

EVALUATING THE EFFECTIVENESS OF EXAM HUB

IN YEKA INDUSTRIAL COLEAGE STUDENTS

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# Introduction

## Background of the study

Efficient exam preparation is crucial for student success in any educational system, but it holds particular importance in Technical, Vocational, and Educational Training (TVET) programs. Unlike traditional academics, TVET exams often combine theoretical knowledge testing with practical skill assessments. Unfortunately, the current system in Yeka Industrial Collage faces challenges that hinder student preparation for these exams.

Firstly, access to sample Competency Certificates (CoC) exams and past institutional exams is limited. This lack of exposure to exam formats, question styles, and assessment expectations makes it difficult for students to develop effective study strategies.

Secondly, TVET exam preparation resources are often scattered and inconsistent. Students may rely on informal methods (gather sample exam data from friends) or limited materials, leading to inefficient studying and potentially hindering their exam performance. Finally, the absence of readily available practical exam samples makes it challenging for students to gauge their skill proficiency, which can demotivate them and decrease their confidence approaching exams.

These limitations can have a significant negative impact on student performance. Lower exam scores, coupled with a lack of effective study habits, can ultimately hinder students' ability to graduate and enter the workforce with the necessary skills.

An exam hub application, designed specifically for Yeka industrial college TVET students, has the potential to address these challenges and improve the overall exam preparation experience. This mobile or web-based application could function as a centralized repository for exam materials, including sample CoC exams, past institutional exams with explanations, and practical skill assessment guidelines.

By implementing action research to evaluate the effectiveness of this exam hub application, we can gain valuable insights into its impact on student exam scores, practical skill performance, study habits, and overall confidence. These findings can then be used to refine and improve the application, ultimately leading to a more successful learning environment for Yeka students.

## Statement of the problem

Student difficulties with traditional methods, including lack of prior knowledge, poor time management, and limitations in assimilating complex information. Traditional methods often lack opportunities for self-assessment and practice. Students may struggle to gauge their understanding of a topic until the actual exam, leading to anxiety and a sense of unpreparedness Zerdani and Said Lotfi (2021)

Online practice tests help students identify areas of weakness in their understanding. These platforms often provide detailed feedback alongside incorrect answers, pinpointing specific topics that require further review Butler (2016). Platforms often allow focusing on specific topics or question types, enabling students to target their studying efforts efficiently. Bangert et al.

College students face a multitude of challenges in preparing for exams. Traditional study methods, such as textbooks and lectures, may not cater to diverse learning styles or provide adequate practice. This can lead to feelings of stress, anxiety, and ultimately, lower exam performance. Overall, the research suggests that online practical tests serve as a valuable tool for students to actively engage with course material, identify weaknesses, target studying efforts, and gain familiarity with exam formats. These factors contribute to a deeper understanding of the subject matter and ultimately lead to improved exam scores. The Exam Hub, a recently introduced online platform, aims to address these issues by offering a comprehensive suite of exam preparation resources. The major goal of these studies is to evaluate the effectiveness of the Exam Hub.

## Objective of study

### General Objective:

To evaluate the impact of the Exam Hub on college students' exam performance and overall learning experience

## Specific Objective:

Assess student and academic staff perceptions of its effectiveness, user-friendliness, and impact on their learning process. Measure the change in students' exam scores after using the Exam Hub.

Analyze student feedback regarding the perceived advantages and disadvantages of the Exam Hub compared to traditional methods.

## Research question

To what extent does the use of the Exam Hub lead to improvements in student exam scores?

How do students and academic staff perceive the effectiveness, user-friendliness, and impact on the learning process of the Exam Hub?

What are the perceived advantages and disadvantages of the Exam Hub compared to traditional study methods, as revealed by student feedback?

## Significance of the study

Many college students struggle with traditional study methods like textbooks and lectures. These methods may not cater to diverse learning styles and often lack practice opportunities, leading to stress, anxiety, and ultimately, lower exam scores. This action research project aims to evaluate the effectiveness of a new online platform called Exam Hub in addressing these challenges.

The research holds significant value for several reasons. First, by measuring changes in exam scores, we can determine if Exam Hub actually helps students learn and retain information more effectively. This data can then be used to refine the platform's features, ensuring it provides the most impactful support for student success.

Second, the project will explore student perceptions of Exam Hub. We'll investigate how user-friendly students find the platform, how it impacts their learning process, and how it compares to traditional study methods in terms of advantages and disadvantages. This feedback can guide further development of the platform, ensuring an engaging and effective learning experience.

Finally, the findings of this research will benefit both educators and the developers of online learning tools. Faculty can gain data-driven insights into the effectiveness of Exam Hub for student learning, allowing them to recommend valuable supplementary resources. Exam Hub developers can leverage the research to inform the development of future online learning platforms, ensuring they are well-designed and contribute positively to student learning.

In essence, this action research project has the potential to create a positive impact on student learning outcomes within your college community. By evaluating the effectiveness of ExamHub, we can refine the platform and provide students with a more effective and engaging learning environment.

## Scope of the study

This action research project will investigate the effectiveness of the Exam Hub platform for improving learning outcomes amongst regular students at Yeka Industrial College. The study will focus on a specific timeframe, likely a semester or quarter, to collect exam scores and student feedback.

The target population will be regular students enrolled in various courses to represent the diverse range of subjects supported by Exam Hub. A sample size, aiming for a balance between the Exam Hub group and a control group using traditional methods, will be determined based on feasibility and the desired confidence level in the findings

## Limitation of the studies

The findings of this study will be limited in their generalizability due to being conducted at a single institution, Yeka Industrial College. The experiences of regular students and teachers at Yeka Industrial College may not be representative of students and teachers at other colleges or universities, particularly those with different academic cultures or student demographics also the study focuses on regular students, potentially overlooking experiences of non-regular students (e.g., short term student, evening program). Exam Hub’s effectiveness might differ depending on the learning pace or study schedules of non-regular students.

# Literature review

### Difficulties on traditional learning

Traditional learning often adheres to a fixed pace, potentially hindering students who learn at different speeds. Studies by Bloom (2022) and Carroll (2019) highlight the challenges faced by students who find the material too fast or slow, leading to frustration and disengagement. Traditional lectures can be passive experiences, limiting opportunities for student interaction and active learning. Research by Bonwell and Eison (2020) suggests that passive learning methods result in lower knowledge retention compared to active learning strategies, such as discussions and problem-solving activities.Traditional classroom learning can be geographically restrictive, excluding individuals who cannot physically attend classes due to location or scheduling conflicts. Studies by Moore and Kearsley (2021) emphasize the need for more accessible learning options, such as online courses, to cater to diverse student populations.

The effectiveness of traditional learning can be heavily influenced by individual instructors' pedagogical skills. Studies by Shavelson and Stern (2023) suggest a lack of standardization in teaching methods across instructors, potentially leading to uneven learning outcomes for students. in conclusion, while traditional learning systems have served as the foundation of education for a long time, their limitations are becoming increasingly apparent. The lack of personalization, limited interactivity, accessibility issues, and inconsistency in instruction are all factors that can hinder student learning. As the educational landscape evolves, exploring alternative learning methods and incorporating technology can potentially address these difficulties and enhance the learning experience for a wider range of students.

## Important of blended learning and exam hub

Blended learning allows for individualized instruction that caters to diverse learning styles and needs. Studies by (Means et al., 2023) and (Graham, 2022) highlight the effectiveness of online resources and activities in providing targeted support for struggling students. Additionally, advanced learners can leverage digital materials for deeper exploration of topics.

Blended learning environments incorporate interactive elements that enhance student engagement. Research by (Dziuban & Moskal, 2019) suggests that online simulations, games, and collaborative activities stimulate a deeper connection with the material compared to traditional lectures. This fosters a more active and dynamic learning experience.

Exposure to technology tools and platforms used for research, communication, and content creation within blended learning environments equips students with valuable digital literacy skills. Research by (Mohamad et al., 2018) emphasizes the importance of these skills in today's technology-driven world.

Blended learning offers greater access to education by overcoming geographical limitations and scheduling conflicts. Studies by (Russell, 2023) highlight the benefits of online components for students who may not be able to attend traditional classes due to location or scheduling constraints.

Blended learning can facilitate collaboration through online forums, discussion boards, and other digital tools. Research by (Rovai & Jordan, 2022) suggests these tools promote teamwork, communication skills, and critical thinking as students work together on projects and share ideas.

Blended learning's focus on active learning and continuous feedback can cultivate a growth mindset in students. Research by (Claro et al., 2018) suggests this approach helps students view challenges as opportunities to learn and grow, promoting resilience and a willingness to take risks.

Blended learning can bridge the gap between theory and practice by incorporating real-world simulations and projects. Studies by (Vural & Yuksel, 2022)suggest this approach allows students to apply their knowledge to practical scenarios, preparing them for future careers and challenges.

Research by [Zheng et al., 2020] explores the use of educational technology in assessment practices. Exam hubs could leverage technology to offer students a variety of practice test formats, instant feedback, and personalized analytics to track their progress and identify areas for improvement.

Research by (Moore & Kearsley, 2020) emphasizes the importance of accessibility in education. Exam hubs, by offering online resources and study materials, could provide students with greater flexibility in their exam preparation, overcoming geographical limitations or scheduling conflicts.

In conclusion, a growing body of research underscores the importance of blended learning for students. By fostering personalized learning experiences, increased engagement, and the development of valuable skills, blended learning empowers students to become successful lifelong learners.

# Research method

## Research design

The purpose of mixed methods research is to best understand the research problem by drawing on the strengths of both quantitative and qualitative approaches (Creswell & Plano Clark, 2018) The strength of mixed methods research is its ability to provide a more complete and nuanced understanding of the phenomenon under study (Johnson & Onwuegbuzie, 2004

This action research project will employ a mixed methods approach to investigate the effectiveness of the ExamHub platform for improving learning outcomes amongst regular students at Yeka Industrial College. The study will utilize both quantitative and qualitative data collection methods to gain a comprehensive understanding of the platform's impact.

## Participant of the study

This action research project will involve regular students, teachers, and potentially some college administrators at Yeka Industrial College to gain a holistic understanding of the Exam Hub platform's effectiveness.

The primary participants will be regular students enrolled in various courses. Their exam scores (before and after using Exam Hub) will be collected with instructor permission to measure the impact on learning outcomes. Additionally, optional interviews with a subset of students can explore their perceptions of the platform's effectiveness, user-friendliness, and how it compares to traditional study methods.

Teachers from different departments can also be involved. Surveys or interviews with them will gather insights into how Exam Hub might integrate with their courses and cater to student learning styles. Additionally, they could share any potential challenges they foresee in incorporating Exam Hub into their teaching practices.

Finally, including the college's website and network administrators (optional) can provide valuable information on the technical aspects. Brief interviews with them can explore the feasibility of integrating Exam Hub with existing IT systems and identify any technical considerations or potential student access and use challenges.

By involving this diverse group of participants, the research will gather a well-rounded perspective on Exam Hub’s effectiveness for student learning, its potential integration within the college, and any technical obstacles that need to be addressed.

### Data Collection Methods:

Evaluate Exam Hub’s effectiveness; this action research project will utilize a mixed methods approach, collecting both quantitative and qualitative data.

### **Quantitative Data (Exam Scores):**

We'll recruit students from various courses and create a balanced sample size for two groups: those using ExamHub and a control group relying on traditional methods. With instructor permission, pre-tests will be administered to establish baseline knowledge before the intervention period. Students in the ExamHub group will then have access to the platform for exam preparation, while the control group continues with their usual study methods. Finally, post-tests will be administered to both groups to assess learning improvement. Throughout the process, anonymized data collection procedures will be used to protect student privacy. The collected exam scores will be statistically analyzed (t-tests or ANOVA) to determine if there's a significant difference in learning outcomes between the two groups.

### **Qualitative Data (Student Perceptions):**

To gain deeper insights, semi-structured interviews will be conducted with a smaller group of students from the Exam Hub group. We'll develop an interview guide with open-ended questions focused on their experiences with the platform's effectiveness, user-friendliness, and perceived impact on their learning compared to traditional methods. After obtaining informed consent, interviews will be audio-recorded in a private setting and transcribed verbatim for analysis.

## **Data Integration and Interpretation:**

The research will integrate the findings from both quantitative (exam score changes) and qualitative (student perceptions) data. We'll analyze the interview transcripts thematically to identify recurring themes and patterns in student experiences. By comparing these qualitative findings with the statistical analysis of exam scores, we can gain a comprehensive understanding of Exam Hub’s effectiveness. This will allow us to explore how student perceptions align with or contradict the observed changes in exam scores, providing valuable insights into the reasons behind learning improvements (or lack thereof) and the overall student experience with the platform.

## Data analysis

### Quantitative data analysis

One-way ANOVA (Analysis of Variance) is a statistical test used to compare the means of three or more independent groups. We use to compare the average score improvement (post-test score minus pre-test score) across different groups using Exam Hub.

### Qualitative data analysis

To gain deeper insights into student experiences with Exam Hub, we'll utilize thematic analysis, a qualitative research method. This approach involves delving into interview transcripts and identifying recurring themes that capture the essence of student perspectives.

The process starts with immersing ourselves in the data by thoroughly reading and re-reading the transcripts. This initial stage allows us to become familiar with the overall experiences and identify segments of text that resonate with our research questions. These segments might relate to perceived effectiveness of Exam Hub, user-friendliness, or the impact on learning compared to traditional methods.

Next, we'll code these segments with thematic labels that capture key aspects of student experiences. This coding process helps us develop initial themes that represent the core patterns and recurring ideas emerging from the interviews. Examples include themes related to how Exam Hub aided learning (improved understanding, effective practice tools), user experience (both positive aspects like user-friendliness and potential drawbacks like technical difficulties), and how it compares to traditional study methods (perceived advantages and disadvantages).

Finally, we'll refine the initial themes to ensure they accurately reflect the data and address the research questions. We'll then present these themes in a clear and concise manner, using supporting quotes directly from the interview transcripts. These quotes will give voice to the student perspectives, allowing us to understand their experiences in their own words.

By following these steps, the thematic analysis will provide valuable qualitative data that complements the quantitative findings (exam score changes). This combined approach will offer a comprehensive picture of Exam Hub’s effectiveness in promoting student learning at Yeka Industrial College

## Ethical consideration

This research proposal prioritizes the ethical treatment of all participants, including students, instructors. To ensure informed consent, a detailed document will be provided outlining the study's goals, data collection methods (e.g., exam scores, interviews), potential risks and benefits, and the right to withdraw at any time without penalty. Participant privacy and confidentiality will be paramount. Exam scores will be anonymized, identifiable information removed from interview transcripts, and participants will be informed of these measures. Participation is entirely voluntary, with the right to decline any aspect of the study, including exam score collection and interviews, and to withdraw at any point without consequence. Data collection methods will be unobtrusive, interviews conducted in a private and comfortable setting, and participants will be consistently reminded of their right to withdraw. Finally, transparency will be maintained throughout the research process. A summary of the research results will be available upon request, and clear communication procedures will be established to keep participants informed of any ethical considerations that may arise. By adhering to these principles, the research team aims to ensure a safe and positive experience for all participants while contributing valuable knowledge to the Yeka Industrial College educational community.

## Action plan

1. **Baseline Assessment:**

Before implementing Exam Hub, administer a pre-test aligned with the target exam to establish a baseline for student knowledge and performance.Conduct a student survey to gauge their current study habits and preferred learning methods.

1. **Intervention:**

Introduce Exam Hub to the participating group of students. Provide them with training on how to navigate and utilize the platform's features effectively. The control group will continue with their traditional exam preparation methods.

1. **Implementation and Data Collection:**

Monitor student usage of Exam Hub through platform analytics (e.g., time spent, resources accessed, practice tests completed).

Conduct regular formative assessments throughout the intervention period to track student progress and identify potential areas for improvement in Exam Hub’s functionalities.

1. **Post-Intervention Assessment:**

Administer a post-test aligned with the target exam to both groups after using Exam Hub for a designated period. Conduct a follow-up student survey to gather feedback on their experiences with Exam Hub and its impact on their learning and exam preparation.

1. **Data Analysis:**

Analyze the pre-test and post-test scores to compare student performance between the Exam Hub and control groups. Analyze student usage data from Exam Hub to understand engagement levels and preferred features.

Analyze qualitative data from student surveys to gain insights into their perceptions of Exam Hub’s effectiveness and learning experience.

1. **Reflection and Reporting:**

Based on the findings, critically reflect on the effectiveness of Exam Hub in achieving the research goals. Prepare a comprehensive research report outlining the research process, data analysis, conclusions, and recommendations for future development of Exam Hub.

## Timeline for Action Research Plan: Evaluating Exam Hub Effectiveness

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| --- | --- | --- |
| **Week** | **Activity** | **Description** |
| **Weeks 1-2** | Preparation | \* Define research context (school, grade level, subject, target exam).  \* Refine research questions.  \* Develop pre-test & post-test aligned with target exam.  \* Design student survey on study habits & learning preferences.  \* Obtain approvals & ethical clearance (if required). |
| **Week 3** | Baseline Assessment | \* Administer pre-test to both groups.  \* Conduct initial student survey. |
| **Week 4** | Intervention Introduction | \* Introduce Exam Hub to participating group.  \* Train students on navigating and using Exam Hub features. |
| **Weeks 5-8** | Implementation & Data Collection | \* Monitor student usage of Exam Hub (platform analytics).  \* Conduct regular formative assessments throughout the period. |
| **Week 9** | Post-Intervention Assessment | \* Administer post-test to both groups.  \* Conduct follow-up student survey. |
| **Weeks 10-11** | Data Analysis | \* Analyze pre-test & post-test scores (compare group performance).  \* Analyze student usage data from Exam Hub (engagement & features).  \* Analyze qualitative data from student surveys (perceptions of Exam Hub). |
| **Week 12** | Reflection & Reporting | \* Reflect on findings in relation to research goals.  \* Draft a research report (process, analysis, conclusions, and recommendations). |
| **Weeks 13-14** | Dissemination | \* Present findings to stakeholders (administration, instructors, and students).  \* Consider submitting research to conferences or workshops. |