)

Introduction

Industry 4.0, also known as the fourth industrial revolution, signifies a significant change in manufacturing and industry. It involves the incorporation of digital technologies, automation, and data exchange. It covers a variety of cutting-edge technologies like the Internet of Things (IoT), artificial intelligence, robotics, and cloud computing (Abdelmajied, 2022).

Fully embracing the concept of Industry 4.0 in culinary education necessitates a combination of technological advancements and a cultural shift towards embracing and incorporating digital tools. The effectiveness of the web-based module relies on elements like intuitive interfaces, captivating content, and

the perceived worth of digital education in the culinary realm. This study aims to revamp instructional materials in response to the changing educational landscape endeavors focusing on the development of new instruments or a collection of learning materials. These materials should be designed to supplement teaching methodologies across various cookery disciplines and cater to different grade levels. Therefore, this study aims to explore the development of a web-based cookery to bolster teaching styles in a new normal education.

The initial phase of this study involves conducting a comprehensive literature review, which constitutes 60% of the initial results. The literature review serves as a crucial method for gathering data and contextualizing the research topic within the broader academic discourse of Web-based module in cookery education. By examining existing knowledge, theories, and findings related to web-based module in cookery, the review provides valuable insights into current practices, trends, and challenges faced by cookery experts and students.

Through the validation of the instrument by experts in cookery highly recommended the material to be implemented to the students-user in cookery subject. The use of LRMDS Assessment & Evaluation – Evaluation Rating Sheet for Non-Print Materials in evaluating content quality, instructional, technical quality and other finds shows the effectiveness of the material to be used as teaching material.

Furthermore, results in validation show it is highly recommended to be used as learning material in teaching cookery. With this researcher will pilot test the student-user after the improvement of material based on the expert's comments and suggestions.

Methodology

Sixty percent of the initial results of this study "Development and Acceptability of Web-based Module in Cookery" used the quantitative and qualitative methods will be used to address the research objectives regarding the quality elements of the web-based instructional module. Quantitative ratings will be provided to the teacher-expert user, who will evaluate specific indicators including content quality, instructional quality, technical quality, and other findings. At the same time, the researcher will gather qualitative insights by asking open-ended questions to capture detailed viewpoints on the challenges and comments/suggestions of the quality elements.

The student-user will use quantitative methods using the UTAUT model. A qualitative method will be used asking the unstructured open-ended question regarding its feedback on the Web-based module in cookery.

The participants in this study will consist of 8 experts in cookery and senior high school students attending 3 public schools located in Iligan City taking senior high school TVL Cookery. The participants are from Iligan City East National High School – Sta. Filomena, Iligan City National High School, and Iligan City National School of Fisheries.

Site Development Process

In the creation of the web application, agile methodology is used to develop the Moodle web application. This outlines the systematic approach taken by the development team to design, deploy, and optimize the learning management system (LMS) using Moodle as the foundation.

Surveying Suitable Environment for Learning Management Systems:

The development process commenced with an extensive survey of available learning management systems

systems. Various options were considered based on factors such as scalability, efficiency, and ease of deployment within time constraints. According to Smith et al. (2020), Moodle emerged as one of the optimized and efficient learning platforms suitable for deployment within the project's timeframe.

Selection and Deployment of Moodle LMS:

After careful evaluation, Moodle was selected as the primary platform for the web application. Moodle was deployed on a server provided by Cloud Clusters, chosen for its scalability and support for the latest version of Moodle. The platform was assigned an IP address (http://34.97.120.232/) to ensure easy accessibility.

Configuration of Moodle Platform:

Configuration of the Moodle platform involved several crucial steps:

- Renaming the site to reflect its purpose and identity within the project.
- Installing and configuring modules essential for content creation, editing, and management.
- Uploading and organizing content resources according to predefined categories as instructed by the project leader.
- Revision and refinement of content after coordination with the project leader to ensure alignment with project objectives.

Polishing and updating the Site:

The site underwent rigorous testing to ensure the proper functioning of each module and the overall coherence of the platform. Manual testing was conducted to identify and address any potential issues or inconsistencies. Upload care CDN (Content Delivery Network) was utilized for hosting images, while YouTube served as a platform for hosting video resources. Text resources were stored in a built-in database on the Cloud Clusters server, ensuring efficient retrieval and management. File upload and download functionalities were hosted on the same server, ensuring seamless integration with the platform.

Further Optimization and Revision:

Upon completion of the initial deployment and testing phase, further optimization and revision are anticipated. This includes fine-tuning the Moodle platform, optimizing server configurations on Cloud Clusters, and revising content resources based on feedback and validation.

In summary, the methodology followed a structured agile methodology approach, beginning with platform selection, deployment, and configuration, followed by rigorous testing and refinement. The utilization of Moodle, coupled with Cloud Clusters' robust infrastructure, ensures the scalability, efficiency, and effectiveness of the web application as a learning management system.

Results

3.1 Table 1: Experts' Rating on Content Quality

Factor A. Content Quality	WM	DR
1. Content is consistent with topics/skills found in the DepED Learning Competencies for the subject and grade/year level it was intended.	3.75	VS
2. Concepts developed contribute to enrichment, reinforcement, or mastery of the identified learning objectives.	3.75	VS

3. Content is accurate.	3.75	VS
4. Content is up-to-date.	3.71	VS
5. Content is logically developed and organized.	3.50	VS
6. Content is free from cultural, gender, racial, or ethnic bias.	3.63	VS
7. Content stimulates and promotes critical thinking.	3.63	VS
8. Content is relevant to real-life situations.	3.88	VS
9. Language (including vocabulary) is appropriate to the target user level.	3.75	VS
10. Content promotes positive values that support formative growth.	3.75	VS
Overall Weighted Mean	3.71	VS

3.2 Table 2: Experts' Rating on Instructional Quality

Factor B. Instructional Quality	**WM**	**DR**
1. Purpose of the material is well defined.	3.88	VS
2. Material achieves its defined purpose.	3.88	VS
3. Learning objectives are clearly stated and measurable.	3.75	VS
4. Level of difficulty is appropriate for the intended target user.	3.88	VS
5. Graphics / colors / sounds are used for appropriate instructional reasons.	3.88	VS
6. Material is enjoyable, stimulating, challenging, and engaging.	3.75	VS
7. Material effectively stimulates creativity of target user.	3.75	VS
8. Feedback on target user's responses is effectively employed.	3.63	VS
9. Target user can control the rate and sequence of presentation and review.	3.63	VS
10. Instruction is integrated with target user's previous experience.	3.63	VS
Overall Weighted Mean	3.78	VS

3.3 Table 3: Experts' Rating on Technical Quality

Factor C. Technical Quality	**WM**	**DR**
1. Audio enhances understanding of the concept.	3.75	VS
2. Speech and narration (correct pacing, intonation, and pronunciation) is clear and can be easily understood.	3.75	VS
3. There is complete synchronization of audio with the visuals, if any.	3.75	VS
4. Music and sound effects are appropriate and effective for instructional purposes.	3.88	VS
5. Screen displays (text) are uncluttered, easy to read, and aesthetically pleasing.	3.75	VS
6. Visual presentations (non-text) are clear and easy to interpret.	3.75	VS
7. Visuals sustain interest and do not distract user's attention.	3.63	VS
8. Visuals provide accurate representation of the concept discussed.	3.63	VS
9. The user support materials (if any) are effective.	3.63	VS
10. The design allows the target user to navigate freely through the material.	3.63	VS
11. The material can easily and independently be used.	3.63	VS
12. The material will run using minimum system requirements.	3.63	VS
13. The program is free from technical problems.	3.75	VS
Overall Weighted Mean	3.70	VS

3.4 Table 4: Experts' Rating of Other Findings

Factor D. Other Findings	**WM**	**DR**
1. Conceptual errors.	3.75	VS
2. Factual errors.	3.75	VS
3. Grammatical and/or typographical errors.	3.63	VS
4. Other errors (i.e., computational errors, obsolete information, errors in the visuals, etc.).	3.75	VS
Overall Weighted Mean	3.72	VS

4. Discussion

The developed web-based module in cookery based on the validation of experts using for LRMDS Assessment & Evaluation – Evaluation Rating Sheet for Non-Print Materials (DepEd, 2009) showed that the instruments were highly recommended as learning material for the cookery students. As indicated by the weighted mean as rated very satisfactory, the researcher believed that using a web-based module can help improve the learning outcomes and engagement of the material. With the given points necessary for the improvement of the developed web-based module in cookery factors A, B, C, and D show a passing rate for its implementation to the student.

The development and acceptability of a web-based module in cookery represent a significant advancement in culinary education, particularly in the context of modern digital learning environments. The utilization of technology in culinary education has the potential to enhance the learning experience for students, offering interactive and engaging platforms for instruction.

The validation of the web-based module by experts using the LRMDS Assessment & Evaluation – Evaluation Rating Sheet for Non-Print Materials (DepEd, 2009) underscores its suitability as a learning resource for cookery students. The high recommendation from experts, as indicated by the weighted mean rated as very satisfactory, indicates that the module effectively meets the criteria for quality educational material.

The researcher's belief in the potential of the web-based module to improve learning outcomes and engagement among students is supported by this validation. By leveraging technology, students can access dynamic and multimedia-rich content, which may enhance their understanding of culinary concepts and techniques. Additionally, interactive features such as quizzes, videos, and virtual simulations can foster active learning and retention.

The identified points for improvement in factors A, B, C, and D demonstrate a commitment to refining and enhancing the web-based module to ensure its effectiveness in student learning. Continuous evaluation and iterative refinement are essential processes in the development of educational materials, ensuring that they remain relevant and impactful in meeting the needs of learners.

Overall, the development and acceptance of the web-based module in cookery represent a positive step forward in culinary education, harnessing the potential of technology to create engaging and effective learning experiences for students. With ongoing refinement and improvement, the module has the potential to make a significant contribution to the education and training of future culinary professionals.

Conclusions and Recommendations

The results support the validation of the web-based module in cookery on the experts-user. Hence, the researcher will further pilot test the material on its acceptability of the web-based module cookery using

the UTAUT model. Therefore, before implementation researcher and developer will continue improving the material based on the expert's comments and suggestions. The web-based module will have an impact on the learning progress of the student if this will be used as teaching material for it can provide effective learning experiences and contribute to self-regulated learning for students.

The findings from the expert validation of the web-based cookery module provide strong support for its suitability and effectiveness. As a next step, the researcher plans to conduct a pilot test of the module's acceptability among users using the Unified Theory of Acceptance and Use of Technology (UTAUT) model. This approach will help gauge how well the module aligns with user preferences and expectations, informing further refinements before full implementation.

Continued collaboration between researchers and developers will be crucial in incorporating feedback from experts and users alike to enhance the module's quality and usability. By iteratively improving the material based on insights gathered during the validation process, the web-based module can better meet the diverse needs of learners and educators in the field of cookery.

It is anticipated that the web-based module will have a positive impact on student learning progress. By offering engaging and interactive learning experiences, the module has the potential to foster self-regulated learning among students. Through active participation and access to diverse resources, students can take ownership of their learning journey and develop essential culinary skills and knowledge.

References

1. Abella, J., De Gracia, J., & Paculanang, M. R. (2023). The Role of Industry Partnerships in Enhancing Technology and Livelihood Education: A Qualitative Inquiry. *Excellencia: International Multi-disciplinary Journal of Education (2994-9521)*, *1*(2), 1-10.
2. Açıkgöz, T., & Babadoğan, M.C. (2021). Competency-Based Education: Theory and Practice. *Psycho-Educational Research Reviews*, 10(3).
3. Bawar, M. (2019). Assessment of TLE (Home Economics) and Instructional Facilities as Correlates to Academic Achievement at Tagaytay City Science National High School: Basis for Proposed Development Plan. *Ascendens Asia Journal of Multidisciplinary Research*, 3(2C).
4. Chua, R., & Tan, L. (2019). Student Engagement and TESDA Compliance in TVL Home Economics Programs. *Journal of Vocational Education Research*, 15(7), 89-102.
5. Dumaua-Cabauatan, M., Calizo, S. C., Quimba, F. M. A., & Pacio, L. C. (August 2018). E-Education in the Philippines: The Case of Technical Education and Skills Development Authority Online Program. PIDS Discussion Paper Series.
6. Febro, J., Catindig, M., & Caparida, L. (2020). Development of e-learning module for ICT skills of marginalized women and girls for ICT4D. *International Journal of Emerging Technologies in Learning (iJET)*, *15*(16), 94-105.
7. Marasigan, N. (2019). Development and Validation of a Self-Instructional Material on Selected Topics in Analytic Geometry Integrating Electronic Concepts. *International Journal of Recent Innovations in Academic Research*, 3(5): 129-141.
8. Morris, P. (2008). A history of Home Economics from the late nineteenth century to the present. In Handbook of Home Economics Education (pp. 7-36). Routledge.
9. Nabuya, R., Demerey, R., Villarmia, R., Navarez, J., Cupat, N. C., Pineda, D., Sumulong, K., & Yumang, S. (March 2019). Students' Experiences on Technical Vocational and Livelihood Program Assessment in Senior High School. Correspondence should be addressed to Roziel Nabuya, Team

Leader, University of Immaculate Conception, Annex Campus, Bonifacio St., Davao City 8000, Davao del Sur, Philippines. Contact information: (082) 227 1573, (082) 227 3794.

10. Namoco, S. (2021). Determinants in the use of Web 2.0 tools in teaching among the Philippine public university educators: A PLS-SEM analysis of UTAUT. Asia Pacific Journal of Educators and Education, 36(2), 77-98.
11. Philippine Department of Education. (n.d.). Senior High School. [Online]. Available at: https://www.deped.gov.ph/k-to-12/curriculum-guides [Accessed September 23, 2023].
12. Science Web-Module Integrated with Tannery Waste as Local Potential to Improve Students' Problem Solving. Biosaintifika: *Journal of Biology & Biology Education*, 12. https://doi.org/10.15294/BIOSAINTIFIKA.V12I3.24356.
13. Smith, J., & Johnson, A. (2018). Enhancing TVL Home Economics Instruction: A Case Study Approach. *Journal of Vocational Education and Training*, 2(5), 45-58.
14. Technical Education and Skills Development Authority (TESDA). (2021). TESDA Online Program. [Online]. Available at: https://www.tesda.gov.ph/Programs/ [Accessed September 23, 2023].
15. Technical Education and Skills Development Authority (TESDA). (2021). About TESDA. [Online]. Available at: https://www.tesda.gov.ph/About/TESDA [Accessed September 23, 2023].
16. Technical Education and Skills Development Authority (TESDA). (n.d.). Training Regulations (TR). [Online]. Available at: https://www.tesda.gov.ph/Programs/ [Accessed September 23, 2023].
17. Technical Education and Skills Development Authority (TESDA). (n.d.). National Certificate. [Online]. Available at: https://www.tesda.gov.ph/Programs/ [Accessed September 23, 2023].
18. TESDA. (2023). National TESD Research Agenda. Retrieved from https://www.tesda.gov.ph/about/tesda/48
19. Torres, A., et al. (2016). Integrating Technology in Home Economics Instruction: A Comparative Analysis. *International Journal of Education and Technology*, 8(2), 67-79.
20. Zahroh, N. (2020). Web-based thematic module in social studies to improving student digital literation skills. Harmoni Sosial: *Jurnal Pendidikan IPS*, 7, 78-84. https://doi.org/10.21831/hsjpi.v7i1.28250.
21. Villacorta, Franc & Arnado, Alvic. (2023). Competencies, Instructional Skills, and Challenges of Teachers in Implementing the Technical-Vocational and Livelihood Senior High School Track. International Journal of Membrane Science and Technology. 10. 653-678. 10.15379/ijmst.v10i2.1304.