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UNVEILING THE CAUSES OF FINAL PROJECT FAILURE: A QUALITATIVE ANALYSIS AMONG DIPLOMA IV STUDENTS

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Abstract
Completing final projects is a pivotal milestone for Diploma IV (Applied Bachelor) students. However, the incidence of project failure remains a concerning issue. Exploring the underlying factors contributing to this failure is crucial for devising effective interventions to bolster student success. Despite the significance of final projects, many students struggle to complete them. This research explores the root causes of final project failure among Diploma IV students, focusing on internal and external influences. This study used a qualitative approach to analyze survey data from 59 respondents undertaking their final projects. Using the Fishbone Diagram, the analysis uncovered a spectrum of factors contributing to project failure. These factors encompassed internal challenges such as time management and motivation, external issues including academic support and institutional policies, and personal factors such as mental health and coping abilities. Understanding these multifaceted factors provides valuable insights into the challenges faced by students and informs the development of targeted interventions to support their academic success.

Keywords: diploma program, educational challenge, failure analysis, final project

Introduction

Higher education, especially in Diploma programs, considers the final project a significant milestone in students' academic journeys. The final project serves as the culmination of the entire curriculum and provides an opportunity for students to apply the knowledge and skills they have acquired during their studies. However, several students face difficulties completing this final project and fail to obtain their degrees. The factors contributing to this failure are a primary concern, as they affect individual academic success and reflect the quality of the educational programs provided.

The final project in higher education, particularly at the Diploma program level, is a key component in students' academic processes. This final project often measures academic achievement and students' ability to integrate the knowledge and skills acquired during their studies (Cleland et al., 2005; Gratchev, 2023; Lavy & Rami, 2016; Pereira & Neves, 2014). For students, completing the final project can be a significant challenge, requiring a significant time commitment, thorough

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research, and the ability to organize and present findings clearly and coherently (Blake & Forestiere, 2021; Ho, 2003; Roman, 2014; Wimshurst & Allard, 2008). Failure to complete the final project can negatively impact a student's academic and career development and cause personal disappointment and significant emotional pressure (Djamahar et al., 2020; Lavy & Rami, 2016; Roman, 2014).

In an Informatics Engineering Diploma program, students typically undertake diverse final projects that reflect the theoretical knowledge and practical skills they have acquired throughout their studies. These projects often encompass various aspects of computer science (Hafsteinsson & Ingason, 2021; Setiawan & Kao, 2024), software engineering (Clarke et al., 2014; Gujar, 2019; Setiawan, 2020b), and information technology. Students may develop innovative software applications. (Setiawan, 2020a), design and implement database systems (Wang et al., 2020), create websites or web applications (Yu, 2019), or delve into topics such as artificial intelligence (Wisnuadhi & Setiawan, 2021), cybersecurity (Cerveira et al., 2018)Or data analytics (Setiawan & Suprihanto, 2021; Vermeesch, 2019). Additionally, final projects may involve research-based endeavors, where students explore emerging trends or tackle real-world problems within informatics engineering. Regardless of the specific focus, these projects provide students with invaluable hands-on experience, allowing them to demonstrate their expertise and readiness to enter the workforce or pursue further academic endeavors in the dynamic field of informatics engineering.

In informatics engineering diploma programs, students may encounter several challenges while completing their final projects. These difficulties can vary depending on the complexity of the project and the individual student's background and skillset. Some common challenges are defined in Table 1.

Various complex factors can cause students to fail to complete their final projects. Previous studies have identified several factors contributing to this failure, including internal factors such as poor time management (Wolters & Brady, 2021), lack of motivation (Tayebi et al., 2021), academic anxiety (Miya et al., 2023), and inadequate academic skills (Djamahar et al., 2020; Ho, 2003; Wimshurst & Allard, 2008). On the other hand, external factors such as parental influence (Onoshakpokaiye, 2022), social support, learning environment (Kadiri, 2024), and academic guidance has also been found to have an impact (Cleland et al., 2005; Naibaho, 2023; Wimshurst & Allard, 2008). However, a deeper understanding of the most dominant factors and how these factors interact with each other still needs further exploration.

The fishbone diagram, also known as the Ishikawa diagram or cause-and-effect diagram, has attracted researchers' attention in recent years as an analytical tool to identify factors contributing to the failure to complete final projects. It is an effective visual tool for mapping out the causes and effects of a particular problem. (Madhavi Latha et al., 2020; Yunus et al., 2021). By employing this approach, research has the potential to delve deeper into the complexity and interconnectedness of factors influencing students' failure to complete their final projects, opening up opportunities for the development of more effective and sustainable intervention strategies (Madhavi Latha et al., 2020; Xiaolun & Zhang, 2020).

Table 1. Challenges in informatics engineering diploma final project

Challenges	Description
Technical Complexity	Final projects in informatics engineering often involve complex technical requirements, such as programming, database design, or network configuration. Students may struggle with mastering these technical skills, especially if they are new to the field or have limited prior experience.
Time Management	Balancing coursework demands, project deadlines, and other responsibilities can be challenging for students. Completing a final project requires careful planning and time management to ensure that tasks are completed on schedule and that the project progresses smoothly.
Scope Definition	Defining the scope of the final project is crucial but can also be daunting. Students may struggle to clearly articulate the goals and objectives of their project, leading to ambiguity and confusion about project requirements and deliverables.
Resource Constraints	Access to software, hardware, and specialized tools may be limited, particularly for students with restricted access to university facilities or funding. This can hinder students' ability to implement certain features or technologies in their final projects.
Communication and Collaboration	Collaborative projects may require effective communication and coordination among team members. Students may encounter difficulties coordinating schedules, resolving conflicts, or ensuring that everyone contributes equally to the project.

Considering the complexity of this issue, this research aims to delve deeper into the factors causing students in diploma programs to fail to complete final projects. Employing the Fishbone Diagram approach, this research will map out the potential contributing factors, creating a more holistic understanding of the problem. The findings of this research are expected to provide valuable insights for educational institutions in developing more effective strategies to support students in successfully completing their final projects.

Method

This research utilizes a qualitative approach to identify and analyze the factors contributing to the failure to complete final projects for students in Diploma IV programs. This approach was chosen because it allows researchers to understand students' perceptions of the factors influencing their failure to complete final projects. The data collection method used in this research is a survey, employing the Fishbone Diagram as an analytical instrument.

Data was collected through a survey distributed to diploma program students undertaking their final projects. The survey was designed to identify various factors contributing to this failure, including internal and external factors such as time management, motivation, social support, and others.

Survey data was analyzed using the Fishbone Diagram. This diagram assisted in visualizing and categorizing the identified factors into relevant categories. By employing the Fishbone Diagram, researchers can map the relationships between these factors and identify the key factors contributing to student's failure to complete their final projects.

Findings and Discussion

Fifty-nine respondents, consisting of Diploma IV (Applied Bachelor) students currently working on their final projects, completed the survey.

Findings

The Fishbone Diagram analysis revealed several key factors influencing the failure to complete students' final projects. These factors can be grouped into four main categories:

Internal factors, including time management and motivation, highlight the importance of personal aspects in completing students' final projects. Firstly, time management emerged as a primary concern, with most respondents acknowledging difficulties in organizing their time and scheduling to complete their final projects. Challenges in this aspect may include prioritizing tasks, estimating the time required for each stage of the work, and overcoming procrastination. Lack of time management skills can lead to delays in the final project, potentially affecting the quality of work and increasing stress levels.

Furthermore, a lack of motivation and interest in the topic of the final project also plays a crucial role in the failure to complete it. Some students may feel unmotivated due to a lack of urgency or relevance of the final project topic to their interests and career goals. A lack of interest in a particular topic can also hinder students' ability to effectively explore and analyze the required material.

External factors, particularly academic support and learning environment, play a significant role in students' failure to complete their final projects. Insufficient guidance and support from supervising professors and academic staff can significantly hinder students. Adequate support from supervising professors is necessary to provide guidance, feedback, and technical assistance during the final project completion process. However, if students feel they are not receiving sufficient support from their supervising professors, they may struggle to overcome challenges arising during research and writing.

One of the primary factors identified is poor time management. Many students struggle to manage their time effectively to complete their final projects, which can be caused by various reasons such as procrastination, demands from extracurricular activities, or part-time work.

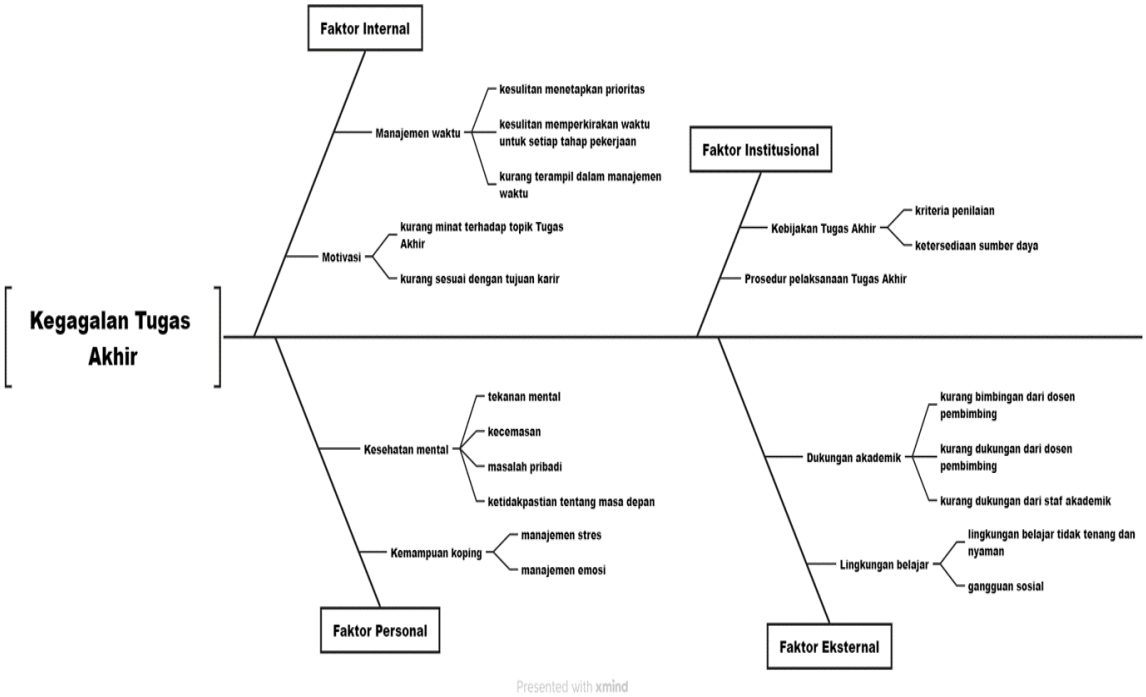


Figure 1. Fishbone diagram for the issue of failure in final projects

Furthermore, a lack of academic support is also a significant factor in failing to complete the final project. Students often feel burdened by the lack of guidance and support from their supervising professors, which can hinder their progress in completing the final project.

An unsupportive learning environment can also affect students' ability to complete their final projects effectively. Some students may struggle to find a quiet, comfortable, and distraction-free learning environment where they can fully concentrate on their work. Disturbances from the surrounding environment, whether noise, visual distractions, or social interruptions, can disrupt students' focus and productivity.

Personal factors, such as mental health and coping abilities, significantly impact students' ability to complete their final projects. Mental health is a crucial aspect that affects students' academic performance. Some respondents reported significant mental pressure and anxiety, which can disrupt their ability to concentrate and perform well. Mental pressure can stem from various sources, including academic pressure, personal issues, or uncertainty about the future. When students face high mental pressure, it can hinder their ability to focus and be productive in completing their final projects.

A lack of coping skills is also a significant factor in student's failure to complete their final projects. Students may lack the skills to cope with the stress and pressure they face during the final project completion process. Insufficient ability to manage emotions and handle challenges effectively can make students vulnerable to feelings of overwhelm and fatigue.

Institutional factors, particularly related to policies and procedures, concern some respondents when completing their final projects. Some students reported that

the policies and procedures at their institution do not always support the final project completion process well. This may include clarity regarding deadlines for completion, procedures for registering final projects, or assessment criteria that may not be consistent or ambiguous. Unclear policies or complicated procedures can confuse and slow students in carrying out the necessary steps to complete their final projects. Additionally, unsupportive or inadequate policies can also affect the availability of resources or accessibility needed by students in the final project completion process.

Discussion

The analysis of the research results indicates that the factors contributing to students' failure to complete final projects in the Diploma program are highly complex and involve various internal and external aspects. These factors have individual impacts and interact with each other, making a deep understanding of this issue crucial for developing effective strategies to enhance students' success rates.

In addition to these factors, it is also important to consider personal factors such as students' mental health and coping abilities. Mental health issues such as anxiety and depression can disrupt students' ability to concentrate and work effectively, thus affecting their ability to complete final projects.

On the other hand, institutional factors such as policies and procedures also have significant impacts. Unclear policies or complicated procedures can hinder students' progress in completing their final projects.

Internal factors such as time management and motivation are often closely related to personal factors such as mental health and coping abilities. For example, a student experiencing mental pressure or anxiety may struggle to manage their time and schedule to complete their final projects. Lack of motivation can also stem from personal issues, such as a mismatch between interests and final project topics.

External factors, such as academic support and learning environment, are often linked to institutional factors, such as policies and procedures in educational institutions. Lack of academic support from supervisors or academic staff can directly result from unsupportive policies and procedures in the institution. For instance, unclear policies or complicated procedures in final project registration can hinder students' access to adequate guidance or necessary resources.

Conclusion

This research has uncovered several key factors contributing to the failure to complete final projects for students in the Diploma IV program. These factors include poor time management, lack of academic support, mental health issues, and institutional constraints such as unclear policies. The Fishbone Diagram analysis has helped depict the complexity and interaction among these factors, providing a deeper understanding of this issue. By understanding these factors, educational institutions can take steps to improve students' success rates in completing their final projects. Actions that can be taken include enhancing academic support through better guidance, providing student time management training, improving mental health services, and revising institutional policies that hinder academic progress.

Furthermore, this research also highlights the importance of awareness of the challenges students face in completing their final projects, both personally and environmentally. By strengthening support systems and facilitating a conducive learning environment, educational institutions can help students achieve their academic potential more effectively. In the context of this research, it is essential to remember that each student has unique needs and challenges. Therefore, a holistic and personalized approach to providing support and guidance is crucial.

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