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Development and Evaluation of St. Michael's College of Iligan, Inc. NSTP Management System

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ABSTRACT: This study focuses on the development and evaluation of a web-based NSTP Management System of St. Michael College of Iligan, Inc. It was an advocacy that was influenced by the issues linked with manual maintainability of records, certificate processing time inconveniences and increasing threats to confidentiality of student data. To counter these problems, the system was developed to automate key processes, including student registration, attendance, and activity tracking as well as issue of completion certificates. Sixty-six users were shortly involved in the assessment of the system. Their opinions were provided based on System Usability Scale (SUS). The SUS average score of 54.5 means it satisfies the category below average. Although the system has been largely valued as intuitive to master, the problem cited by the user revolved around the problem of navigation and even the instances when the system was found to be highly dependent on technical assistance. However, the system was successful in terms of cutting down on administrative work and protection of personal data.

KEYWORDS: management system, web-based application, usability evaluation, user experinece

1. 0 INTRODUCTION

The National Service Training Program (NSTP) is a government introduced program introduced under Republic Act 9163 or the NSTP Act of 2001, the aim of the program is to create civic responsibility in Filipino students both in college or vocational programs through defense preparedness. The structure and essence of NSTP discuss the promotion of discipline, social awareness, and volunteerism built around the community involvement and called service activities (DILIMAN, 2020; Santo Tomas, 2020).

St. Michael's College (SMC) in Iligan City—a Catholic institution known for its commitment to holistic education. The management of NSTP student data has faced several long-standing challenges. Among the most pressing are concerns over data privacy and the inefficiencies tied to manual processes. At present, student information is gathered using Excel spreadsheets during class sessions, which unfortunately exposes personal data to other students, risking confidentiality breaches.

In order to eliminate them, this work recommends the creation of SMC NSTP Management System, which is an online platform that would be centralized, and could provide more accurate information, safeguard student privacy, and simplify administrative procedures. This system aims at improving the operations of NSTP to keep up with the core values of SMC that is Faith, Excellence and Service. Based on existing examples of a successful implementation of a similar school information system, the given program is expected to maximize efficiency, security, and user satisfaction (Grepon et al., 2021; DILIMAN, 2020).

2.0 THEORETICAL AND EMPIRICAL BACKGROUND

Theoretical Framework

The development of the NSTP Management System at St. Michael's College was guided by the **System Usability Scale (SUS)** to measure the usability and intuitiveness of the system. Originally developed by John Brooke in 1996, SUS consists of a simple ten-item questionnaire with response options ranging from "Strongly agree" to "Strongly disagree." All the responses are aggregated to give one score, which indicates the usefulness of the system.

The SUS tool was adopted in the present research to analyze how actual users experienced the major capabilities of NSTP Management System, such as user authentication, attendance, and activity monitoring, and creation of certificates. SUS has the advantage of being a trustworthy and easily rapid mechanism to measure the satisfaction of the user (Bangor et al., 2009), which makes it effective especially in education.

Respondents provided feedback on the system after trying it and concentrated on the ease of navigating as well as consistency, perceived intuitiveness of the interface. Their answers were compared according to the normative SUS recommendations to find out whether the system could fulfill the expectations of usability. The use of SUS ensures that the

evaluation is not only standardized but also interpretable in broader usability research, allowing for benchmarking against similar educational management systems.

Empirical Background

The need to address the real-life issues in the St. Michael College on a day-to-day basis led to the development of the NSTP Management System. One of the issues includes manual processing of information of students, the tedious and time-consuming production of NSTP completion certificates and a wasteful issuance of serial numbers. These inefficient measures did not only waste time but also posed a lot of questions to the privacy and integrity of student information.

To make sure that the system really solved these issues, the researchers; tested the system on-ground using a study sample of 66 actual users; who tested the system and provided feedback on the basis of their experience in using the system. By means of directed activities and post-interviewing, participants discussed that the system allowed them to relieve their workload, better manage sensitive information, and accelerate the certificate processing process to a considerable extent.

The developers took the same approach to support the structure of the system because industry-standard tools are similar such as context diagrams, data flow diagrams, entity-relationship diagrams and a data dictionary. These tools assisted in visualizing and making the correct flow of information through the system. All in all, this data and user-centered method demonstrates how institutional processes can be changed with the use of digital solutions, when the real needs of the users are taken into account.

3.0 RESEARCH OBJECTIVES

At St. Michael's College of Iligan, Inc., managing the National Service Training Program (NSTP) has become increasingly difficult due to reliance on manual processes. While the program is meant to instill service, discipline, and civic responsibility among students, outdated methods of handling data are slowing things down and creating risks that contradict these very goals (DILIMAN, 2020; Santo Tomas, 2020).

Teachers gather student details on spreadsheets they share during in person meetings. This way of working violates the Data Privacy Act. Students see other students' private information, which brings up worries about data privacy plus keeping data safe Grepon et al. (2021) point this out. The school assigns NSTP serial numbers and prints certificates for finishing the program by hand - this takes a lot of time and often causes mistakes. As more students join, these administrative tasks get harder to handle, according to Galabin Jr. (2024).

The researchers found different problems that this study will address. The current way to collect student data does not follow the Data Privacy Act. Students can see other students' private details, which harms privacy. Teachers deal with the manual task of giving NSTP serial numbers to each student; this uses up a lot of time as well as is not practical, particularly with many students. Making custom certificates for students who finish the program weighs heavily on the registrar or the person who makes the certificates. Many students need a custom certificate, which causes delays and does not use time well.

Because no centralized automated system exists, verifying program completion and also handing out certificates takes longer. That affects how students feel and adds work for the registrar - these problems show that the school needs a web based NSTP Management System that ensure secure, accurate, and accessible data handling for all stakeholders while addressing longstanding operational bottlenecks (NSTP-Module-1, 2023).

4.0 METHODOLOGY

This section discusses the methods and processes of developing and deploying the system. In addition, it present context diagram that represents the overall structure of the system which included the external entities, the input and output of the system.

i. Research Design

The study used a developmental descriptive research design to construct and evaluate the NSTP Management System for St. Michael's College. The developmental part centered on building a central, web based system. This system manages NSTP processes - it collects student data, assigns serial numbers, creates certificates along with protects data privacy (Grepon et al., 2021).

The descriptive part evaluated how users experienced the system. Researchers observed how users used its features; they gathered feedback - this helped them judge the system's ease of use and its value in daily operations (Bangor et al., 2009).

Combining these approaches meant the system worked and was useful. It was easy to use - it responded to the needs of the people who used it. The study's design showed the values of St. Michael's College - Faith, Excellence as well as Service. That meant the new technology came from purpose, quality in addition to care for the school community.

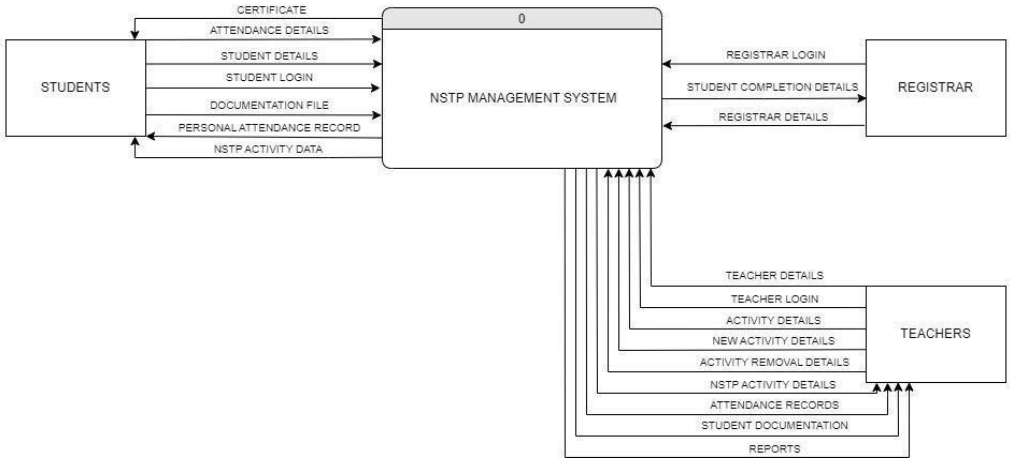

Figure 1. Context Diagram

Figure 1 shows the simplified, high-level view of how the NSTP Management System works at St. Michael's College of Iligan - it points out the main people who use the system, which are students, teachers along with the registrar. It also shows how each person deals with the system.

A student uses the system as the main way to handle NSTP needs; they sign in to put in personal data, check attendance, send in required papers, or get their certificates after finishing the program. This lets them follow their duties and understand their standing in the course. A teacher, however, uses the system to oversee and manage student participation. They sign in to put in attendance details, add activity information, and check how students take part - they also can change or remove records when necessary, also create reports to grasp student progress. The registrar holds an administrative job. When using the system, the registrar can check student records, look for program completion, and handle final certificates - this lowers the amount of paper as well as causes the whole certificate release process to be quicker and more precise.

The system serves as a digital link that joins all users - it makes sure that all people involved - students, teachers as well as registrar - work together smoothly plus keep NSTP tasks structured and safe.

ii. Data Collection Method

To understand how the NSTP Management System functioned in a practical setting, the researchers collected information from 66 students taking part in the NSTP program. The students tried the system's main functions, such as signing up, noting attendance, observing activities along with getting certificates.

After the students interacted the system, they answer the **System Usability Scale (SUS)** questionnaire (Brooke, 1996). This way, the researchers got numbers plus descriptions about how well the system worked and whether it was easy or hard to use.

When users directly explored the system also then thought about their experience, the researchers gathered helpful facts about what the system did and how happy users were. This showed that the evaluation came from actual use, not just ideas.

iii. Sampling

The researchers used purposive sampling to select participants who were directly involved in NSTP processes. These included individuals who handle student records, check program compliance, and manage the daily administrative workload caused by the current manual system.

By choosing participants who regularly interact with NSTP tasks Comments came from people who knew and used the system's problems and what it needed. This way, the study got real information that came from people's experience. The information came from all the main user groups whom the new system helped (DILIMAN, 2020).

iv. System Development Tools

The NSTP Management System was developed using widely adopted technologies to ensure scalability and user accessibility:

- **Front-End:** HTML, CSS, JavaScript
- **Back-End:** PHP
- **Database:** MySQL
- **IDE:** Visual Studio Code
- **Testing/Deployment:** Localhost and browser-based testing environments

System requirements were based on baseline academic IT infrastructure to accommodate ease of access for both faculty and students (Baran, n.d.).

v. Data Analysis

Quantitative data from SUS responses went through an analysis with standard scoring methods. This showed how easy the system was to use. Scores came from the System Usability Scale (SUS). This is a tool that works, and it has 10 items. People answer these items on a 5-point Likert scale. The way to score SUS responses means that you change each answer into a standard score. You then add these scores together. Multiply that sum by 2.5 to get a final score - this score goes from 0 to 100.

SUS Score Range	Qualitative Interpretation
85 – 100	Excellent (Grade A)
70 – 84	Good (Grade B)
50 – 69	OK to Marginal (Grade C)
0 – 49	Poor (Grade D to F)

The System Usability Scale (SUS) provides a reliable measure of perceived system usability, scored from 0 to 100. However, these scores do not represent percentages. Instead, they are relative measures derived from benchmark data. The average SUS score is approximately 68, meaning scores above this are considered above average, while scores below indicate below-average usability (Brooke, 1996; Bangor et al., 2009).

To improve interpretation, SUS scores can be normalized into percentile ranks. For instance, a score of 74 typically falls in the 70th percentile, corresponding to a B- grade, while scores above 80.3 are rated as excellent (top 10%) and linked to high user satisfaction and recommendation intent (Sauro & Lewis, 2016). Conversely, scores below 51 are generally rated as poor.

SUS captures both usability and learnability, making it broadly applicable in evaluating a range of user-facing systems (Lewis, 2018). When presenting findings to stakeholders, converting raw scores to percentiles and grades enhances clarity and decision-making.

vi. Ethical Considerations

All participants provided informed consent and were assured of:

- **Informed Consent:**

All participants were informed of the study's objectives, procedures, and their rights. Written or verbal consent was obtained prior to participation.

- **Voluntary Participation:**

Participation in the study was completely voluntary. Participants were allowed to withdraw at any stage without any penalty or consequence.

- **Anonymity and Confidentiality:**

No personally identifiable information was collected in the reporting of results. All responses and data were kept confidential and used solely for research purposes.

- **Data Privacy Compliance:**

The entire system development and research process followed the guidelines of the **Data Privacy Act of 2012**, making sure that all personal and institutional information was kept secure, private, and handled with the highest ethical standards.

- **Data Security:**

Collected data were stored in secure environments, protected from unauthorized access, and used only for evaluating the NSTP Management System.

- **Respect for Participants:**

During the study, and especially when the researchers gathered data and tested usability, the researchers treated each participant with respect and care. The dignity, rights along with general well-being of the participants held importance. The research went through an ethical review.

The internal ethics committee of St. Michael's College of Iligan Inc. approved the study. All procedures followed the institution's standards for responsible and ethical research.

5. 0 RESULTS AND DISCUSSION

This section shares the results from the evaluation of the NSTP Management System developed for St. Michael's College of Iligan, Inc., The Researchers used the System Usability Scale (SUS) to check the users experience in using the system. The SUS is a tool that measures how easy something is to use and how happy users are with it. The college collected comments from users. This helped them find good parts of the system plus areas for change. The discussion describes those findings and shows how the system changed the way the college handles NSTP tasks also processes.

Table 1

Indicators	Mean	SD	Qualitative Interpretation
I think that I would like to use this system frequently	3.30	1.189	*Sometimes*
I found the system unnecessarily complex	2.98	1.074	*Sometimes*
I thought the system was easy to use.	3.21	1.117	*Sometimes*
I think that I would need the support of a technical person to be able to use this system.	2.94	1.263	*Sometimes*
I found the various functions in this system were well integrated.	3.42	1.164	*Very Often*
I thought there was too much inconsistency in this system.	2.89	1.069	*Sometimes*
I would imagine that most people would learn to use this system very quickly	3.48	1.292	*Very Often*
I found the system very cumbersome to use.	3.09	1.147	*Sometimes*
I felt very confident using the system.	3.38	1.160	*Sometimes*
I needed to learn a lot of things before I could get going with this system.	3.18	1.346	*Sometimes*
Total Mean	**3.19**	**0.934**	***Sometimes***

The NSTP Management System was assessed with the System Usability Scale (SUS). This provided helpful information about how people viewed its simple use and its functions. The average score for all items was 3.19 (SD = 0.934). This result fits the "Sometimes" category on the SUS interpretation scale - it shows a mostly good experience, but the system had some drawbacks.

Among the ten measures, users responded best to one statement: "I would imagine that most people would learn to use this system very quickly." This item received a mean score of 3.48. This tells us that participants thought the system was rather simple to learn. Good responses also appeared for items about how the system fit together and how users felt about it, which means users liked how the system's parts operated with each other, plus they felt rather sure when they used it.

Lower scores appeared for sections that showed differences and the need for help. Statements such as "I thought there was too much inconsistency in this system" and "I would need the support of a technical person to use the system" point to some users having trouble moving around the system without help.

The findings show that users could learn also use the system. But some areas still need work. The interface needs to be made simpler, and the system's difficulty needs to go down - these outcomes guide upcoming changes; they aim for better operation, happier users along with a more straightforward time for all people who use it.

Table 2

Scoring Scale	*f*	Percent	Mean	SD	Qualitative Interpretation
> 68	8	12.12	77.4	9.80	***Above Average***
< 68	58	87.88	51.3	6.59	***Below Average***
Total	**66**	**100.00**	**54.5**	**11.0**	***Below Average***

To understand the individual item responses from the System Usability Scale (SUS), the researchers studied the general classification of scores. This provided a clearer picture of how users rated the NSTP Management System's usability. The team used the standard SUS benchmark. A score of 68 is often the minimum for acceptable usability. The team assessed whether the system met, went past, or did not reach user expectations.

- Only **8 out of 66 respondents (12.12%)** rated the system with a score **above 68**, indicating that a small minority found the system **"Above Average"** in usability (M = 77.4, SD = 9.80).
- A large majority of **58 respondents (87.88%)** rated the system **below the acceptable threshold** with an average score of **51.3 (SD = 6.59)**, falling under the **"Below Average"** category.
- The **overall mean score across all users was 54.5 (SD = 11.0)**, further affirming a **"Below Average"** usability level for the system.

These findings reinforce the earlier item analysis, where the overall item mean was 3.19 — interpreted as "Sometimes" — reflecting mixed experiences with the system. Although users found the system relatively easy to learn and well-integrated, the substantial proportion of users who rated the system below the SUS benchmark suggests a consistent perception of usability limitations.

In essence, while a few users had a positive experience, the dominant trend highlights the need to improve the system's usability to meet the expectations and needs of the broader user base. This includes reducing technical complexity, enhancing interface consistency, and possibly offering onboarding tools or training for new users. Closing these usability gaps won't just raise the SUS

scores in future assessments—it will also play a key role in making the NSTP Management System more widely accepted and appreciated by its users.

6.0 CONCLUSION

St. Michael's College of Iligan, Inc. developed and assessed the NSTP Management System. The school meant for the system to fix old problems - these problems involved handling student information, issuing certificates along with keeping data private. The system put all information in one central, web-based database. This helped students, teachers as well as the registrar process NSTP work much faster and electronically hence the daily work became smoother and more orderly.

To check how well the system worked for users, the researchers used the System Usability Scale (SUS). The total score was 54.5, which meant the system was "Below Average." Many users said the system was somewhat easy to learn; they also liked how the features connected. There were still clear concerns. Some people found the screen confusing. Other users felt it was not consistent or hard to use without help. The findings show that the system did improve how well things ran. The system can still get better - it needs to become simpler and easier for all users.

7.0 RECOMMENDATION

In light of the study's results, some changes could improve the NSTP Management System's use and its effect on people. The design of the user interface needs a new look so it is simpler and easier to use. This particularly applies to those who found the present design hard to move around in or visually unclear. Clearer arrangements plus easier ways to move through the system help users feel more sure of themselves; they also spend less time learning the system. Regular training sessions for both students and teachers will help everyone know how to use the platform correctly - this reduces their need for technical help.

Adding a feedback tool within the system would also help - it lets users share their thoughts or problems directly. That can show where to improve the system over time. Along with this, providing support tools, such as a help-desk, user manuals, or FAQ, will allow users to solve their own problems more easily. Making the system work well on phones is another important step, because many students access digital platforms mostly through their smartphones. As more students join NSTP, it is also sensible to test the system's performance and its ability to handle more users often; this keeps it steady also working well.

These actions help the NSTP Management System truly back the institution's promise of good quality and service. They also would create a smoother, safer along with more reactive digital place for managing civic education.

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