**IT 337 Project One**

**IT-337 User-Centered Sys Design/Eval**

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**A&D University Food Services Proposal:**

**Executive Summary:**

This proposal outlines a strategic initiative to enhance the efficiency and user experience of A&D University Food Services by implementing a digital pre-ordering system accessible via a dedicated mobile application and website. Recognizing the critical interplay between technology and its users, this project necessitates a thorough investigation into the human-computer interaction (HCI) aspects for both student users and food service staff. By employing user-centered design methodologies, including surveys, observational studies, and interviews, we aim to develop an intuitive and effective system that optimizes operational workflows, improves student satisfaction, and ultimately contributes to a more streamlined and modern campus experience. This proposal details the rationale, proposed research methodology, key considerations for system development, and anticipated benefits of this initiative.

**1. Introduction:**

A&D University Food Services seeks to optimize its operational efficiency and enhance the convenience offered to its student and faculty population. To achieve this, we propose the development and deployment of a digital pre-ordering system for cafeteria meals. This system will empower users to browse menus, place orders in advance, and facilitate a more seamless meal acquisition process. The success of this initiative hinges on the effective human-computer interaction (HCI) between the system and its end-users: the students who will utilize the ordering interface and the food service staff who will manage and fulfill these orders.

**2. Understanding the User Ecosystem: A Human-Centered Approach:**

The implementation of a new digital system necessitates a comprehensive understanding of the needs, behaviors, and existing workflows of its primary users. In this context, our target demographics are the student body and the food service staff.

**2.1 Student Users:**

Students, as the primary consumers of the food services, will directly interact with the proposed application and website. Their adoption and satisfaction will be crucial determinants of the system's success. To effectively cater to their needs, a thorough understanding of their current habits, preferences, and technological proficiencies is required. Key areas of investigation include:

* **Current Technology Usage:** Familiarity with food ordering applications, preferred mobile platforms, and typical online interaction patterns.
* **Expectations and Preferences:** Desired features, interface intuitiveness, information accessibility (e.g., dietary information, nutritional content), and preferred communication methods (e.g., notifications).
* **Current Cafeteria Experience:** Pain points, satisfaction levels with existing ordering and pick-up procedures, and suggestions for improvement.

**2.2 Food Service Staff:**

The successful integration of a digital ordering system into the existing operational framework is contingent upon its usability and efficiency for the food service staff. Understanding their current workflows, technological infrastructure, and communication practices is paramount. Key areas of investigation include:

* **Current Order Processing Procedures:** Methods for receiving, managing, and fulfilling orders (e.g., manual tickets, electronic displays).
* **Existing Technology Infrastructure:** Availability and utilization of electronic devices, network connectivity, and software systems.
* **Workflow Challenges and Bottlenecks:** Identification of inefficiencies, communication barriers, and areas where digital integration could provide the most significant benefit.
* **Information Management:** Processes for updating menus, managing inventory, and communicating order details within the team.

3. Research Methodology: Employing User-Centered Design Principles:

To gain the necessary insights into the user ecosystem, we propose a multi-faceted research approach grounded in HCI principles:

* **Student Surveys:** Employing quantitative and qualitative survey instruments to gather data on students' technology usage, preferences for food ordering apps, and expectations for a university food service application. This will allow for the collection of broad data sets and the identification of common patterns and needs.
* **Observational Studies:** Conducting non-obtrusive observations of students' current meal selection and pick-up behaviors within the cafeteria environment. This will provide valuable insights into existing workflows and identify potential areas for digital augmentation.
* **Staff Interviews:** Conducting semi-structured interviews with food service staff across different roles to understand their current processes, challenges, and perspectives on the potential impact of a digital ordering system. These interviews will explore opportunities for workflow optimization and identify potential integration challenges.
* **Usability Testing (Iterative):** As the digital system is developed, iterative usability testing with both student and staff representatives will be crucial. This will involve observing users interacting with prototypes and gathering feedback to identify usability issues and refine the design based on real-world user behavior.

**4. Key Considerations for System Development:**

Based on the user research and HCI principles, the development of the digital ordering system should prioritize the following:

* **Usability and Intuitive Design:** The interface for both students and staff must be clear, consistent, and easy to navigate, adhering to established design patterns and accessibility guidelines.
* **Efficiency and Workflow Integration:** The system should streamline the ordering process for students and seamlessly integrate with the existing workflows of the food service staff, minimizing disruption and maximizing efficiency.
* **Feature Prioritization:** Development should focus on core functionalities identified as most critical by users, such as menu browsing, order customization, secure payment options, order tracking, and notifications.
* **Scalability and Maintainability:** The system architecture should be robust and scalable to accommodate future growth and easily maintainable by the university's IT department.
* **Security and Data Privacy:** Robust security measures must be implemented to protect user data and ensure secure transactions.

**5. Proposed System Architecture:**

We propose the development of a new, integrated system comprising:

* **Mobile Application (iOS and Android):** A user-friendly application for students and faculty to browse the menu, place orders, manage payment, and receive order updates.
* **Web Interface:** A complementary web-based platform offering the same functionalities as the mobile application, ensuring accessibility across different devices.
* **Staff Management Interface:** A dedicated interface for food service staff to receive and manage incoming orders, update order statuses, view order history, and potentially manage menu items and inventory.
* **Integration with Existing Systems (Optional):** Exploration of potential integration with existing university systems (e.g., student ID system for authentication) to enhance user convenience and data management.

**6. Anticipated Benefits:**

The implementation of a user-centered digital ordering system is expected to yield significant benefits for A&D University Food Services and its users:

* **Enhanced Efficiency:** Streamlined order taking and fulfillment processes for food service staff, potentially reducing wait times and improving resource allocation.
* **Improved Student Satisfaction:** Increased convenience, reduced queuing, and greater control over meal selection, leading to a more positive dining experience.
* **Data-Driven Decision Making:** Collection of valuable data on popular items, peak ordering times, and user preferences, enabling informed menu planning and operational adjustments.
* **Reduced Errors:** Digital order transmission minimizes the potential for manual errors in order taking and fulfillment.
* **Modernized Campus Experience:** Adoption of contemporary technology enhances the university's image and provides students with the digital tools they expect.
* **Potential for Personalized Experiences:** Future iterations could incorporate features such as personalized recommendations based on dietary restrictions or past orders.

**7. Conclusion:**

By embracing a user-centered approach and investing in a well-designed digital ordering system, A&D University Food Services has a significant opportunity to enhance its operational efficiency, elevate the student experience, and modernize its service delivery. The proposed research methodology will provide the critical insights necessary to develop a system that is both effective for staff and intuitive for students. We are confident that this initiative will result in a more streamlined, efficient, and user-friendly food service environment for the entire university community.

**References**

What is Human-Computer Interaction (HCI)? (n.d.). The Interaction Design Foundation. <https://www.interaction-design.org/literature/topics/human-computer-interaction>