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# BREAKING DOWN BARRIERS: PROPOSALS FOR OVERCOMING CHALLENGES IN STUDENT PROJECT MANAGEMENT

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**Abstract:**
Student project management is becoming increasingly important in various settings such as technical clubs, planning clubs, and research laboratories. However, effective methodologies for managing student-led projects have not yet been established. This study aims to address key issues related to cost and motivation in student-led projects and propose effective improvement plans. The significance of this study lies in its potential to identify challenges faced in current student project management practices and offer solutions to mitigate risks. By sharing our findings, we aim to encourage further research on this topic and promote the adoption of effective methodologies for managing student-led projects.

**Keywords:** student projects, student project management, cost, motivation

## 1. Introduction

### 1.1 Importance of Student Project Management

This paper aims to explore the concept of "Student Project Management". Project management is often viewed as a discipline that is primarily associated with the business sector and industry professionals. However, in today's world, students are also frequently engaged in various project activities such as technical clubs, planning clubs, and research laboratories [1,6,7]. Therefore, project management methodologies can be highly beneficial in student life, known as "*student project management*".

Despite its importance, there is still a lack of established effective methodologies for student project management. While research in project management education has been actively pursued, including studies focused on students [2,3], there is a need for more comprehensive and in-depth research. Additionally, Project-Based Learning (PBL) has gained significant attention as a collaborative approach to solving specific issues and acquiring diverse knowledge [4,17]. Educational Project Management Tools have also

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been discussed extensively [16], but further research is necessary to identify the most effective tools and techniques.

Given the high expectations of businesses for the diversity of student projects and the growing demand for project management skills among students [14], researching learning methods related to student project management is crucial. Effective methodologies can lead to better project outcomes and enhanced employability for students. Therefore, this study aims to investigate and contribute to the advancement of project management education for students, highlighting its significance and potential impact on both academic and professional success.

### 1.2 Objectives and Significance

The purpose of this proposal/consideration is to address key issues related to cost and motivation in student-led projects and propose effective improvement plans. Specifically, we aim to identify the challenges faced by students in managing their projects, such as budget constraints and lack of motivation, and provide practical solutions to overcome these obstacles. The significance of this proposal/consideration lies in its potential to improve the quality and outcomes of student-led projects and contribute to the development of established methodologies for student project management.

Although this proposal/consideration does not involve detailed or quantitative analysis and evaluation based on actual examples, it can still serve as a valuable contribution to the field of project management. By sharing our plan, we aim to stimulate further research and discussion on this topic and promote the adoption of effective methodologies for managing student-led projects.

By achieving our objectives, we hope to enable students to carry out their projects with greater efficiency, effectiveness, and satisfaction, and to enhance their learning and professional development. Ultimately, our proposal/consideration seeks to improve the overall quality and impact of student project management, benefiting students, educational institutions, and society as a whole.

### 1.3 Structure of This Proposal/Consideration

We explain the structure of this proposal/consideration. Chapter 2 presents the issues and improvement plans. In section 2.1, we consider the perspectives of students and corporate personnel. In section 2.2, we examine the cost perspective, and in section 2.3, we examine the motivation perspective. In section 2.4, we discuss other potential issues beyond the cost and motivation aspects. Chapter 3 summarizes this proposal/consideration and discusses future challenges. For your information, the preprint of this paper has been made publicly available and can be accessed at [18].

## 2. Problems and Improvement Proposals in Student Project Management

### 2.1 Issues Arising from Differences between Students and Businesspeople

This proposal and analysis aim to elucidate the disparities between student project management and business project management. To accomplish this, we will examine projects from the viewpoint of the variances between students and business professionals.

Though it may be self-evident, students possess less expertise in completing projects compared to their professional counterparts. As a result, they may lack familiarity with various risk mitigation techniques, leading to complications. Moreover, there are other project management challenges arising from the discrepancies between students and businesspeople, such as the following:

- **Cost-related Issues.** Due to their comparatively low salaries, students may not have sufficient funds to allocate towards project expenses.
- **Motivational Issues.** The level of motivation among individuals can vary considerably.

Since students do not receive salaries, there is no mechanism to ensure that all individuals remain motivated and accountable. Typically, it is asserted that the distribution of working individuals follows the "*worker ant rule*" [5], i.e., 2:6:2 (very hardworking people: average working people: not very hardworking people). In the case of a company, the occurrence of free riders can be prevented even if personal responsibility levels are low due to factors like salary. However, in the case of students, the level of motivation and sense of responsibility among project members can greatly influence this distribution.

### 2.2 Consideration from a Cost Perspective

A project manager must take into consideration the cost aspect while implementing a project. In order to negotiate with the client, it is customary to provide them with a cost estimate that encompasses fixed costs such as personnel and equipment expenses, and work hours with a contingency for unforeseen events. This represents the archetypal process of project budgeting.

According to the literature, the major contrast between students and working professionals is likely to be the wage disparity. Generally, when carrying out a project in a social or similar organization, expenses need to be covered by one's own pocket. Research grants and subsidies from the laboratory may be contemplated for research activities, but considering the present condition of universities, it is not reasonable to expect substantial support.

#### 2.2.1 Issues with Monetary Cost

The following are some of the monetary cost issues that can be considered in relation to student projects:

Due to the unavailability of funds to purchase equipment, it may be necessary to utilize outdated equipment. This may not pose a problem when developing software products that do not require hardware expenses but can prove to be challenging when hardware or equipment is required.

Dependency on part-time jobs or scholarships is inevitable for students. Part-time jobs are especially crucial for the successful completion of a project. Not only do they provide financing for the project, but also for daily living expenses, making them highly significant for students. In fact, approximately 70% of students are engaged in part-time jobs. However, dedicating too much time to part-time jobs may result in situations where the job takes precedence over the project, leaving little or no time for the latter.

### 2.2.2 Suggestions for Improving Monetary Cost Issues

The following are some examples of improvement suggestions for these cost issues:

- **Negotiate with universities or external organizations.** There are institutions within universities that support project launches and provide funding (e.g., [6,7]). In some cases, public interest and private foundations may also provide assistance if certain conditions are met (e.g., [8]).
- **Use crowdfunding.** Crowdfunding is a method of soliciting support from a large number of people or organizations and collecting funds for activities. Many student organizations have begun to use crowdfunding to raise funds for their activities (e.g., [9,10]).

## 2.3 Consideration from the Perspective of Motivation

One of the things project managers should consider when executing a project is the issue of motivation. This is one of the issues that are frequently dealt with in companies.

One of the differences between students and working adults in projects is the strength of compulsion. Those who are not paid are more likely to drop out of the project. In addition, the motivation and skills of the members who do not drop out greatly affect the progress of the project. As a result, the project may end halfway through (or, conversely, progress too smoothly).

### 2.3.1 Issues Related to Motivation

Based on the preceding discussion, the following motivation-related problems can be highlighted:

- A specific individual, particularly the project manager, bears a significant burden. In corporate projects, diligent individuals often carry a heavy load, as in the "Pareto principle" [5]. There are instances where one person takes on the work of three people. If this individual becomes ill or experiences mental health issues, the critical path or semi-critical path of the project may not be completed.
- There is limited reference material, such as design documents and manuals. In student projects, some projects may continue from year to year. In large companies, it is customary to draft design documents and similar materials

immediately after the project begins, which can be used as references for future similar projects. However, in student projects, there may be cases where requirements definition and detailed design are not addressed from the outset. Moreover, if senior members lack motivation, there may be cases where no manuals or other documents are left behind, and no guidance or knowledge transfer occurs. In such cases, the project may proceed in an ad-hoc manner and the same issues may recur year after year.

While other issues may be relevant, the following problems are particularly salient in both corporate and student contexts:

- The interpersonal relationships and working environment within the project are closely tied to fluctuations in motivation.
- There may be uncontrollable project members.
- The project's objectives and goals may become obscured over time.

### 2.3.2 Improvement Suggestions for Motivation Issues

Taking the above into consideration, the following improvement suggestions can be proposed for motivation issues:

- Clarify accountability:
  If there is no enforcement, it is necessary to apply it. Creating simple documents such as Gantt charts, WBS, RACI charts, and responsibility allocation tables can help define deadlines and accountability appropriately. Additionally, add the task of creating/updating manuals after the project completion. However, in reality, design documents and requirement definitions may often be done roughly.
- Involve the authorities in the project:
  When conducting projects within research groups, it is essential to involve the professor, not just the members of the group. By obtaining approval from those in authority, it creates the force to work on the tasks. Nevertheless, too much enforcement can result in members leaving the project, so awareness of trade-offs is essential. Consider regularly meeting with members to surface their opinions. In reality, students are often busy with part-time jobs, multiple club activities, and studies, so it is reasonable to aim for 40-60% progress in a month.

## 2.4 Other Issues

In this proposal/consideration, we discussed issues related to cost and motivation. However, there are also numerous issues from other aspects. For instance, literature [15] identifies the following problems in software development projects led by students:

- **Issues during requirements definition**: the tendency to be too fixated on developing a system that they themselves want. Additionally, they tend to define requirements based on their own skills instead of focusing on developing a system that meets the needs of users.
- **Issues during design**: inability to determine the project's objectives and to follow a series of processes that enable project members to share those objectives.

- **Issues during programming**: inability to build a program from scratch.
- **Issues during testing:** becoming too consumed with programming, and unable to advance the project to the testing phase.
- **Other issues:** inability to allocate roles and responsibilities among project members.

## 3. Conclusion

### 3.1. Summary of this Proposal/Analysis

In this proposal/analysis, we have discussed and examined the problems and proposed solutions from both the cost and motivation perspectives of student project management.

### 3.2. Future Challenges

As for the future challenges of this proposal/analysis, the following can be listed:

- Verify the contents described in this paper in the field.
- Examine student project management from aspects other than cost and motivation.
- Consider personal project management (hereinafter referred to as personal PM) by students [12,13]. Examine this personal PM from the perspectives of cost and motivation.

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## Conflict of Interest Statement

The authors declare no conflicts of interest.

## About the Author

Takaaki Fujita finds great enjoyment in his work as a system engineer/IT service manager, as he is constantly involved in diverse system development projects. Additionally, he delights in exploring various fields of mathematics, including discrete mathematics, combinatorics, algebra, and graph theory, alongside his keen interest in ICT education and project management. He has a master's degree in computer science.

## References

[1] Saitama Institute of Technology launches e-sports project in partnership with Third Wave, https://univ-journal.jp/26028/, University Journal, 2019. Last accessed August 4, 2019.

[2] Seki, Tetsuro. "Project Management Education for Software Development Management Course (Special Feature: Human Resource Development for Successful Project Management)". Journal of the Project Management Association, Vol.5, No.6, pp.19-20, 2003.
[3] Ikuo, G., et al. "Curriculum for Project Management Education: Part I University and Elementary Education". Journal of the Project Management Association, Vol.3.No.3, pp.49-54, 2001.
[4] Blumenfeld, Phyllis C., et al. "Motivating Project-Based Learning: Sustaining the Doing, Supporting the Learning". Educational Psychologist, Vol.26. pp.369-398, 1991.
[5] Pareto, Vilfredo. "Cours d'économie politique," Lausanne, 1897.
[6] "Student Projects," https://www.shibaura-it.ac.jp/student/project/index.html, Shibaura Institute of Technology. Last accessed August 4, 2019.
[7] "Projects to Realize the Desires of Nihon University Students (Independent Creation Projects)," https://www.nihon-u.ac.jp/students_first/cooperation/, Nihon University. Last accessed August 4, 2019.
[8] "JFCWEB," http://www.jfc.or.jp/, Foundation Center for Grants. Last accessed August 4, 2019.
[9] "Projects on 'Student Challenges'," https://readyfor.jp/tags/student_challenge, Readyfor. Last accessed August 4, 2019.
[10] "Students | Student-led Projects," https://motion-gallery.net/tag/student, MotionGallery, a crowdfunding website. Last accessed August 4, 2019.
[11] "The Job Rate of College Students is about 74%! But the Percentage Varies by Year and Faculty?", https://karenavi.com/baito-shiteru, College Navigator. Last accessed August 4, 2019.
[12] Tominaga, Akira. "Trends in Project Management Innovation and the Role of Personal Project Management (Special Feature: Project Management Innovation)". Journal of the Project Management Association, Vol.12, No.2: pp.3-8, 2010.
[13] Tominaga, Akira. "Personal Project Management: Effective Utilization of PM Techniques Both On and Off". Nikkei BP, 2011.
[14] Nagata, Naoko and Morita, Yasunobu. "Proposal of an Activity Model for Industry-Academia Collaboration Projects in the First-Year Education". Journal of the Human Interface Society, 2014, 16.4: 261-276.
[15] Matsuzawa, Yoshiaki, Takeda, Rintaro, and Oiwa, Gen. "Student-led Project-Based Software Development Practice Education". Proceedings of the Symposium on Information Education, 2005.8, pp.37-42.
[16] Gonçalves, Rafael Queiroz and Christiane Gresse von Wangenheim. “Comparison of Educational Project Management Tools.” International Conference on Software Engineering Advances (2015).
[17] Takaaki Fujita. Effects and Issues of Project Based Learning. European Journal of Education Studies 10 (3), 2023, 185-191.
[18] Fujita, Takaaki. "Identifying Issues in Student Project Management." 2023.