Optimizing SEAIT's Academic Administration: A User-Focused Digital Solution for Improving Student Enrollment Processes and Records Management

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Abstract: At a time when institutions continue to rely on antiquated, manual systems that are not subject to the safeguards and opportunities of digital systems, there is no more fundamental part of every student's educational journey than the enrolling process. "Optimizing SEAIT's Academic Administration: A Human-Centered Digital Solution to Enhance Student Enrollment Systems and Records Management" is a research that examined a case study to digitize and streamline the enrollment system at the South East Asian Institute of Technology (SEAIT). The project sought to understand existing process problems with enrollment such as prolonged waits, disorganized records storage, and lengthy manual processes such as filling out forms by hand, so that a human-centered digital enrollment system could be developed and recommended. The design is based on human-centered design principles to deliver an intuitive user experience for new students and administrative staff. The research focused on usability, accessibility, and responsiveness based on human computer interaction (HCI) principles yet wanted to facilitate the speed of the processes to significantly reduce processing time and errors, and provide a clear and smoother process of enrollment, to help SEAIT facilitate digital transformation in its practices.

***Keywords:** Enrollment, System, Efficiency, Process.*

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I. INTRODUCTION

A. Background and Context

Technology is being adopted by colleges and universities worldwide to improve enrollment and student data systems. SEAIT is keeping up with this by utilizing user-centric design, which is essential to Human-Computer Interaction (HCI), to try to make its administrative duties more efficient. Although cloud-based systems are scalable, safe, and offer real-time updates, their effectiveness depends on how well they meet the needs of users in terms of accessibility, responsiveness, and usability.

Even with advances in technology, many organizations, including SEAIT, continue to use antiquated or partially digital systems, which lead to delays and inefficiencies. Problems including sluggish systems, restricted access, and poor accessibility continue to exist, particularly in departments with few resources. These flaws lead to delays in student services and administrative backlogs, underscoring the necessity for scalable, contemporary digital platforms.

A way of improving SEAIT student admissions and record-keeping, the research aims to create a personalized, user-focused digital platform. Increasing data integrity, decreasing delays, and improving accessibility are the objectives. In order to facilitate SEAIT's transition to digitalization and conformity with international educational standards, the system will prioritize efficiency and usability for both staff and students by putting HCI concepts into practice.

B. Research Problem

In spite of the growing use of electronic platforms for student registration and record-keeping, a lot of students in SEAIT continue to suffer from delays, inefficiencies, and inaccessibility during the enrollment process. The present system itself poses several challenges like delayed processing times, difficult navigation, and absence of real-time updates, which cause problems in a smooth enrollment process. This research seeks to improve SEAIT's online registration and records management system through human-centered design principles to make it efficient, user-friendly, and accessible to both students and administrators.

C. Research Questions and Objectives

- How effective is the SEAIT Online Enrollment and Records Management System in improving efficiency and accessibility for students and administrators?
- What are the most common technical issues encountered by students and staff during the enrollment process?
- How does the transition to a fully digital platform impact the accuracy and security of student records?
- What is the user satisfaction levels regarding the system's usability, reliability, and responsiveness?
- How can a human-centered design approach further enhance the effectiveness of the system?

➢ *Objectives*

- To be able to evaluate the effectiveness of the SEAIT Online Enrollment and Records Management System in enhancing operational efficiency and accessibility for both students and administrative personnel.
- To be able to identify and analyze the most common technical issues experienced by users during the enrollment and records management process.
- To be able to assess the impact of transitioning to a fully digital platform on the accuracy, reliability, and security of student academic records.
- To be able to measure user satisfaction levels regarding the system's usability, reliability, and responsiveness through feedback from students and administrative staff.

D. Justification and Significance

Reducing these barriers to admission and academic records is the aim of the Digital Solution for Improving Student Enrollment Processes and Records Management, which aims to provide a safe, automated, and user-friendly platform. Accelerated enrollment, reducing human computation errors, and improving accessibility are also prioritized. Along with improving data quality and reducing administrative effort, it also seeks to automate instructor grade review. The research keeps advancing the creation of technology-based learning solutions and will be a constant source of inspiration for future studies.

II. LITERATURE REVIEW

A. Readiness on Information System Management: Its Relationship on Records Management in Schools

According to Espero, M. (2024), which examined the relationship between records management practices and institutional preparedness for information system administration in public secondary schools. The study tackled certain questions about institutional preparedness, including personnel, technology, and administrative assistance. It also established record management in terms of data banking, data management, data control, and data collecting and retrieval.

The study comes to the conclusion that the efficacy of records management procedures in public secondary schools is strongly influenced by institutional readiness. The study emphasizes that key elements for the effective deployment and long-term viability of information systems include sufficient human resources, dependable technology infrastructure, and robust management support. The report also emphasizes the strong correlation between an institution's readiness to embrace and handle digital technologies and its ability to manage records effectively, including data banking, data management, data control, and data collecting and retrieval. Therefore, improving the overall effectiveness, precision, and dependability of school records systems requires increasing institutional readiness in these crucial areas.

B. Evaluation and Improvement of the Higher Education Institution's Enrollment Information System

According to Tan, E. (2024), The enrollment process is an essential part of academic institutions, directly affecting student comfort and academic success. This study investigates the Higher Education Institution in Southern Philippines enrollment process and system and made recommendations on how to improve efficiency and effectiveness. The study resulted in many important recommendations about the Higher Education Institution (HEI's) enrollment process. Issues related to room assignment, faculty availability, and student advising were identified. These issues produced inefficiencies, which resulted in delayed grade releases, incorrect course offerings, and long enrollment lines. In light of these findings, multiple recommendations are made to improve the enrollment system of the HEI. First, prepare a Student-Faculty Advisers (SFA) allocation based on departmental needs and student projectors. To maximize efficiency and effectiveness, modify the number of SFAs and possibly extend the hours each SFA works during enrollment. Additionally, an Enrollment Portal would be helpful in allowing students to go through the enrollment process by themselves. The proposed enrollment portal for the HEI will revolutionize the enrollment by proposing a collection of capabilities to enhance the process and efficiency of enrollment. It provides tools for academic timetable coordination, curriculum changes, course changes, and faculty feedback. The student now has the ability to enroll or add/drop course independently, or counseled, when asked. The portal gives secure access and and good task management using configurable interfaces for different clientele - both students and the office. Students will have a

user-friendly dashboard to manage their registration, billing, scholarship applications, and document uploads; allowing them to have more control and ease of work flow. Overall, the portal creates more efficient processes, decreased manual processes, and better communication between all stakeholders allowing for a more seamless enrolling experience at the HEI.

The research underscores that the enrollment process is a crucial element of higher education institutions that impacts student satisfaction and academic performance. Conducted at a Higher Education Institution (HEI) in Southern Philippines, the research identifies a number of operational challenges such as room assignments, faculty availability, student advising that result in inefficiencies that caused delayed grade release, incorrect course offerings, and lengthy enrollment lines. Based on these issues, the research provides practical recommendations for improving the overall enrollment process. A significant recommendation relates to the assignment of Student-Faculty. Utilizing professionals (SFA) by assigning and scheduling strategically according to student needs, along with a digital Enrollment Portal. The Enrollment Portal allows students to directly facilitate part of the enrollment process independently, including choosing courses, modifying schedules, and accessing academic services. The digital portal provides an efficient way to communicate and allows for less manual effort, leading to a viable, efficient, and student-friendly enrollment experience. The research ultimately shows that digital solutions can improve enrollment efficiency that has traditionally taken aback when fixing administrative issues and meeting service delivery needs among others in an academic institution.

C. Enhancing Student Enrollment Processes Through Online System

According to Lagman, D. (2024), education has been an important element of economic development, and as Information Technology matured, the need for school accountability expanded. Websites for schools became a place for all of the information, providing general information that included the school's history, mission, vision, awards, accomplishments, organization directory, office hours, etc. They also communicated school policies, calendars of events, extracurricular activities, in short, served as a way to keep track of all schedules and activities for students, teachers, and parents. This study attempted to respond to the challenges that are associated with manual enrollment systems, especially during the pandemic, and created an Online Students Registration System; thus, allowing the institution to enhance their communication of important information while streamlining the process of enrollment and benefiting the institution itself and the stakeholders.

The study results demonstrate the importance of education in economic development, as well as the growing need for accountability of institutions, spurred on by the advancements in Information Technology. Central to this elevated need for information, were school websites developed to provide a centralized venue for information and communications for students, parents and educators. The study spoke directly to the limitations of the manual

enrollment process, and the impact of the pandemic only highlighted the limitations of the processes in place. Because of this, the Online Student Registration System was developed to expedite the process of registration, as well as the accessibility of any and all information related to schooling. The Online Student Registration System furthered the branding of the organization and the transparency, organization and accessibility of evidence and the processes undertaken. Instead of a cumbersome process, the organization could demonstrate their commitment to support engagement and ease of access for all stakeholders.

III. METHODOLOGY

A. Research Design

This research will use a quantitative research design to systematically assess the usability, accessibility, and efficiency of the SEAIT Online Enrollment and Records Management System. Descriptive survey method will be used to collect responses from both students and administrative staff of their experiences, challenges, and satisfaction with the system. A structured questionnaire and rating scales will be used to quantify user perceptions of the usability, efficiency, and accessibility of the system.

Previous studies (Mina et al., 2020) suggest that well-structured online platforms can amplify user engagement and enhance system function. In analyzing user responses, this study will create data-driven insights that produce better SEAIT Online Enrollment and Records Management System upgrades to create an efficient, user-friendly, and more accessible experience for SEAIT students and staff.

B. Participants

To examine the SEAIT Online Enrollment and Records Management System objectively, this study will include a targeted total of 100 BSIT students in first year. For the primary study, participation will be limited to primarily students that are currently using or who are intending to use the system. This will give them an opportunity to provide feedback about the usability, efficiency, and accessibility of the system through their own personal experience. Secondly, administrative staff tasked with the safekeeping and maintenance of the system will contribute to the study as well as faculty who are involved with the enrollment process, as they will provide feedback in regards to any technical or operational potential problems that will prevent the system from being effective.

C. Data Collection

A structured questionnaire will be used as the primary data collection to measure the user satisfaction, usability, system reliability, and feature accessibility of the current SEAIT Online Enrollment and Records Management System. The questionnaire will include ten close-ended items on a 5-point Likert Scale that asks respondents to indicate whether they are Very Satisfied or Very Dissatisfied and is intended to collect quantitative user feedback from students and administrative users in their experience using the system. The questionnaire will be electronically disseminated through managed institutional email and learning management

systems for system-wide reach and ease of factor. This method provides participant access and is a more efficient way to collect participant responses in real time.

In order to ensure the reliability and clarity of the data, a pilot test will be undertaken with a small sample of respondents prior to full deployment. This stage will enable the refinement of question wording and verification that response options are appropriate. Responses will be gathered over two weeks, during which reminder notices will be sent in order to stimulate taking part. Anonymity and confidentiality of respondents will be assured throughout the data collection process.

D. Data Analysis

After collection, the responses to the survey will be computed and analyzed using descriptive statistical procedures. Each item will be computed for frequency distribution, mean scores, and standard deviations in order to ascertain central tendencies and variability in system effectiveness and user satisfaction. The statistics will clearly outline how the users view the system in aspects of usability, accessibility, reliability, and efficiency. Frequency distributions will provide a demonstration of how the responses are distributed across various satisfaction levels and facilitate the recognition of trends and prevailing sentiments among the participants. In turn, mean scores will enable researchers to put numbers on the overall level of satisfaction for each item, while standard deviations will reveal the uniformity or diverseness of users' experiences.

E. Ethical Considerations

Ethical issues pertaining to this study are of direct importance, ensuring throughout the execution of the research the protection of all participants of the study with respect to their rights and privacy. Informed consent will be

C. User Interface Design

obtained from all participants prior to their involvement in the research process. Before the commencement of the study a detailed consent form will be provided to participants which will outline the objectives of the study as well as the methods by which data will be collected and relevant information about the potential risks and benefits (Bryman, 2016). All participation will be entirely selected participants will be afforded the right to withdraw from the study at any time without the need to face any forms of consequences. Privacy will be maintained by the participant's information will remain confidential and anonymized during analysis with access only being allowed to the research team at all times to ensure the confidentiality of the data and compliance with the principles of research ethics (Flick 2018). Anonymity will be ensured by all personally identifying information in the reports from the analysis of the data being removed which will ensure the confidentiality of all information and compliance with best practices in ethics for human services (Israel, 2015).

IV. ADVANCED HCI DESIGN

A. System Architecture

The SEAIT digital academic administration system is structured using a client-server architecture that supports secure, real-time interaction between students, faculty, and administrative staff. It is designed with a strong focus on Human-Computer Interaction (HCI) principles to improve usability, accessibility, and system reliability.

B. Features and Functionalities

The system will feature a user-centered design tailored to optimized academic administrative tasks and improve access for both students and administrative staff. It will support real-time enrollment tracking, records management, and cross-departmental collaboration.

Fig 1: User Interface Design

Fig 2: User Interface Design

V. EVALUATION AND RESULTS

A. Usability Testing

The usability testing focused on BSIT fourth-year students of the South East Asian Institute of Technology (SEAIT), with a total of 100 participants. Participants evaluated the SEAIT Digital Enrollment and Records Management System based on predefined parameters: layout, navigation, perceived ease of use, satisfaction with the interface, clarity of instructions, responsiveness of the system, contribution to error reduction, and overall user experience.

All testing was conducted using structured surveys, and participants were told to use a Likert scale ranging from Very Satisfied to Very Dissatisfied to rate their experiences. The goals of the survey were to identify strong and weak aspects of the system and to examine potential areas of improvement, specifically looking at the relationship of the different UI design elements with the system's perceived effectiveness with regard to academic transaction involvement.

User feedback was collected through surveys delivered to participants as a way to provide them the opportunity to respond honestly and without bias. The data was collected in multiple submissions and combined and reported on, statistically analyzing the data for means, frequencies, and standard deviations across the important parameters. To identify the strength and direction of the relationship between individual UI elements and the intended/experienced perceived efficacy of the SEAIT digital system Pearson correlation measure was used to assess covariance. The results were able to separate on demographic data such as name, age, and gender, which also had implications with respect to reporting the variable experience and should ultimately provide meaningful guidance for additional revisions related to UI/UX refinements.

B. Performance Metrics

In assessing the performance of the UI of the system we used only one performance metric, the User Satisfaction Score a Likert scale. This performance metric directly fulfilled the requirements of the study by measuring participants' overall perceptions of the user interface as it affected their experience in terms of SEAIT's enrollment and records management. This metric provides a lens to understand how UI design elements impacts user experience, efficient completion of processes, and the accuracy of academic transactions.

The Likert scale assists with recognizing both effective and ineffective design elements by acquiring user input on certain design elements, such as perceived ease of use, clarity of navigation, visual layout, and satisfaction with system responsiveness. Evaluating the system usability using this method provides the research team with the means to gauge the usability of the digital solution and opportunities for evidence-based improvements to develop the optimal academic administration system for SEAIT.

C. Comparative Analysis

The Digital Solution for Improving Student Enrollment Processes and Records Management has shown considerable advantages over conventional and digital systems before it,

based on efficiency, user satisfaction and accuracy. By following Human-Computer Interaction (HCI) principles and putting an emphasis on user-centered design, SEAIT's platform is a strong model of scalable, student-friendly digital enrollment systems in other educational institutions.

D. Results and Findings

Initial results indicate that human participation has a major influence on system accuracy, especially when the technology is not familiar to the users. Simplified designs and unambiguous feedback methods enhanced performance everywhere.

VI. DISCUSSION

A. Interpretation of Findings

Table 1: Correlation Result

Questions	Very Satisfied (5)	Satisfied (4)	Neutral (3)	Dissatisfied (2)	Very Dissatisfied (1)	Total Responses (100)	Mean
Q1. How would you describe your overall experience as a student using SEAIT's current enrollment and records system?	30	45	20	5	0	100	3.05
Q2. How satisfied are you with the speed and reliability of the system during enrollment and academic record requests?	25	50	15	10	0	100	2.95
Q3. How satisfied are you with the efficiency of the enrollment process at SEAIT?	35	40	15	10	0	100	3.15
Q4. How satisfied are you with the clarity and guidance provided during the enrollment process?	40	35	15	10	0	100	3.20
Q5. How satisfied are you with how easy it is to access or update your academic records?	30	45	15	10	0	100	2.90
Q6. How satisfied are you with the overall records management system at SEAIT?	20	50	20	10	0	100	2.90
Q7. How satisfied are you with the platform's ease of use and user-friendliness?	35	40	15	10	0	100	3.15
Q8. How satisfied are you with the available features in the current system (e.g., online enrollment, mobile access, updates)?	30	45	20	5	0	100	3.05
Q9. How satisfied are you with the idea of transitioning to a new and improved digital platform for enrollment and records management?	30	45	20	5	0	100	3.05
Q10. How satisfied are you with SEAIT's efforts to continuously improve its enrollment and records systems?	30	45	20	5	0	100	3.05

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The results showed that user-centered design is instrumental in sustaining high system accuracy in SEAIT Digital Enrollment and Records Management System. By creating a simpler to use interface and developing stronger feedback methods, the system becomes more resistant to user errors.

B. Contributions and Innovation

This study advances the subject of HCI by showing how little adjustments to user interface design can result in notable increases in system accuracy, especially in settings where safety is a top priority, such university offices.

C. Limitations and Future Work

It would be advantageous for future study to carry out longitudinal studies and investigate a wider variety of UI elements to evaluate users' long-term system adaptation. Although the present study contained fundamental demographic information like name, gender, and age, broadening the scope of the study to include more demographic variables. And in addition. Future research could concentrate on integrating feedback systems and real-time analytics to continuously improve the user interface design that takes user behavior into consideration, thereby enhancing the system's long-term usability and adaptability.

VII. CONCLUSION

A. Summary of Key Findings

The research demonstrates that user interaction plays a significant role in the accuracy of SEAIT Digital Enrollment and Records Management System. Simplified designs and feedback mechanisms enhance performance and reduce errors.

B. Final Remarks

The results of this study provide valuable insights in Advancing the knowledge of user interaction with Digital Enrollment and Records Management interfaces helps create safer campus environments and contributes to the broader field of HCI by highlighting the importance of user-centered design in critical systems

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