THESIS REPOSITORY SYSTEM DESIGNED FOR BACHELOR OF SCIENCE IN AIRCRAFT MAINTENANCE TECHNOLOGY STUDENTS IN PHILIPPINE STATE COLLEGE OF AERONAUTICS

Avida Nixel Luis P., Abobon Audrey Krizzia S., Gonzales Khing Elohim C.,
Mapili Fernan Gerald A., Martin Maria Jessica F.

Philippine State College of Aeronautics, Philippines

Abstract

In PhilSCA-VAB, thesis outputs are produced by graduating students every year. A lot of these are stored in either the school library or an online storage service. While storing them for preservation is normal and expected, it is in their retrieval and access that a problem starts to form: it is difficult to find relevant thesis outputs related to Aircraft Maintenance Technology. Most students would resort to scouring the Internet for thesis outputs that can be used as reference materials, but they are almost always met with difficulties in the form of paywalls, incompleteness and invalidity, and the lack of ease of access. The Thesis Repository System proposed by the researchers is designed to alleviate all those problems and make a step forward in the storage and accessing of AMT thesis outputs. To ascertain the Thesis Repository System's capabilities in those two areas, a face-to-face structured interview was conducted with a combination of students, AMT research instructors, and an AMT research coordinator as the respondents. Upon using the Thesis Repository System, the respondents were exceedingly satisfied with its capabilities. By drawing results and conclusions from their transcripted and tabulated responses, it was interpreted that the Thesis Repository System is a valid, feasible, and highly effective instrument for accessing and storing relevant thesis outputs related to Aircraft Maintenance Technology. Minor improvements to the system's design, along with proper funding, are among the recommendations.

Keywords: Repository System, Storage, Thesis

Introduction

With every passing year, more and more college students are obliged to create, defend, and submit their undergraduate theses. This is a practice that is adopted by almost every college and university in the Philippines, wherein the thesis subject, and more so the output itself is given utmost importance by both the faculty and students.

Two of the main goals of any thesis output are to a.) solve and/or address a problem at hand, and b.) contribute to the existing body of knowledge surrounding the issue being tackled. Without fail, students work towards these goals whenever they reach the appropriate point in their college education.

However, another concern that must be brought to light is what happens to the thesis output post-defense. Most colleges require the submission of a physical or digital copy of a student's thesis output for storage purposes in the school library. These physical copies, which are often softbound or even hardbound, are available for viewing most of the time. Digital copies of the completed thesis output can also exist and be stored in a computer for later viewing.

There are limitations to the accessibility of the thesis output when it can only be available in a school's library or any of its physical offices. For starters, we now live in a digital age where most of the information we process on a daily basis comes from multimedia resources pushed by technology. Lectures, reviewers, and even the contents of a textbook can be all viewed on a smartphone or computer, especially when Online Learning became the primary mode of education for the world's educational system because of the COVID-19 pandemic. As such, it's high time that thesis outputs are also given the opportunity and mobility of digital viewing.

To be clear, thesis outputs are already present in the digital space. For starters, they can be found aplenty on the Internet – dedicated research websites have a choice selection of published theses, and several online journals also offer the chance to view peer-evaluated research studies. A single Google search would yield pages upon pages of results, even when we're attempting to look for a specific thesis topic. In terms of existence and appearance, there are certainly thesis outputs on the Internet already.

Despite their apparent accessibility on the Internet, students undertaking their thesis subject would certainly recognize that there are inherent problems in looking for specific information from the Internet. To begin with, not all information on the Internet can be trusted or considered usable, especially if its main points are unrelated to the topic being researched. In creating a thesis, there is often a limit as to how recent the related literature must be, to ensure that the information it holds is still relevant at the time of writing. In other circumstances, much-needed information for the Review of Related Literature (RRL) and Review of Related Studies (RRS) sections of their thesis outputs are often locked behind a paywall.

Should a thesis output be unavailable, then its contents cannot be used to foster the creation of other theses that pursue the same topic. As a result, if the unavailable thesis supposedly carried the exact same information or results that would render the current thesis output useless, then time and resources would be put to waste. Furthermore, it would not be efficient to allot time for gathering information that is already researched.

When all the restrictions and hindrances are taken into consideration, the previously large body of available information suddenly becomes significantly smaller. This problem continues to be a prevalent hurdle for every batch, and such a handicap is bound to affect the quality of the thesis output.

Moreover, as said before, among the significant goals of a thesis output is to contribute to the body of knowledge that currently exists. If a thesis output is not available for public consumption, it fails to bestow upon others the knowledge that it holds within its pages and the results that it has gathered. In that regard, the thesis output ends up making no significant impact on the currently existing body of information and knowledge. Furthermore, it would be problematic if a batch's thesis outputs are only left in a library or stored in a hard drive. If they cannot be accessed in a timely manner, then they are effectively out of reach for those who might need them. As such, the thesis outputs cannot be just lumped together unsystematically, as it would make sorting and searching unnecessarily difficult. In an ideal world, the thesis outputs of the student body should be accessible in a manner that is both neat and efficient.

These aforementioned statements put forward a problem that requires a two-part answer – how should the thesis outputs be stored, and how should they be shared to the rest of the student body?

In this paper, the researchers attempt to explain and display in detail the planning, creation, testing, and evaluation of a Repository System for thesis outputs. The project is meant for the Aircraft Maintenance Technology (AMT) students of PhilSCA VAB Campus, and it is through their assistance that the Repository System is tested for all relevant features and components.

Materials and Methods

This section includes the collection of BSAMT research studies, coding tool, database management system, programming language, project design, data gathering; design, participants of the study, and content analysis of data regarding the creation of the Thesis Repository System for thesis outputs composed by Bachelor of Science in Aircraft Maintenance Technology (BSAMT) graduates of Philippine State College of Aeronautics - Villamor (PhilSCA-VAB) starting from batch S.Y 2022. Also, in this chapter, the researchers would explain the methods and ideas behind the creation and content of the system in detail.

Qualitative Research

This study used a qualitative research approach to evaluate the Thesis Repository System's functionality and effectiveness as an educational reference and a management tool. Qualitative research can be defined as the study of non-numerical values that are collected, analyzed, and interpreted. It also directly explains how a certain individual

perceives a behavior or action in a particular social setting. The common methods that are used to gather data in qualitative research include interviews, focus groups, documents, personal accounts or papers, cultural records, and

observation (Hoover, 2021). Furthermore, qualitative research is used to identify broad patterns about a topic, event, or group (Stephanie, 2022).

Collection Of BSAMT Thesis Outputs

The researchers created a letter of approval for BSAMT research studies to be made available as a component for the Thesis Repository System. The letter is addressed to Maria Jessica F. Martin MEAM, the AMT Research Coordinator of Philippine State College of Aeronautics - Villamor Campus S.Y 2022-2023. Due to safety concerns and limited access to thesis outputs, the researchers only collected a total of 22 BSAMT Thesis Outputs from batch 2022 which is incorporated in the Thesis Repository System without the intention of copyright and plagiarism and is used only as a component for the Thesis Repository System. The total number of collected BSAMT Thesis Outputs are adequate to support the System's desired function and prove that the system is a great project that can be used by the institution.

Coding Tool

The researchers used the Microsoft Visual Studio 2022 as their primary coding tool for the creation and development of the Thesis Repository System. With the current changes made by Microsoft in this coding tool, modern cloud-based application development has been made quick and simple. Furthermore, .NET 6 and its unified framework for web, client, and mobile apps are fully supported by the contemporary developers of both Mac and Windows. It has been updated to run on most modern computers and to widen its function to fit either learners or the experts. It is the preferred tool by the researchers because of its prevalence in the .Net development community which mainly focuses on creating and developing several applications whether it may be on website, mobile applications, computer applications, or web services. Also, Microsoft Visual Studio has a wide range of capabilities. 36 distinct programming languages is supported by the coding tool in which can be operated by the debugger and code editor, on which in this study is the researchers (Microsoft, 2022). Microsoft Visual Studio is free to use and is user-friendly making it a very reliable programming tool for the researchers.

Database Management System

The researchers used the SQL Server Express as the database management system where thesis outputs from batch 2022 is stored and managed. It is the chosen database system of the researchers because it is free to download, distribute, and use. Despite being free, it still offers a wide range of functions that are vital in the creation of the thesis repository system. It is perfect for development on small applications like desktop, web, and mobile applications.

Programming Language

The researchers used C# as the programming language in the creation of the Thesis Repository System. C# serves as one of the best programming languages in the whole world due to many reasons and it can compete in a variety of other high-level programming languages like Javascript, Python, and Java. The advantages of using C# include the fact that it is relatively easy to learn, which makes it a perfect choice for amateurs and even experts who are interested in expanding their repertoire when it comes to coding and other programming languages, object-oriented which makes it versatile, accessible and simple to maintain, efficient, simple to read and comprehend, making it simpler to detect various errors evident in the code; its codes are reusable, and has a supportive community (Payne, 2021). C# is one of the most incredibly powerful, influential, and popular programming languages that can be applied to a wide range of applications. Since it is developed by Microsoft, this programming language is used commonly on related software applications and web services linked to Microsoft. (altextsoft, 2021). The creation of the Thesis Repository System is conducted on a local server. This means that the accessibility of the system will only be restricted to the researcher's device to have more control and security.

Project Design

As part of the creation of the thesis repository system, the researchers have created a survey form using Google Forms. This survey served as a basis to get the perception of the respondents concerning the features and development that needs to be evident in the thesis repository system. The feedback and other recommendations of the respondents are considered by the researchers in the creation of the system.

The Thesis Repository System's design includes several pages and tabs with corresponding functions. The Log-In Page of the Thesis Repository System is where user's details will be inputted. The user will either be a Student, Teacher, or an Admin. It includes their registered username and passwords. Having a username and password serve as an additional security feature for the system. The Category Tab is the section of the system where numerous thesis outputs of BSAMT PHILSCA-VAB are categorized into three; Type of Research, Batch/School Year, and Focused Topic. The Administrator/Approval Tab serves as a portion of the system where the admin approves the user accounts of those who want to access the Thesis Repository System. The Contact Page serve as a contact support for students/instructors who want to access the Thesis Repository System.

The system contains three different accounts, a) administrator, b) faculty/instructor, and c) students. All of these accounts have access to the thesis incorporated into the system. However, they have different roles and responsibilities. The admin account is the highest role in the system. This role is given to the AMT Research Coordinator. They have the access to all the tabs and pages in the system. They hold the responsibility for accepting or denying the applicants who will register in the system. They are also capable of uploading and deleting AMT thesis outputs.
The faculty account is the second highest role in the system. This role is given to the AMT Thesis Writing Instructors. They have the ability to upload thesis outputs but not delete them. They do not have the capability to accept or deny applicant who will register in the system.

The student account is the last account. This role is given to the AMT student body. They are only limited to viewing or downloading thesis outputs incorporated into the system.

Data Gathering

The data gathering instrument of this study would be in the form of a structured interview. A structured interview is a type of interview that involves asking questions to collect qualitative research data. It provides researchers with the opportunity to obtain firsthand information from study participants. Through this technique, the researchers can gather valuable insights directly from the respondents. The questions in this type of interview are planned and are asked in a fixed sequence (George, 2022). Since the questions asked to all respondents are the same, tabulating and comparing the respondent's data would be efficient. This method evaluates the data from the respondents in a fair and impartial manner which contributes to a greater validity and reliability (Pollock, 2019). Following the format of a structured interview, the researchers have created a standardized interview questions that are asked to the respondents during the process of interview.

The participants of the study include 1 Research Coordinator from Aircraft Maintenance Technology Department, 2 instructors under the Aircraft Maintenance Technology Faculty who are currently teaching Thesis Writing subject, and 3 BSAMT 4th year level class representatives enrolled in school year 2022-2023. All of the respondents came from PhilSCA-Villamor Campus. The respondents are under the AMT department since they are the focus group of the study.

Part 1 of the questions in the structured interview will determine the demographic of the respondents which states the faculty's current position and the students' section. Part 2 is aligned on the perspective of the respondents with regards to the creation of the Thesis Repository System and how it influences the AMTs. It is the part for pre-test and post-test questions wherein the researchers would gather data if there's a difference when finding aircraft maintenance related topics and references in the internet or books compared to the thesis repository system made by the researchers.

Part 3 pertains to the respondent's thoughts/comments regarding the Thesis Repository System. Part 4 covers the respondents' thoughts/comments regarding several aspects that must be considered to improve the overall function of the Thesis Repository System.

The researchers specifically used content analysis as a qualitative data analysis method. The utilization of content analysis as a qualitative data technique is prevalent in research studies as a means of deciphering significance from text data and uncovering crucial elements within the content. Its key roles are to determine essential components of the content, to display the findings in a concise and persuasive manner, and to fortify a particular stance or viewpoint. (Valcheva, 2018). The process of content analysis includes categorizing, organizing, summarizing, and tabulating verbal and behavioral data to arrive at conclusions (Dudovskiy, 2019).

Results and Discussions

This section presents the results obtained from the data gathering procedure, as well as the resultant discussions that have stemmed from the tabulation of the participants' responses. The structured interview performed by the researchers was designed to gather information and feedback regarding the prospect of using and having a Thesis Repository System in PhilSCA. The interview questions, which were based on the Statement of the Problem in Chapter I, sought the participant's opinions as to how the Thesis Repository System works in real-time and how it compares to the conventional methods of searching and storage for thesis outputs. With this in mind, it should be noted that the participants have been given the opportunity to use the Thesis Repository System during specified portions in the interview process, as most of the interview questions required first-hand experience in order to be answered effectively and honestly.

Table 1. Respondents' Information

Name	Department	Role - Position
Respondent 1	InET Department – AMT	BSAMT 4-1 Class Representative
Respondent 2	InET Department – AMT	BSAMT 4-2 Class Representative
Respondent 3	InET Department – AMT	BSAMT 4-3 Class Representative
Respondent 4	InET Department – AMT	AMT Research Instructor
Respondent 5	InET Department – AMT	AMT Research Instructor
Respondent 6	InET Department – AMT	AMT Research Coordinator

Three out of six respondents are currently students in PhilCSA – VAB. Their respective sections, along with the position they hold within their sections, are indicated in Table No. 1.

Three out of six respondents are part of the AMT Faculty of PhilSCA – VAB. Each of these three respondents have a different role within the faculty, however in this research, their roles are aligned with the type of user that they would be upon using the Thesis Repository System. Their roles and positions are indicated in Table No. 1.

Table 2. Pre-test responses for the question, "How easy is it to access updated thesis outputs related to Aircraft Maintenance Technology?"

Respondent	Pre-test Response
Respondent 1	"…'di ako ganun maka-search parang limited lang nakikita ko sa Internet."
Respondent 2	"… medyo accessible naman on my part, since I have internet connectivity." "… yet ano, medyo konti nga lang 'yung mga related sa aviation."
Respondent 3	"…it's kinda hard because, ahhh, there's, so, has small amount of thesis that, with, with regards to AMT and other aviation-related thesis. "

Respondent 4	"So far, the only reliable site that I am currently using, personally, is from the Embry-Riddle Aeronautical University. Other than that, so far other researches would force us to use Sci-Hub. But again, it is not recommended, especially if your research is speed."
Respondent 5	"…sabihin na lang natin mahirap maghanap ng real topic or real title. Pero some of the topics na puwede mong makuha, nandoon kahit papaano. On books puwede rin naman, basta tama at nandon sakto 'yung hinahanap niyo."
Respondent 6	"Madali lang siya i-access. However, kasi, needed and mas maganda if meron talagang pinurchase ang school when it comes to the different e-books na related sa aircraft maintenance."
MATCHED RESPONSES	Finding thesis outputs related to Aircraft Maintenance Technology is often met with difficulty; there is no abundance of accessible thesis outputs related to Aircraft Maintenance Technology in conventional sources such as the Internet.

Ease of access is an important factor to consider with any system. If the system or resource cannot be accessed by the user, the amount of reliable information that can be obtained will be significantly reduced. When particular websites or information sources are utilizing a paywall or a subscription-based service, a large percentage of prospective users are immediately deprived of the content behind them. The Internet in particular is filled with valuable, fact-based, and reputable information that are locked behind paywalls – and while it is technically acceptable and legal to institute paywalls or access subscriptions, it has come to a point wherein most usable references cannot be accessed for free. Furthermore, the quality of online references can differ from source to source – and depending from where it is obtained, the difference can be too significant to ignore. Also, ease of access can be affected by the availability or lack of physical instruments that are typically used to enter a particular resource or system. If the means to enter or utilize are not presently available, then the resource is as good as useless.

Table 3. Post-test responses for the question, "How easy is it to access updated thesis outputs related to Aircraft Maintenance Technology?"

Respondent	Post-test Response
Respondent 1	"…madali siya dahil meron siyang filter, so pwede ko siyang i-click and then i-search and then mabilis lang siya – smooth yung ano niya, 'yung software."
Respondent 2	"… accessible siya and easy to use kasi naka-categorize siya eh, may search filters na straight to the point kung ano 'yung kailangan mo."
Respondent 3	"I'm able to search and be able to look for a specific date and even the titles of the thesis and what kind of thesis they are. It's okay. It's good."
Respondent 4	"… it's very easy to access, wherein you see it very clearly. You can easily know the year level, the type of research, would reflect based on your preference."
Respondent 5	"…okay naman, sakto naman, puwede naman at madaling ma-access, if the files is downloaded, okay? So siyempre da-download natin pero, so far so good naman."
Respondent 6	"So, for me, when it comes to access, sa mga research and thesis outputs ng students, mas easy." "Kasi unang-una, meron siyang type of research, wherein kung alam mo naman yung type of research, madali na lang siyang hanapin. And there's also 'yung year of publishing. So, mas okay siya para sa akin."
MATCHED RESPONSES	The Thesis Repository System is easy to use; by using the available search parameters, the desired search results can be found; the content of the Thesis Repository System is easily accessible.

According to the respondents, the utilization of a Thesis Repository System allows for ease of access in a satisfactory and even preferable manner. The Thesis Repository System's content can be accessed for free, and there is no form of paywall or subscription prevents the user from being able to find, read, and download much-needed reference materials and thesis outputs. Finding updated and relevant thesis outputs is considerably easier when using the Thesis Repository System.

Table 4. Pre-test responses for the question, "What can you say about the organization of the thesis outputs that you find and use?"

Respondent	Pre-test Response
Respondent 1	"… meron ring other links na dumidiretso sa mga mas open na research, pero 'yung iba kasi may bayad so need mo pang magsubscribe or magbayad ng gantong amount para makita mo kung ano 'yung mga details."
Respondent 2	"Usually naman they're properly organized naman but some talaga they require payments talaga, not accessible to all, they're not for free 'yun lang masasabi ko.
Respondent 3	"…when I open the thesis with regards to our topic, a bamboo! It's not what I'm looking for and when I type certain details, it's not giving me the information that I needed."
Respondent 4	"I am using the Embry-Riddle Aeronautical University, most of their researches are pertaining to the aviation industry itself. So, it's very hard to find researches from the maintenance part, but you can find aviation-based researches on their university website."
Respondent 5	"Organized naman kahit papa'no as long na tama yung organization na pagpupuntahan nung thesis."
Respondent 6	"So, kung sa organization ng thesis outputs, okay naman siya. Kumbaga easy lang siya i-access. 'Yun nga lang, again, babalikan ko yung kanina, 'yung iba kasi ay kailangan talaga ng bayad."
MATCHED RESPONSES	Thesis outputs and reference materials found online can often be misleading; the organization methods used by most websites and sources are inconsistent; encountering paywalls is fairly common, thereby allowing access to only incomplete reference materials.

Thesis outputs and reference materials in general are found in either soft or hard copies. Most students and users nowadays flock to the Internet simply for convenience – and it is within the Internet that hundreds upon thousands of reference materials are found. However, how they are arranged in different websites and systems can vary. Some websites and systems are able to showcase their inventory in a neat manner, while some rely on more basic methods of organization. The organization of information is important to the information gathering process – a neat, well-arranged, and systematic organization scheme can cut down the time, energy, and effort used to look for a particular resource.

Table 5. Post-test responses for the question, "What can you say about the organization of the thesis outputs that you find and use?"

Respondent	Post-test Response
Respondent 1	"…ayun nga meron silang mga filter, so pwede ako magsearch kung anong year, and then pwede ko ring malaman kung related siya sa may studies ko and then pwede kong makita kung quantitative ba siya, quali, and other types ng research."
Respondent 2	"It's well organized naman, especially 'yung mga years, pag-input niyo okay siya. Tas 'yung type of research it's good, talagang made-detail mo. So ayun, it's nice."
Respondent 3	"The organization is good, ahhh, there's, a-no, left side, there will, you can see the types of thesis then the year. And there's also, the search button is also visible."
Respondent 4	"Maganda."
Respondent 5	"Maganda ang ano natin, maganda ang pagkaka, okay."
Respondent 6	"For me, excellent siya. Again, unang-una, when comparing, those research kasi ay categorized within the section only. However, this time, it may be classified according to the types or category of research. At the same time, meron pang additional na year, so napakadali lalong-lalo na if there is a requirement for citation – like less than five years or ten years. So, mas madali, at mas specific ngayon yung tracking ng research."
MATCHED RESPONSES	The Thesis Repository System's organization of thesis outputs is immensely helpful and intuitive. By adjusting the search parameters such as the type of research and year of publishing, desired search results are easily obtained.

According to the respondents, the Thesis Repository System's organization is neat and easy to use. By using relevant search parameters, users are able to accurately manipulate the number of yielded search results until they end up with a reference material or thesis output that fits their preferences the most. All in all, the organization of thesis outputs

within the system, along with the method of how they are retrieved, contributes to a more hassle-free and less time-consuming process.

Table 6. Pre-test responses for the question, "Is there a possibility to encounter incomplete, invalid, or malicious files when searching for thesis outputs?"

Respondent	Pre-test Response
Respondent 1	"Yes, dahil minsan kapag nagsesearch ako minsan hindi credible 'yung nasesearch ko, iba 'yung lumalabas, minsan 'yung site napagtritripan lang."
Respondent 2	"Actually yes, especially when you're not a member or you don't have any subscription."
Respondent 3	"I find theses that are needed to be paid, uhhm, sometimes they are, uhhh, not the, right thesis, that's, that when under the name on the web. And sometimes it's just misinformation."
Respondent 4	"I usually encounter incomplete files when accessing this particular website, I just don't recall what particular website this is, but there's one website that gives you brief research and it would give you the next succeeding pages incomplete."
Respondent 5	"Sometimes! There's some topics na malicious, uhhh, paid, so, much better na humanap on books."
Respondent 6	"So dito sa part na ito, the possibility to encounter incomplete or invalid output is siguro wala naman. However, there is a site na nangangailangan talaga ng registration when it comes to complete downloading ng references. I think doon lang sa part na iyon, kasi sa iba talaga ay may bayad. Kaya I think in those cases nagkakaroon ng incomplete."
MATCHED RESPONSES	Encountering incomplete, invalid, or malicious files is a valid possibility when searching the Internet; another common problem is the usage of paywalls and subscription-based access by reputable scholarly websites; incomplete reference materials can commonly be found in sites where a paywall is erected.

Finding a particular reference material is already a matter on its own – it can sometimes vary in difficulty depending on the conditions and qualities of the source or system being used. However, ensuring that a particular reference material is valid is also another matter altogether. The possibility of finding an invalid reference material is ever present, especially in the Internet. Reference materials and thesis outputs can be incomplete, invalid, or even taken out of context. When a reference material is already plagued with one of the aforementioned problems, its reliability as a valid reference material takes a great hit. Not to mention that the websites that house these thesis outputs and reference materials could also be harmful due to the presence of malware, viruses, and malicious online content.

Table 7. Post-test responses for the question, "Is there a possibility to encounter incomplete, invalid, or malicious files when searching for thesis outputs?"

Respondent	Post-test Response
Respondent 1	"Based dito, hindi. Dahil lahat ng thesis dito is credited na and nabasa naman ng AMT department so masasabi ko na credible siya."
Respondent 2	"…less likely to have unessential details."
Respondent 3	"I guess not, if it, if this repository will be used by those who are only residing in PhilSCA."
Respondent 4	"…yung na-encounter natin earlier, which is yung wrong tagging of the nature of the research. Like yung de-icing fluid na under ng qualitative, it should be under experimental. Maybe it's just a problem of tagging."
Respondent 5	"Siyempre wala. Wala tayong malicious eh. Kasi files na natin ang inilalagay, no malicious files."

Respondent 6	"For me, wala naman, kasi if sa side ng admin lang 'yung control, I think nagkaroon ng filter and nabawasan yung possibility ng pagkakaroon ng incomplete or incorrect."
MATCHED RESPONSES	The probability of encountering incomplete, invalid, or malicious files while using the Thesis Repository System is significantly lower; the fact that all of the content within the system had come from previous batches of AMT students implies that all of them are valid; incorrect tagging of thesis outputs can lead to incidents where the thesis output can be described as inaccurate.

There is virtually no chance of malicious files entering the Thesis Repository System, at least by unassisted and normal means. The uploaded reference materials and thesis outputs are all inspected and approved by research instructors and the research coordinator. Looking back to the respondent's observation, it can be noted that as long as the authorized users are able to ascertain the quality and completeness of each and every thesis output being uploaded onto the Thesis Repository System, then there is a high probability that everything within the system is safe to use and reference.

Table 8. Responses for the question, "From a student/instructor/coordinator perspective, what are your comments with regards to the Thesis Repository System?"

Respondent	Response
Respondent 1	"Una, much better 'to dahil parang mas naging open 'to at mas madaling i-access kesa pupunta ka sa library and then dun ka maghahanap shelf by shelf." "Para sa'kin mas okay na nagagamit to kasi para mas mabilis nating makita yung mga research na kailangan natin as for reference na recent study natin na thesis."
Respondent 2	"…'yung text na lang dito sa mga title siguro, or 'yung mas maging ano, magandang font, mas malaking font or ganon." "Maganda siguro kung lagyan ng something code, parang kumbaga di 'ba sa library may dewey decimal system parang ganun."
Respondent 3	"It would be easier for the AMT students or other aviation related students whose looking for thesis outputs of the AMT students in PhilSCA."
Respondent 4	"Maganda 'yung concept niya, and if you're going to propose it to the library, it would be a good help." "Makukuha ng student yung gusto niya, sa type of research – it could be quali or quanti, experimental, mixed. Even the dates. What else? Maybe on the cons, whoever would be the administrator of the system, he or she should fix the object prior to the uploading of the thesis."
Respondent 5	"…your application system, okay na tayo. So, magagamit as a instructor of thesis, magagamit namin 'to, and magagamit namin din for lecture purposes."
Respondent 6	"For me, as a research coordinator last year, ang pros ko dito ay mas madali for the student to look for the related literatures and studies kasi nga offline naman, so walang issue doon. And at the same time, yung availability nung pag-gather ng data, 'yung soft copies, malaking bagay ito when it comes to student and faculty themselves."
MATCHED RESPONSES	The Thesis Repository System is an effective instrument for finding relevant thesis outputs related to Aircraft Maintenance Technology; the ease of access when using the Thesis Repository System is remarkable and significantly better than most sources; the system itself could benefit from minor improvements to its aesthetic and design aspects.

The Thesis Repository System is an innovative and highly useful system. It presents a much quicker and much more efficient method for the searching of thesis outputs and reference materials. Its capability to store thesis outputs is impressive as well. It possesses better ease of access compared to the conventional methods such as searching for particular information in Google. The organization method employed by the Thesis Repository System, which uses search parameters to thin down search results, is also a much-appreciated feature according to the respondents. Considering that it is in an early post-development stage, there are some minor improvements that could be made that would contribute to the Thesis Repository System's aesthetic and functionality.

Table 9. Responses for the question, "In your opinion, from what platform should AMT student thesis outputs be stored and accessed going forward?"

Respondent	Response
Respondent 1	"Dito. para sa'kin, oo, yes, dahil pwede mong balikan 'yung mga recent files. Kunyare ngayon is 2023 and kailangan mo ng at least 5 years ago na research or thesis pwede kang mag-browse dito and then kuha ka ng reference para meron kang for background of the study."
Respondent 2	"Sana mas ma-implement, tapos malagay siya sa library."
Respondent 3	"…we could upload the repository system is, of, of course first is our library. Uhh, and uhmm, on, if possible, online platforms so that it could be accessed, or, wherever you are especially at home or workplaces."
Respondent 4	"As of this moment, we are uploading your researches via Google Drive. It would be nice, again, if you had this kind of platform where you can upload ongoing research and ongoing theses. Then, at the end of the day, dito niyo na rin siya isusubmit."
Respondent 5	"Ngayon lang in AMT, ngayon lang na merong ganito. Possible na mas okay 'to to use for research and store research."
Respondent 6	"So, kung sakali, mas maganda if nasa library talaga siya and research office as well." "…napakaganda kasi ng ganyan, I think wala pang ganyan sa ILAS, wala rin namang ganyan sa ICS, so mas maganda locally ay pwede siya sa PhilSCA organization."
MATCHED RESPONSES	The Thesis Repository System is a valid storage and search solution for AMT thesis outputs; the optimal locations for the Thesis Repository System are the library, research office, and the AMT faculty office.

The Thesis Repository System is a valid option for thesis output storage in the future. It is relatively easy to use, and the uploading and downloading of thesis outputs is easily done by the allowed users. A user can readily view and read the contents of a thesis output within the system. The Thesis Repository System can benefit from being situated in an optimal location, such as the library, research office, and even the AMT faculty room. The Thesis Repository System stores thesis outputs in digital format, allowing for efficient storage of hundreds to thousands of outputs without deterioration over time. The system's organizational method ensures that all uploaded outputs are accessible and well-organized, even with a large volume.

Table 10. Responses for the question, "Should the Thesis Repository System be accessible from different locations?"

Respondent	Response
Respondent 1	"Much better kung naging accessible siya sa lahat pero limited lang sa mga students ng PhilSCA."
Respondent 2	"…pwede siyang mas magandang ma-access siya kahit saan, pero limited lang to philsca students."
Respondent 3	"Yes! Like I said uhhh it's much better if it would be accessible, as were, for example when you're working at your house and you'll need to access a certain thesis, and you have, aahh, you're not able to go to the library to look for the thesis and that you needed, you could access it through the repository system."
Respondent 4	"In the future, it would be nice if the system can be accessible from other places, hindi lang sa library. Kahit sa bahay, kahit nasa faculty lang kami. If we want to check the research, or if any student wants to check the complete list and line-up of research, isang click lang, they can see it."
Respondent 5	"Mas okay kung magagamit nang buong, di lang ng school para mas maganda yung pag-access."
Respondent 6	"For me, kahit saan dapat accessible. Kasi to be honest, thesis writing ay hindi siya nagagampanan in schools."
MATCHED RESPONSES	Remote accessibility for the Thesis Repository System would be helpful and convenient; the Thesis Repository System should be accessible from locations other than where the physical system currently resides.

Respondents agree that remote accessibility would greatly benefit the Thesis Repository System. Physical limitations such as distance and proximity are eliminated, allowing users to access the system from different locations. The ability to access the system remotely is particularly helpful for users who cannot reach it physically. Additionally, the respondents recognize that research and writing processes are not always performed in one location, making remote accessibility a valuable addition.

Table 11. Responses for the question, "Should the Thesis Repository System be accessible via smartphone or other devices?"

Respondent	Response
Respondent 1	"Yes, para sa'kin oo, dahil lahat ng students ngayon gumagamit na ng phone."
Respondent 2	"Yes, pwede naman, actually it's better din since 'di lahat may access sa computer."
Respondent 3	"Yes. Because, uhh, nowadays, uhh, it, people, only carries their phone and it will be more convenient for them if they could just open up the repository system on their phone and search for the things that they needed."
Respondent 4	"Of course, yes. But then again, there should be a mobile format for your software, kasi this is intended for laptops and computers."
Respondent 5	"Kung smartphone, puwede naman pero yung security purposes paano na su-sure na hindi mapapasukan ng malicious thesis or fake thesis, yun lang naman."
Respondent 6	"Big yes. Syempre naman diba. Nandoon na kasi tayo na hindi lahat ay may laptops, so malaking bagay na 'yung sa cellphone ay pwede mo na i-download."
MATCHED RESPONSES	It would be helpful and beneficial to users if the Thesis Repository System was made available for use in smartphones and other similar devices; the usage and presence of smartphones among students and faculty members is indicative of its usefulness, therefore the Thesis Repository System should be available in those devices.

The Thesis Repository System is currently available on personal computers such as laptops and desktops. However, the possibility of expanding its availability onto smartphones and other similar devices has already been offered by the researchers. The respondents also unanimously agree that a mobile version of the Thesis Repository System, which would be usable to its fullest capabilities while on a smaller and more compact device, is a valid and beneficial upgrade in the future. Should the Thesis Repository System be available on smartphones and other similar devices, the reach and accessibility of the system will increase significantly.

Table 12. Responses for the question, "In your opinion, how could the Thesis Repository System be maintained in later years?"

Respondent	Response
Respondent 1	"…mas i-enhance yung system parang katulad ng software na ay parang katulad yung pag-access sa may Facebook para maging mas mabilis 'yung or maging mas smooth 'yung system."
Respondent 2	"…maintenance is 'yung database niyo, since tuloy-tuloy ang mga input ng thesis dito so mas maganda sana kung maganda 'yung database niyo para di siya nagla-lag and all."
Respondent 3	"It could be maintained through, always updating the system to, with the new batches of thesis that are produced every year."
Respondent 4	"The only thing that comes to mind when it comes to maintaining the software, is proper funding. If this research is funded properly, then there's room for improvement. Mas mapapaganda pa 'to, mas magiging malawak yung contents ng research, and in the near future, siguro hindi lang siya io-offer for AMT, but for entire AMT, InET, and PhilSCA Villamor. Then, it could also be accessible for the entire PhilSCA community – Lipa, Basa, Mactan."
Respondent 5	"…updating lang ng mga files and yung mismong admin is ma-maintain lang niya every year."
Respondent 6	"I think, when it comes to maintenance, siguro nga 'yung pagdating sa storage. Kasi dadating 'yung time na every year may new additions." "So, I think mas maganda talaga na merong isang staff na marunong at kayang mag-fix sa issues na 'yan."

MATCHED RESPONSES	The Thesis Repository System should be continuously updated with new additions of thesis outputs; funding for its improvement and expansion would be instrumental for its growth; IT

The Thesis Repository System was well-received by the respondents. All respondents have shown their approval and expressed their impressions. With regards to its maintenance in the foreseeable future, the respondents believe that the Thesis Repository System must be funded or supported appropriately. As most systems require maintenance, it is only expected that a certain amount of funding would be needed to secure the system's effectivity and relevance as the months and years go by. Funding would also kickstart the efforts for expansion should the school pursue it. Apart from expansion in terms of storage and reach, the Thesis Repository System would also benefit from continued maintenance by an IT professional. Through the regular monitoring and maintenance of an IT professional, the entirety of the system will remain operational and free from any operation-interrupting bugs or errors.

Conclusion

- The data gathering process yielded a significant amount of information from the respondents. This information, after being interpreted, analyzed, and tabulated, became the basis for drawing the following conclusions:

- There are six respondents who have experienced utilizing the Thesis Repository System. Three of them are class representatives and students, two are AMT research instructors, and one is a former AMT research coordinator.
- Searching the Internet for relevant thesis outputs related to Aircraft Maintenance Technology is often met with difficulty. Paywalls are terrible hindrances to accessing valid reference materials, which leaves users with thesis outputs that are often invalid or incomplete. Moreover, there is no consistent organization system for the thesis outputs that are found online, at least in the websites and sources that are free to access. There is also the ever-present possibility to come across incomplete, invalid, and malicious files when searching the Internet.

- The Thesis Repository System is easy to use. Its organization system and search functions are immensely helpful for users looking for relevant thesis outputs related to Aircraft Maintenance Technology. The search process is quick, easy to understand, and efficient. Moreover, there is little to no chance of encountering incomplete, invalid, and malicious thesis outputs or reference materials.

- The features of the Thesis Repository System, particularly the search function and the organization of AMT-related thesis outputs, are the driving forces that made the respondents prefer the Thesis Repository System as a means for accessing and storing thesis outputs. The availability of search parameters could not be overstated, as it effectively alters search results based on what the user is looking for.

- The Thesis Repository System is a valid instrument for storing and accessing thesis outputs related to Aircraft Maintenance Technology. In most cases, it works better than the run-of-the-mill scholarly websites that could be found when searching the Internet. It also works in a different manner than online storage solutions such as Google Drive. The respondents felt that the Thesis Repository System is feasible and could be implemented in the school setting.

- Based on the data gathered, the study accepts the alternative hypothesis as stated in Chapter I. The Thesis Repository System allow students and faculty members to access relevant thesis outputs related to Aircraft Maintenance Technology; and the Thesis Repository System did in fact have some discrete advantages over conventional methods for accessing and storing thesis outputs.

- The Thesis Repository System garnered remarkable impressions – most of them being positive. No one rejected the idea of utilizing the Thesis Repository System in PhilSCA – VAB. On the contrary, all respondents expressed affirmation and preference for the Thesis Repository System.

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References

Altextsoft. (2021, October 29). The Good and the Bad of C# Programming. AltexSoft. https://www.altexsoft.com/blog/c-sharp-pros-and-cons/

Antee, A. (2020). Student perceptions and mobile technology adoption: implications for lower-income students shifting to digital. Educational Technology Research and Development, 69(1), 191–194. https://doi.org/10.1007/s11423-020-09855-5

Atoy, M. B., Garcia, F. R. O., Cadungog, R. R., Cua, J. D. O., Mangunay, S. C., & de Guzman, A. B. (2020). Linking digital literacy and online information searching strategies of Philippine university students: The moderating role of mindfulness. Journal of Librarianship and Information Science, 52(4), 1015–1027. https://doi.org/10.1177/0961000619898213

Dudovskiy, J. (2019). Qualitative Data Analysis - Research-Methodology. Business Research Methodology. https://research-methodology.net/research-methods/data-analysis/qualitative-data-analysis/

George, T. (2022). Types of Interviews in Research | Guide & Examples. Scribbr. https://www.scribbr.com/methodology/interviews-research/

Grajek, S. (2020, October 2). EDUCAUSE QuickPoll Results: IT Budgets, 2020–21. Er.educause.edu. https://er.educause.edu/blogs/2020/10/educause-quickpoll-results-it-budgets-2020-21

Hoover, L. (2021, June 1). What Is Qualitative vs. Quantitative Study? GCU. https://www.gcu.edu/blog/doctoral-journey/what-qualitative-vs-quantitative-study#:~:text=Quantitative%20studies%20rely%20on%20numerical

ISO 25010. (n.d.). Iso25000.com. Retrieved February 12, 2023, from https://iso25000.com/index.php/en/iso-25000-standards/iso-25010?fbclid=IwAR0ZJQYdDAwFhB0pd0ThZX4x5xxbrvzx5ruILLHA_BdFj3KvJlDQpOUkO4E

Jovancic, N. (2019, April 2). 5 Data Collection Methods for Obtaining Quantitative and Qualitative Data. LeadQuizzes. https://www.leadquizzes.com/blog/data-collection-methods/

Microsoft. (2022, July 8). What's new in Visual Studio 2022. Docs.microsoft.com. https://docs.microsoft.com/en-us/visualstudio/ide/whats-new-visual-studio-2022?view=vs-2022

Narangoda, O. (2022, December 13). What Is a Thesis? Shorelight.com. https://shorelight.com/student-stories/what-is-a-thesis/

Payne, J. (2021, May 5). Benefits of C#. CodeGuru. https://www.codeguru.com/csharp/benefits-of-c/

Perdana, I. A., & Prasojo, L. D. (2020). Digital Library Practice in University: Advantages, Challenges, and Its Position. Proceedings of the International Conference on Educational Research and Innovation (ICERI 2019). https://doi.org/10.2991/assehr.k.200204.009

Pollock, T. (2019, June 13). The Difference Between Structured, Unstructured & Semi-Structured Interviews. Oliver Parks Consulting LLC - Technology Sector Recruitment Experts. https://www.oliverparks.com/blog-news/the-difference-between-structured-unstructured-amp-semi-structured-interviews

Shah, S. (2021, November 30). Understanding the Effects of Online Paywalls on Information Access. Ir.library.oregonstate.edu. https://ir.library.oregonstate.edu/concern/honors_college_theses/pg15bp10j?locale=en

Soni, N., Gupta, K., & Shrivastava, J. (2018, January). Awareness and Usage of Electronic Resources among LIS Scholars of Jiwaji University, Gwalior : A Survey. ResearchGate. https://www.researchgate.net/publication/322469374_Awareness_and_Usage_of_Electronic_Resources_among_LIS_Scholars_of_Jiwaji_University_Gwalior_A_Survey

Stephanie. (2022, January 6). Research Methods: Qualitative Research and Quantitative Research. Statistics How To. https://www.statisticshowto.com/research-methods-qualitative-research-and-quantitative-research/#:~:text=Quantitative%20research%20is%20statistical%3A%20it

Valcheva, S. (2018, March 19). Qualitative Data Analysis Methods And Techniques. Blog for Data-Driven Business. https://www.intellspot.com/qualitative-data-analysis-methods/#:~:text=There%20are%20a%20wide%20variety%20of%20qualitative%20data

Williamson, B. (2018). Startup Schools, Fast Policies, and Full-Stack Education Companies. The Wiley Handbook of Global Educational Reform, 283–305. https://doi.org/10.1002/9781119082316.ch14

Your Office Anywhere. (n.d.). What is SQL Server Express used for? Your Office Anywhere. https://www.yourofficeanywhere.co.uk/info-hub/what-is-sql-server-express-used-for/