"WEB-BASED ON-THE-JOB TRAINING MANAGEMENT SYSTEM (WOMS) "

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ABSTRACT: *This study aimed to develop and evaluate a Web-Based On-the-Job Training Management System (WOMS) for North Eastern Mindanao State University (NEMSU) Cantilan Campus. The system was designed to streamline and digitize the manual OJT processes, including student registration, document submission, monitoring, and evaluation. A developmental research design was employed using the Rapid Application Development (RAD) model, integrating both quantitative and qualitative data collection methods such as interviews, surveys, pilot testing, and document analysis. Evaluation was guided by ISO/IEC 25010 quality attributes and the System Usability Scale (SUS).*

Findings revealed high user satisfaction across key quality attributes: functional suitability (4.35), usability (4.38), security (4.40), and an SUS score of 82, indicating excellent usability. Thematic analysis of qualitative feedback highlighted four main benefits: improved access and document management, enhanced communication, increased professionalism, and suggestions for future enhancements. The results support the effectiveness of WOMS in addressing previously identified inefficiencies in the OJT process.

The study concludes that WOMS is a functional, secure, and user-friendly solution that significantly enhances OJT management. It is recommended that future development focus on broader deployment, integration of additional features like calendar notifications, and continued usability testing across departments to further refine the system's effectiveness and scalability.

Keywords: Web-Based System, Internship Management, On-the-Job Training, RAD Model, ISO/IEC 25010, SUS, Higher Education

INTRODUCTION

OJT serves as a vital bridge that prepares students for the demands of their chosen careers and ensures that graduates meet industry standards [1]. Its effectiveness, however, relies on efficient management and coordination among students, the university, and partner employers. Addressing persistent issues such as paperwork overload, weak monitoring, and communication gaps is therefore essential [2]. This study recognizes the importance of OJT in producing job-ready graduates and aims to improve the internship management system to maximize benefits for all stakeholders.

Previous studies have demonstrated the value of web-based internship systems. Kartikasari [3] developed a website-based system in East Java that improved registration, tracking, and document submission, reducing faculty workload and increasing data accuracy. Abdullah [4] implemented a system at Universiti Teknologi MARA that enhanced coordination among students, coordinators, and employers, leading to better engagement and monitoring. Panthong [5] showed that web-based platforms improve communication and student-company matching, while Hasti [6] emphasized better data organization and fewer manual errors. Del Rosario [7] found that architecture-driven systems streamline internship time tracking. Recent studies further highlight cloud-based and multi-role platforms that enhance accessibility, monitoring, and communication in internship programs [8].

Despite these advancements, many institutions—especially in rural or developing areas—continue to face challenges. At NEMSU Cantilan, the absence of a centralized digital system results in fragmented processes, unstructured communication, and limited real-time employer feedback. Logistical issues such as travel costs, time constraints, and unreliable internet further hinder effective management, affecting training quality and alignment with labour market needs [11-13].

To address these issues, this study proposes the development of a lightweight, user-friendly, and accessible Web-Based OJT Management System (WOMS) for NEMSU Cantilan. The system supports online applications, digital submissions, and feedback from coordinators and employers. It allows progress monitoring, performance evaluation, and report generation while functioning efficiently even with low bandwidth. Implementing WOMS is expected to streamline OJT management, strengthen industry collaboration, and enhance graduate readiness for the workforce [14, 15].

MATERIAL AND METHODS

Research Design

This study employs a developmental research design with mixed methods to design, develop, and evaluate the Web-Based On-the-Job Training Management System (WOMS) for NEMSU Cantilan, following developmental system-design approaches used in internship platforms such as Jaafar [16]. Using the Rapid Application Development (RAD) methodology, the system was developed iteratively with user-centered feedback, while the mixed methods approach provided comprehensive insights into system functionality, usability, and user satisfaction.

WOMS is a cloud-based, user-centered platform designed to streamline OJT management and monitoring, aligned with cloud-based internship practices [6, 17]. Accessible via any web-enabled device, it functions effectively even in low-bandwidth areas and supports multiple user roles, including coordinator and administrator dashboards, trainee interfaces, and secure employer access—similar to multi-role architectures in previous systems [7, 18]. Trainees can upload reports and receive feedback in real time; coordinators can monitor progress, review submissions, schedule evaluations, and generate reports; and employers can evaluate trainees and provide structured feedback. The system integrates standardized backups, data security protocols, and a modular architecture that allows future integration with LMS, mobile applications, analytics dashboards, and institution-specific workflows.

The development followed a structured six-phase RAD process. Requirements Planning involved reviewing OJT workflows and interviewing stakeholders to determine

essential features, consistent with needs-assessment procedures in Subiyakto [19]. In the User Design phase, wireframes and database structures were developed and refined. Rapid Construction centered on iterative module development guided by ISO 25010 standards. Testing included alpha and pilot trials using the System Usability Scale (SUS) and ISO tools. Implementation involved deploying WOMS at NEMSU, training users, and monitoring initial operations. The Evaluation phase analyzed feedback and performance results to confirm system effectiveness and finalize documentation. This methodology ensured that WOMS is functional, secure, user-friendly, and scalable, effectively addressing inefficiencies in manual OJT processes and enhancing collaboration among stakeholders.

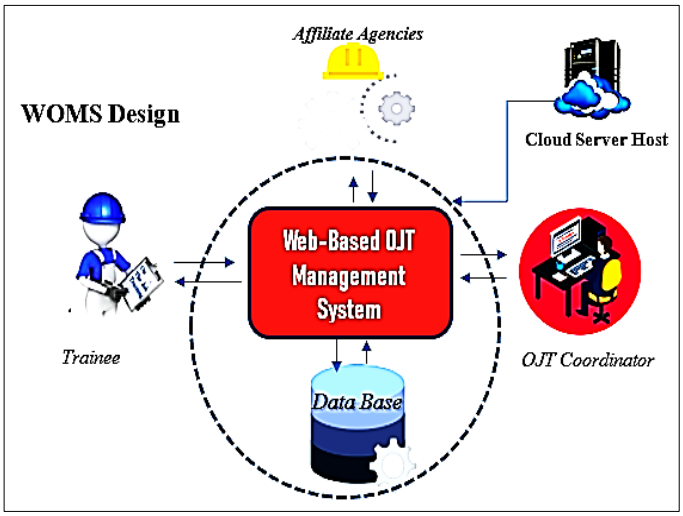

Figure 1: WOMS Design

Participants

The study involved selected stakeholders from NEMSU Cantilan Campus who are directly engaged in the OJT program. Using purposive sampling, participants were grouped into three categories: 30 fourth-year student interns, 10 OJT coordinators from various departments, and 5 representatives from partner agencies and government offices. This composition ensured that the views of all key stakeholders were included for a comprehensive evaluation and system development.

Data Collection Methods

The study used a mixed-methods approach to support the development of WOMS through the RAD model. Document analysis of existing OJT forms, policies, and partner agreements identified essential system requirements. Semi-structured interviews with students, coordinators, and partner agencies captured user needs and validated features. Quantitative data were collected through structured questionnaires, including the System Usability Scale (SUS) and Likert-scale items, to assess usability, functionality, and satisfaction. Observations during pilot testing, supported by system logs, provided real-time insights into user interactions. The pilot implementation enabled end-to-end testing, with feedback used to refine the system before full deployment.

Data Analysis

The study used qualitative and quantitative analysis to evaluate the development, usability, and effectiveness of WOMS. Qualitative data from interviews were thematically analyzed to identify user needs, recurring challenges, and suggestions that informed system design. Quantitative data from surveys and usability questionnaires were examined using descriptive statistics—mean, frequency, and standard deviation—to measure satisfaction, functionality, and interface usability. System Usability Scale (SUS) scores assessed overall usability, while observational notes and system logs provided contextual insights during pilot testing. These analyses guided iterative refinement and confirmed system effectiveness before full deployment.

Timeline

The study was conducted over twelve months, with qualitative data gathering beginning in Month 1 and quantitative assessments concentrated between Months 8 and 11. System testing and iterative refinements occurred from Months 6 to 9, following the RAD model.

RESULTS AND DISCUSSIONS

WOMS was evaluated using ISO/IEC 25010 software quality metrics and the SUS to measure functionality, usability, reliability, security, and overall satisfaction. Quantitative findings showed high mean scores across ISO criteria: functional suitability (4.35), usability (4.38), security (4.40), performance efficiency (4.20), reliability (4.22), maintainability (4.10), and portability (4.25), with an overall mean of 4.26 (“Very Good”). The SUS score of 82 indicated “Excellent” usability, confirming that WOMS is user-friendly even for users with minimal technical skills [3]. These results align with studies demonstrating the effectiveness of digital internship systems in streamlining manual processes [4, 5].

Qualitative feedback from open-ended responses generated four key themes. First, users highlighted streamlined access and document management, noting reduced travel and centralized storage, consistent with findings from Sri Jayewardenepura [10]. Second, improved communication was emphasized, as timely digital updates removed the need for physical follow-ups, supporting Mydyti’s research on centralized digital communication [9]. Third, users suggested enhancements such as calendar views, deadline notifications, and expanded feedback options to further improve usability. Lastly, users reported increased professionalism and confidence, citing automated updates, structured workflows, and formal interfaces as contributing factors—echoing themes noted in Mydyti’s study [9].

Table 1

Scale	Mean Score (Out of 5)	Interpretation
Functional Suitability	4.35	Very Good
Performance Efficiency	4.20	Good
Usability	4.38	Very Good
Reliability	4.22	Good
Security	4.40	Very Good
Maintainability	4.10	Good
Portability	4.25	Good
Average ISO Score	**4.26**	**Very Good**
SUS Score (0-100)	**82**	**Excellent (Usability)**

ISO/IEC 25010 and SUS Evaluation Results of WOMS

Overall, the results show that WOMS effectively addresses the inefficiencies of the manual OJT process at NEMSU Cantilan. The high ISO 25010 and SUS scores confirm its quality, usability, and alignment with the study's objectives, consistent with similar RAD-based systems reported by Del Rosario [7]. Although limited to a pilot group, the findings indicate strong potential for broader adoption, with recommended enhancements such as calendar integration, automated alerts, and expanded employer engagement. In sum, WOMS demonstrates strong functionality, high user satisfaction, and effective design, validating its role in modernizing internship management and supporting the use of web-based academic training systems.

IV. CONCLUSION

This study successfully developed WOMS for NEMSU Cantilan to address inefficiencies in the manual OJT process, including performance tracking, document management, and communication with partner agencies. Evaluation using ISO/IEC 25010 and the SUS yielded high results—an average score of 4.26 ("Very Good") and a SUS score of 82 ("Excellent")—confirming strong performance, reliability, and usability. Students, coordinators, and partner employers reported that WOMS streamlined registration, submissions, reporting, and communication, reducing face-to-face transactions and saving time. Qualitative feedback emphasized convenience, professionalism, and improved monitoring.

Recommendations include campus-wide implementation, added features such as deadline reminders, calendar integration, and mobile access, integration with existing university systems, regular user training, and further studies on its impact on student performance, employability, and expansion to other campuses. Overall, WOMS is a valuable digital tool that enhances the university's internship program, with continued development expected to strengthen its benefits for the academic community [14, 15].

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