

CapTrack Vault: A Capstone Management System with Integrated Research Repository for Santa Rita College of Pampanga

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Abstract. This study developed CapTrack Vault: A Capstone Management System with Integrated Research Repository for the College of Computer Studies at Santa Rita College of Pampanga to solve the problems of the traditional paper-based process in handling research. The system was created using the Rapid Application Development (RAD) model and includes features such as online submission of titles and documents, digital review and approval, scheduling of defenses, and a research repository for storing approved works. The evaluation of the system through distributing survey and interview instruments based on the Technology Acceptance Model (TAM) among 83 respondents shows results that were conceptually positive on all the parameters, with the following means: Perceived Usefulness (3.67), Perceived Ease of Use (3.08), Attitude toward Technology (3.91), and Behavior Intention to Use (3.89). It is revealed that all the mean ratings are in the rank of "Strongly Agree". The findings show that 96.39% users prefer to use this system over the traditional processes adopted for internal processes, 93.98% would suggest it be followed by others, and 91.57% state that it increases the efficiency of the research submission process. Thus, the system helped manage the capstone project much more speedily, comfortably, and efficiently than the manually used methods, successfully resulting in the successful attainment of modernizing the research management processes in the CCS.

Keywords: AI-enhanced learning, Technology Acceptance Model, perceived usefulness, perceived ease of use, behavioral intention, educational technology

1. Introduction

1.1. Background of the Study

Over the past few years, technology has become important in universities and colleges. It has helped to improve research and student projects so that they can be organized and accessed easily. Online tools for managing research and project submissions are rising in universities and colleges globally. Colleges and universities increasingly use web-based tools to handle research and project submissions. This transition into a larger trend toward digital change in education aims to spread knowledge and encourage collaboration between students and teachers.

At Santa Rita College, the CCS Department still uses traditional research methods. The students must submit hard copies of the documents for the faculty to review, and scheduling a project defense is time-consuming. This traditional method has caused several problems, including schedule conflicts, difficulties in communication between students and faculty, and slow document feedback. Without a modern system, time and effort are lost on tasks that could have been better spent on more meaningful academic activities.

The researchers proposed this study to solve these issues by creating a capstone management system with an integrated research repository for Santa Rita College of Pampanga. This system aimed to modernize online submission, replacing a structured digital workflow for paper-based methods. Students submitted project working titles and required documents online, covering both the title defense and final defense stages. In a centralized system, faculty members received and reviewed submissions, accepted or declined them, and arranged for the defense presentations. The system had a user-friendly interface that helped improve

communication between students and faculty, reduce administrative tasks, and make the evaluation of research projects more efficient.

Through this system, the CCS Department aimed to speed up how research documents were submitted and evaluated, showing its commitment to embracing innovations and enhancing education. The department aimed to make these processes easier, shorten the timeline, and provide feedback to teachers and students timelier and transparently. This helped to make the process efficient and allow for a more organized workflow, maximizing the benefits for the academic environment regarding student education.

1.2 Objectives of the Study

The study aimed to:

1. Identified current processes and challenges in research management in the CCS Department.
2. Determined essential modules and features of the proposed system.
3. Implemented security measures to ensure confidentiality and prevent unauthorized access.
4. Assessed user acceptability through surveys and usability tests.

1.3 Conceptual Framework

The system followed a framework of inputs, processes, and outputs as shown in Fig. 1. Inputs include programming experience, hardware, and software requirements. The Rapid Application Development (RAD) methodology structures the processes, while the output is the implemented CapTrack Vault system facilitating online submissions, approvals, scheduling, and a centralized research repository.

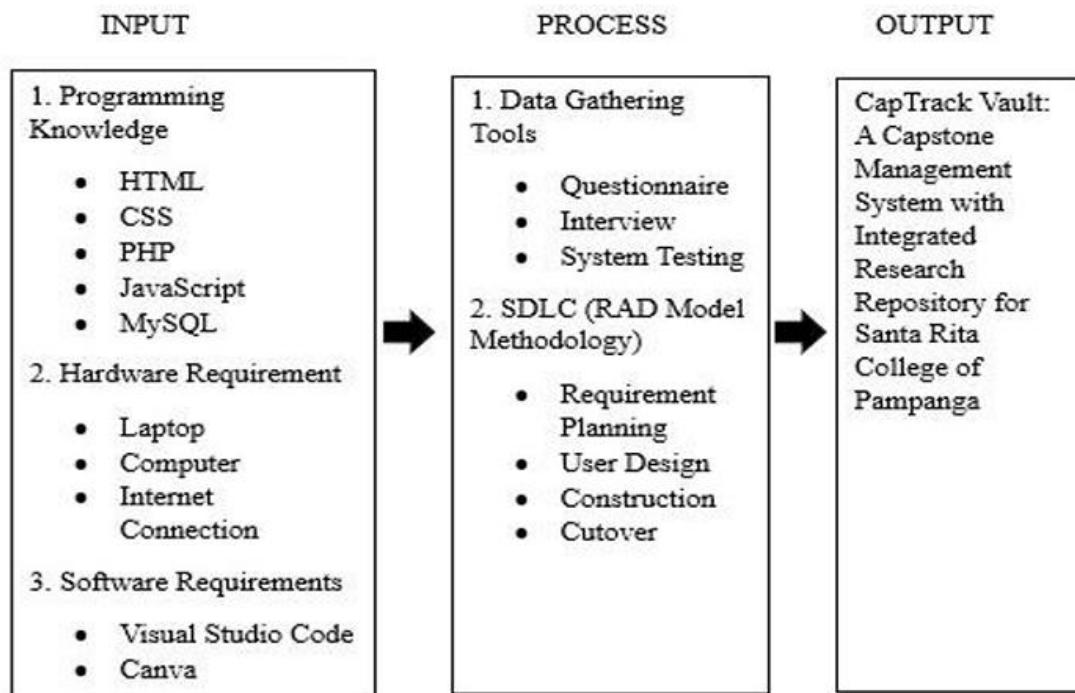


Fig. 1. Conceptual Framework

2. Methods

2.1 Research Design and Model Used

This study used a mixed-methods research design to develop and evaluate the proposed capstone management system with an integrated research repository, employing qualitative and quantitative research approaches. The qualitative aspect of the study focused on gathering input from key participants to identify

system requirements and usability preferences. The quantitative part consisted of evaluating the system's performance.

2.2 System Development Methodology

The Rapid Application Development (RAD) Model developed the Capstone Management System with an Integrated Research Repository. This approach emphasizes quickly creating prototypes and gathering user feedback to improve the system. It enables faster development while making sure the system meets the needs of students and faculty.

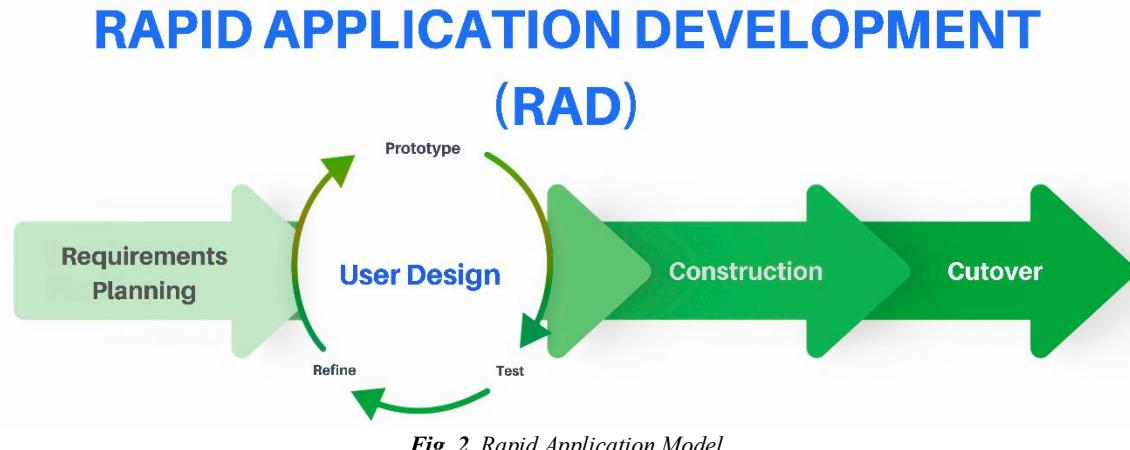


Fig. 2. Rapid Application Model

The RAD model included four stages:

1. **Requirements Planning:** Identifying problems and system requirements.
2. **User Design:** Developing prototypes and refining through feedback.
3. **Construction:** Implementing modules and features digitally.
4. **Cutover:** Testing, user training, and deployment.

2.3 Participants and Setting

The study involved 83 respondents (75 students, 3 faculty, 5 IT experts) from the CCS Department at Santa Rita College, selected via convenience sampling. Convenience sampling is often used in educational studies because it is practical, easy to implement, and cost-effective (Etikan, Musa, & Alkassim, 2016). The setting was the CCS Department, which used a manual research management process.

2.4 Research Instrument

The study utilized the following research instruments:

1. **Questionnaire** – Structured survey based on Technology Acceptance Model (TAM) to assess Perceived Usefulness (PU), Perceived Ease of Use (PEU), Attitude Toward Technology (ATT), and Behavioral Intention to Use (BIU).
2. **Interviews** – Semi-structured interviews with open-ended questions to collect qualitative insights.
3. **System Testing Checklist** – Standardized test cases to verify system features.

2.5 Data Collection Procedure and Analysis

The study began with a requirements analysis by interviewing faculty and students to identify their needs and challenges in the research management process of the CCS Department at Santa Rita College. Using the RAD model, a capstone management system with an integrated research repository was designed and continuously improved through feedback from key users.

Data were gathered using a structured questionnaire based on the Technology Acceptance Model (TAM), supplemented with semi-structured interviews to collect additional qualitative insights. The quantitative data were analyzed with descriptive statistics, while the qualitative responses were reviewed to inform further system improvements.

3. Results and Discussions

This study aimed to evaluate data collected during the development and evaluation of the CapTrack Vault: A Capstone Management System with an Integrated Research Repository for Santa Rita College of Pampanga. The data were gathered using a mixed-methods approach, including a structured questionnaire based on the Technology Acceptance Model (TAM), semi-structured interviews, and system testing. The results addressed the research objectives, focusing on current processes and challenges, system modules and features, security measures, and user acceptance. The findings are presented within the context of the Rapid Application Development (RAD) methodology stages used in the system's development.

3.1 Perceived Usefulness (PU)

Respondents rated the system highly for usefulness, with a weighted mean of 3.67, indicating that the system improves productivity, efficiency of submissions, and communication between students and faculty.

Table 1 Evaluation of System Perceived Usefulness

3.2 Perceived Ease of Use (PEU)

The system received a weighted mean of 3.08, showing that most users found it easy to learn and navigate, though some suggested minor improvements for clarity.

Table 2 Evaluation of System Perceived Ease of Use

3.3 Attitude Toward Technology (ATT)

Users showed positive attitudes toward the system, scoring 3.91, reflecting strong agreement that the system improves engagement, is a good idea, and is preferable to manual processes.

Table 3 Evaluation of System Attitude Toward Technology

Criteria	4	%	3	%	2	%	1	%	Mean
Using the system is a good idea for managing capstone projects.	68	81.93	15	18.07	0	0.00	0	0.00	3.82
I feel positive about using this system in my academic tasks.	77	92.77	5	6.02	1	1.20	0	0.00	3.92
The system makes capstone management more engaging.	79	95.18	4	4.82	0	0.00	0	0.00	3.95
I like the idea of using this system instead of the traditional process.	80	96.39	3	3.61	0	0.00	0	0.00	3.96
Weighted Mean									3.91

3.4 Behavioral Intention to Use (BIU)

The system had a weighted mean of 3.89, indicating high intention to continue using it, recommend it to others, and adopt it for future academic projects.

Table 4 Evaluation of System Behavioral Intention to Use

Criteria	4	%	3	%	2	%	1	%	Mean
I intend to continue using the system regularly.	65	78.31	16	19.28	2	2.41	0	0.00	3.76
I would recommend this system to others (students/faculty).	78	93.98	5	6.02	0	0.00	0	0.00	3.94
I plan to use the system for future academic project management.	75	90.36	8	9.64	0	0.00	0	0.00	3.90
The system has a high potential for long-term adoption in the CCS Department.	78	93.98	5	6.02	0	0.00	0	0.00	3.94
Weighted Mean									3.89

4. Conclusion and Recommendations

4.1 Conclusion

Based on the survey results using the Technology Acceptance Model (TAM) from 83 respondents, CapTrack Vault showed that users liked and accepted the system. For Perceived Usefulness, the system got a score of 3.67, which means users agreed that it helps them work faster and better. When it comes to Perceived Ease of Use, it got 3.08. Most users said it was easy to learn, but some mentioned it took some effort to figure out, so we might need to simplify it or provide better instructions.

The researchers concluded that CapTrack Vault effectively solves the challenges of the old manual process. It saves time, reduces scheduling conflicts, and improves communication between students and faculty. The system is also secure and user-friendly, which makes it reliable for academic use.

Overall, the project reached its goal of creating a system that helps the CCS Department modernize its handling of capstone projects.

4.2 Recommendations

1. **Faculty:** Regularly explore features and provide feedback for further improvements.
2. **Students:** Maximize the system for submissions and progress tracking.
3. **Future Researchers:** Enhance the system with analytics, offline access, or integration with other institutional systems.

References

Etikan, I., Musa, S. A., & Alkassim, R. S. (2016). Comparison of convenience sampling and purposive sampling. American Journal of Theoretical and Applied Statistics, 5(1), 1-4. <https://doi.org/10.11648/j.ajtas.20160501.11>