



Surigao del Norte National High School
Senior High School, Surigao City

**Development of E-tutor Learning Portal: As Supplementary
Learning Resources**

A Science Investigatory Project
Presented to
the Faculty of the Senior High School
Surigao del Norte National High School
Surigao City

In Fulfillment
of the Requirements for the Senior High School
Practical Research 2
INFORMATION AND COMMUNICATION TECHNOLOGY
COMPUTER SYSTEM SERVICING
(ICT-CSS)

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October 2025



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CHAPTER 1

PROBLEM AND IT'S BACKGROUND

This chapter presents the introduction, theoretical and conceptual framework, statement of the problem, hypothesis, significance of the study, scope and limitation of the study and definition of terms.

Introduction

In recent years, schools in the Philippines have faced major disruptions due to the COVID-19 pandemic and natural disasters such as typhoons. These events often led to the suspension of face-to-face classes and forced a rapid shift to modular or online learning, even when teachers and students were not fully prepared. To cope, many teachers—already managing heavy workloads—used personal messaging apps like Facebook Messenger to send lessons, modules, and instructions to students (Agayo, 2022). Although this approach was helpful during emergencies, it often resulted in unorganized communication and confusion. Students found it difficult to keep track of materials, especially when academic messages were mixed with personal chats (Dangle & Sumaoang, 2020).

An e-learning portal is a digital platform that allows teachers and students to interact, access lessons, submit assignments, and manage academic content online. These platforms are designed to centralize all



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learning materials in one place, making it easier for both educators and learners to stay organized. E-learning portals are especially helpful during modular and online learning, as they can store videos, downloadable files, announcements, and even assessments. According to Shiau Gee (2022), e-learning platforms that include clear navigation, mobile responsiveness, and organized content features contribute to improved learner engagement and more effective learning outcomes.

Despite the widespread use of messaging apps in education, there remains a clear gap in providing a structured, user-friendly digital learning system tailored to public school learners. Tools like Facebook Messenger, while convenient, lack essential academic features such as file management, progress tracking, and student assessment (Agayo, 2022). Additionally, in rural and disaster-prone areas, the absence of a stable learning platform limits students' access to continuous education during school closures (Dangle & Sumaoang, 2020).

In response to these challenges, this study aims to design and develop an e-Tutor Learning Portal that will serve as a supplementary and accessible educational resource for both teachers and students. The portal is envisioned to support modular and online learning by improving the organization of learning materials, simplifying lesson delivery, and



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reducing the confusion caused by informal communication tools. Although the portal is still under development, it holds strong potential to become a practical, inclusive solution that promotes flexible learning, particularly during emergencies and school suspensions.

Review of Related Literature

The COVID-19 pandemic forced many schools in the Philippines to adopt online and modular learning almost overnight. Platforms like Google Classroom and PHL-CHED Connect were introduced to support remote education, yet schools in rural areas such as Surigao del Norte National High School (SNNHS) faced challenges including limited infrastructure and fragmented delivery of materials (Commission on Higher Education [CHED], 2020). Teachers at SNNHS often resorted to informal tools such as Facebook Messenger or Google Drive, which were not specifically designed for structured academic use.

Lucero et al. (2022) evaluated e-learning readiness among government and private institutions in the Philippines, identifying limitations in digital infrastructure and faculty training. Their study emphasized that while institutions were open to adopting educational technologies, successful implementation depended on systematized



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training and context-appropriate design—factors that remain largely unmet in public high schools like SNNHS.

Fabito et al. (2020) found that students faced a variety of barriers in online learning including internet instability, lack of devices, and distractions at home. Similarly, Baticulon et al. (2021) highlighted limited digital literacy and access to stable connections as recurring problems in many parts of the country. These issues are particularly evident at SNNHS, where students typically rely on smartphones and prepaid mobile data, often leading to inconsistent learning Experiences.

Abaricia and Delos Santos (2023) proposed a mobile-first learning portal with a clean interface and simplified file access to address usability concerns among learners. However, recent findings from Ballard et al. (2025) at the University of Science and Technology of Southern Philippines (USTP) reported only moderate satisfaction levels with current e-learning platforms, citing issues such as low clarity, engagement, and efficiency. These underscore the need for more adaptive and user-centered portals in public schools.

Although national platforms such as PHL-CHED Connect exist, no dedicated, school-based, mobile-friendly e-tutor portal has been implemented at SNNHS. Learning materials are scattered across multiple



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platforms, and students must manually keep track of them. This presents a gap in educational technology that this research seeks to address: creating a locally developed, organized, and accessible e-tutor portal specifically tailored for the needs of SNNHS students and teachers.

In summary, existing studies show a clear need for more inclusive and school-specific learning portals in the Philippines. Many platforms are not optimized for rural public school settings like SNNHS. This research addresses that gap by proposing a localized e-tutor portal that is mobile-accessible, organized, and functional during both normal and disrupted class schedules, such as during typhoons or emergencies.

Statement of the Problem

In response to the challenges faced by schools in maintaining continuous learning during crises such as the COVID-19 pandemic and natural disasters, this study aims to design and develop an E-Tutor Learning Portal as a supplementary digital platform for modular and online learning. The system seeks to organize instructional materials, facilitate communication between teachers and students, and enhance accessibility in both normal and disrupted class schedules.

This study specifically seeks to answer the following questions:



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1. What are the components of the system necessary to make possible the development of the E-Tutor Learning Portal?
2. To what extent is the level of acceptability of the developed E-Tutor Learning Portal in terms of:
 - Usability
 - Functionality
 - Accessibility
 - Cost-effectiveness
3. Based on the findings, what recommendations can be proposed to improve the developed E-Tutor Learning Portal?
4. What challenges or limitations were encountered during the development and initial testing of the E-Tutor Learning Portal?
5. How can the E-Tutor Learning Portal be further enhanced to ensure sustainability and wider adoption among public school teachers and students?

Assumption

It is assumed that the respondents—composed of teachers and students—will evaluate the developed E-Tutor Learning Portal objectively based on its usability, functionality, accessibility, and cost-effectiveness. The study assumes that users possess basic digital literacy skills and have



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access to internet-enabled devices necessary for testing the portal's features.

Furthermore, it is assumed that:

1. The E-Tutor Learning Portal will be usable, offering a clear and simple interface that allows users to navigate and access learning materials without difficulty.
2. The system will demonstrate functional reliability, meaning that all its major features (uploading, downloading, communication, and file management) will operate as intended.
3. The portal will provide accessibility for both teachers and students, ensuring that content can be viewed effectively on mobile phones and computers even under limited connectivity.
4. The portal will be cost-effective, requiring minimal expenses for maintenance and operation compared to other commercial learning platforms.

These assumptions support the expectation that the developed E-Tutor Learning Portal will be acceptable to its intended users and will contribute to improving the delivery of modular and online learning in public school settings.



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Significance of the Study

This study is significant as it addresses the growing need for a more organized and accessible digital learning platform in the Philippine educational system. With the shift to online and modular learning brought about by the COVID-19 pandemic and recurring natural disasters, teachers and students have relied heavily on informal communication tools that are often unstructured and inefficient. The development of the E-Tutor Learning Portal aims to provide a practical, centralized platform that supports the continuity of education, especially during times of disruption.

Teachers. The portal will serve as a convenient tool to upload and organize learning materials such as lesson plans, modules, and instructional videos. This system will help minimize the time spent on sending materials individually, thereby improving instructional efficiency and classroom management.

Students. The portal will make it easier to access their lessons in one organized location. It supports self-paced learning and allows students to revisit content at any time, improving comprehension and academic performance. This is especially useful for learners in rural or disaster-



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prone areas with limited internet connectivity, as the portal is being designed with accessibility and responsiveness in mind.

School Administrators and Policy Makers. The study offers a replicable model that can be adopted by other public schools seeking to modernize their learning delivery. It highlights the importance of integrating user-friendly technology into education and provides insights into improving digital learning strategies.

Future Researchers. This study may serve as a foundation for further exploration into digital tools for education, particularly in enhancing student engagement, tracking learning progress, and integrating adaptive learning technologies in low-resource settings.

Scope and Limitation of the Study

The scope and limitation of this study are thoroughly discussed below to provide a clearer and specific understanding of the topic. The following points give an overview of the study and are enumerated as:

Focus. This study focused on the design and development of an E-Tutor Learning Portal for Surigao del Norte National High School. The aim was to assess its acceptability and effectiveness in supporting modular and online learning. The study explored the portal's impact on organizing



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learning materials, improving lesson accessibility, and facilitating communication between teachers and students.

Place and time. The study was conducted at Surigao del Norte National High School, Surigao City, during the academic year 2025–2026.

Scope. The study covered the portal's major features, including teacher file uploads, student access to lessons, and basic account management. The evaluation was limited to the criteria of usability, functionality, accessibility, and cost-effectiveness.

Limitation. The study was restricted to teachers and students of SNNHS, and results may not be generalizable to other schools. Limitations also included internet connectivity issues and device availability, which may affect user experience and feedback. Advanced features such as automated grading and analytics were not included in this version of the portal.

Definition of Terms

E-Tutor Learning Portal. A digital platform designed to organize and deliver lessons, modules, and instructional materials online, allowing teachers and students to interact and manage academic content efficiently.



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Usability. The ease with which users can navigate the portal, access learning materials, and complete tasks without confusion or difficulty.

Functionality. The degree to which the portal performs its intended operations, such as uploading files, submitting assignments, and supporting teacher-student communication.

Accessibility. The capability of the portal to be accessed by users regardless of location or device, including mobile phones, tablets, or computers, even with limited internet connectivity.

Cost-effectiveness. The extent to which the portal provides its intended services and benefits while minimizing expenses related to its development, maintenance, and use.

Modular Learning. A learning method in which students complete self-contained modules or lessons independently, often at their own pace, used particularly during disruptions to face-to-face classes.

Online Learning. A method of education where teaching and learning occur through digital platforms over the internet rather than in a traditional classroom setting.

Digital Literacy. The ability of students and teachers to effectively use technology tools and platforms to access, manage, and communicate information in an online learning environment.



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Developmental Research. A type of research focused on the creation, testing, and evaluation of a product, tool, or system, such as the E-Tutor Learning Portal, to solve a specific problem or improve practice.

Conceptual Framework

The rapid digital transformation in education, intensified by the global pandemic, has emphasized the importance of accessible and engaging online learning platforms. The development of e-learning tutor portals has emerged as a solution to bridge the gap between traditional and modern educational delivery. As learners increasingly depend on online resources, it becomes vital to ensure that these portals are user-friendly, interactive, and effective in supplementing formal education.

According to Adedoyin and Soykan (2020), the COVID-19 pandemic accelerated the adoption of e-learning tools, making them essential for maintaining educational continuity. Dhawan (2020) emphasized that digital learning platforms need to prioritize interactivity and flexibility to accommodate different learning styles. Ferri, Grifoni, and Guzzo (2020) highlighted that the effectiveness of e-learning lies in how well the system is designed and delivered, particularly in terms of accessibility and learner engagement. Coman et al. (2020) stated that student satisfaction and platform usability are critical for the success of e-learning systems.



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Similarly, Almahasees, Mohsen, and Amin (2021) pointed out that integrating technology in education must also focus on student experience and ease of use to achieve optimal outcomes.

Thus, this study aims to develop an E-learning Tutor Portal that incorporates these recommendations, offering a supplementary learning resource that is intuitive, responsive, and learner-centered. It serves as a tool to reinforce learning, especially for students who need additional support outside the traditional classroom setting.

To systematically approach the development of this portal, the Input-Process-Output (IPO) Model is employed as the conceptual framework. This model is used to guide the project structure, identify needed resources, outline the development stages, and predict the outcomes of the implementation. The IPO model allows for a clear mapping of the variables involved in the system and helps ensure that the portal meets its intended goals. Figure 1 illustrates the conceptual framework of this study, detailing the inputs, processes, and outputs involved in the development of the E-Learning Tutor Portal.



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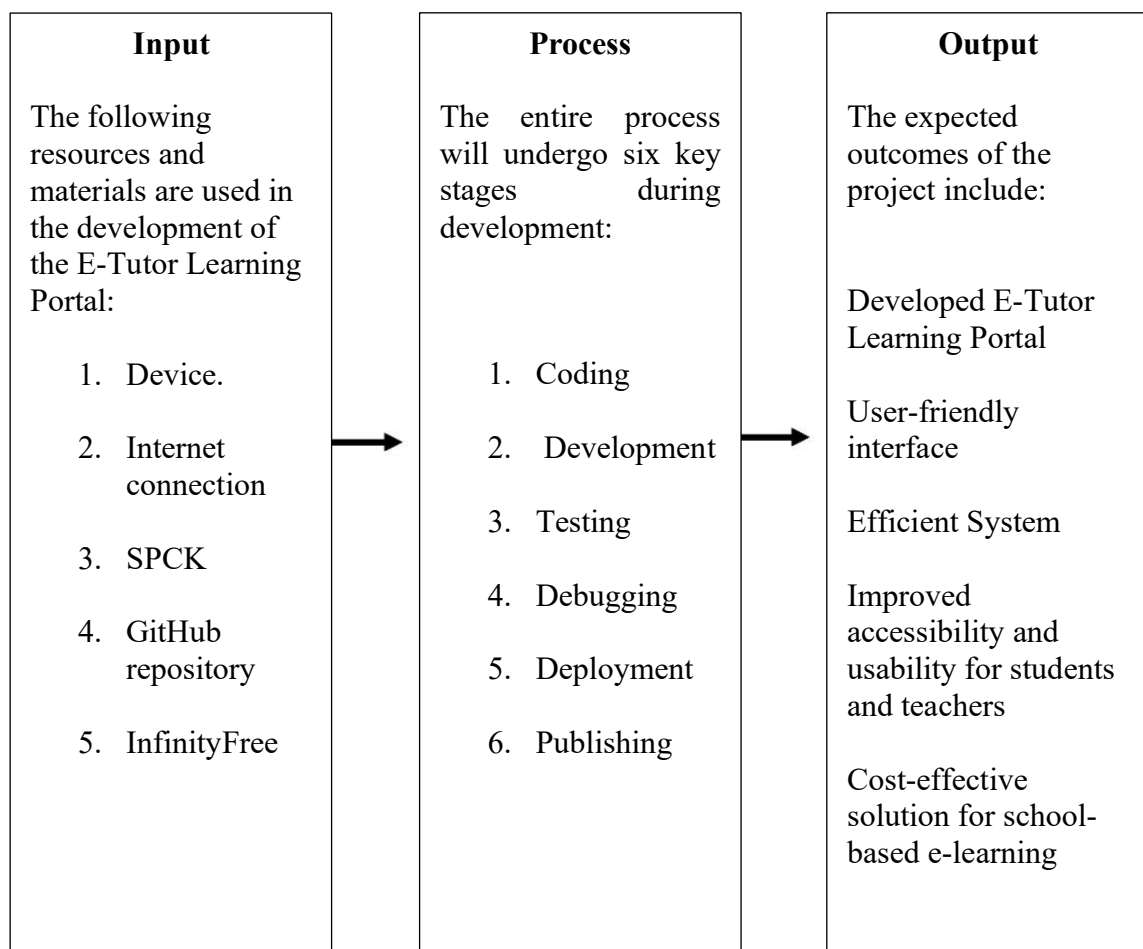


Figure 1. Schematic Diagram of the Study