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Strengthening the Academic Atmosphere Through Open Spaces Based on the Construction of Park Benches at Manado State Polytechnic

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A B S T R A C T

Enhancing a conducive academic atmosphere is an important factor in supporting the learning process at vocational higher education institutions. The Academic Atmosphere Strengthening Program Based on Open Spaces is implemented through the construction of permanent park benches at Manado State Polytechnic. The activities involve students as the main implementers, from the stages of socialization, design planning, production, installation, to evaluation. The park benches are made of reinforced concrete combined with natural stone, placed in strategic areas of the campus, and tested through observation and questionnaires. The results show that 82% of students feel the facilities are comfortable for discussion, 76% report an increased interest in learning outside the classroom, and 88% assess that it enhances the aesthetics of the environment. This program not only provides physical amenities but also fosters values of collaboration, responsibility, and improves student discipline

INTRODUCTION

The academic atmosphere is an essential prerequisite for creating a conducive learning environment in vocational higher education institutions. The academic atmosphere is not only determined by formal activities in the classroom but also by the availability of open spaces that encourage social interaction, informal discussions, and the exchange of ideas among students and lecturers. Recent research shows that well-organized campus open spaces contribute to improved mental health, academic engagement, and student creativity (H. Li, 2024). Furthermore, a meta-analysis of university open spaces confirms that physical design and facilities, including outdoor furniture, are important factors affecting user comfort and productivity (J. Li, 2025).

In the context of Indonesia, particularly at Manado State Polytechnic, the limited availability of open space facilities is one of the obstacles in developing dynamic academic interactions. Most of the campus open areas have not been optimally utilized as alternative learning spaces. In fact, studies in China have revealed that the quality of the microclimate in open spaces is directly related to the intensity of usage by students (Jing et al., 2025). This indicates that the presence of physical elements, such as park benches, not only serves as a means of comfort but also as an instrument to strengthen the academic atmosphere.

The issues that arise are: how to provide simple yet functional open space facilities that can support students' interaction needs; how to assess the extent to which these facilities influence perceptions of the academic atmosphere; and how to identify technical and social constraints in implementing activities. Several studies in the Middle East and Africa have proven that arranging outdoor furniture in campus environments can enhance social engagement, discipline, and student collaboration (Hasan et al., 2025; Mpundu & Shen, 2024). However, similar research in Indonesian vocational campuses is still very limited, thus requiring more applicable studies.

Based on these conditions, this community service activity aims to strengthen the academic atmosphere through the creation of permanent park benches based on ergonomic design and weather-resistant materials in strategic areas of Manado State Polytechnic. This innovation is expected to serve as an alternative space for learning and discussion, foster a spirit of collaboration, and improve students' discipline in academic activities. Thus, this program not only produces physical products in the form of park benches but also contributes to the development of a more vibrant, inspiring, and sustainable academic culture.

Figure 1. Location of the Campus Area Intervened with Park Benches

Figure 2. Illustration of the Permanent Park Bench Design Used in the Activity

METHODOLOGY

Implementation of Activities

The program to strengthen the academic atmosphere based on open space is implemented in strategic areas of Manado State Polytechnic, particularly around the Mechanical Engineering Workshop building and the Integrated Lecture Hall. The location selection takes into account the intensity of student traffic, the potential for academic interaction, as well as the availability of open spaces that are not yet optimally utilized. The implementation of the activities begins with socializing the program to department leaders, lecturers, and students, followed by planning the design of park benches based on ergonomic principles and weather-resistant materials.

The entire production process involves students as the main implementers, accompanied by supervising lecturers. The technical stages include mold making, reinforcement placement, concrete casting, and finishing using a combination of local natural stone. This activity is completed in approximately one week, with task distribution among student groups. The benches are then installed at strategic points and their use is tested through direct observation and questionnaire distribution. The involvement of students in implementing this program aligns with the concept of experiential learning, where students gain practical experience while developing discipline, responsibility, and collaboration skills (Mpundu & Shen, 2024).

Figure 3. Documentation of the Park Bench work Process by Students

Figure 4. Final Result of the Park Bench Installed at the Campus Location.

Activity Method

The activity methods are designed with a participatory and practical approach, emphasizing the integration of technical, social, and evaluative aspects. The main stages of the method include:

Socialization and Preparation

Conducted through official meetings with the campus parties to agree on the location, design, and facility support. This approach emphasizes the importance of stakeholder involvement from the early stages (Hasan et al., 2025).

Design and Material Planning

The bench design refers to the outdoor furniture ergonomic standards and resistance to tropical climates. Reinforced concrete was chosen due to its good weather durability and ease of maintenance (J. Li, 2025).

Production and Installation

Students carried out the production process in the civil engineering laboratory under the supervision of lecturers. After the concrete curing process was completed, the bench was moved and installed at the designated location.

Evaluation and Monitoring

Evaluation was conducted through direct observation, documentation, and questionnaires distributed to 100 student users. This instrument assessed comfort, aesthetics, and the bench's contribution to the academic atmosphere. Recent studies indicate that user perception-based evaluation is effective in measuring the success of open space interventions (H. Li, 2024; J. Li, 2025).

Publication and Dissemination

The results of the activities are published through mass media articles, documentary videos on the P3M Polimdo YouTube channel, and educational digital posters. This strategy aims to broaden the impact of the program while also supporting transparency of the activity results to the campus community and external partners.

Figure 5. Flow of the Implementation Method for PBM-M Activities Based on Park Benches at Manado State Polytechnic

RESULTS AND DISCUSSION

The results of the program implementation indicate the achievement of the planned targets, both in terms of the provision of physical facilities and academic impact. All stages of activities—from socialization, planning, production, to evaluation—have been carried out participatively, involving students as the main implementers.

1. Physical Results and Facility Quality

Permanent park benches were successfully produced and installed at three strategic points on campus. Reinforced concrete materials combined with natural stone have proven to meet the aspects of strength, durability, and environmental aesthetics. Recent studies confirm that the quality of outdoor furniture design greatly determines the level of open space usage by students (J. Li, 2025). Field observations indicate that the benches can withstand rain and heat exposure according to outdoor construction standards, while also providing additional aesthetic value to the campus environment.

Figure 6. Documentation of the Park Benches After Being Installed in the Campus Area

2. User Response

The results of the questionnaire distributed to 100 students showed that 82% of respondents considered the benches comfortable for group discussions, 76% stated that this facility increased their interest in learning outside the classroom, and 88% rated its presence as enhancing the campus's aesthetic value. These percentages confirm the research findings that student engagement in academic activities increases when open spaces that support social interaction are available (Hasan et al., 2025).

Table 1. Results of the Student Questionnaire Assessment of the Park Benches

Assessment Aspects	Number of Respondents Agree (%)	Number of Respondents Disagreeing (%)
Comfortable for group discussions	82	18
Increasing interest in learning outside the classroom	76	24
Enhancing the campus's aesthetic value	88	12

3. Academic and Social Impact

The presence of park benches not only enhances comfort but also expands the space for informal student discussions. This aligns with findings that well-designed open spaces can improve academic engagement, mental health, and a sense of community (H. Li, 2024; J. Li, 2025). Furthermore, student involvement in the entire production process strengthens technical and managerial skills while instilling values of collaboration, leadership, and social responsibility.

4. Outcome Achievement Analysis

This program produces mandatory outputs in the form of the application of science and technology, publications in mass media, documentary videos,

digital posters, as well as a certificate of utilization from the campus. All outputs have been achieved according to the targets, and some even exceeded the initial indicators, for example, a user satisfaction rate of 82%. These findings support the literature that the success of community service programs lies in the active involvement of students and collaboration with partner institutions (Mpundu & Shen, 2024).

Table 2. List Of Mandatory and Additional Outputs in the PBM-M Program

No	Type of Output	2025 Achievements	Evidence / Document
1	Application of Science and Technology	Implementation of concrete-wood park benches at 3 campus locations	Photos & technical reports
2	Media Publication	Article in the local mass media (Lensa Utara, September 2025)	news Publication https://lensautara.id/bangku-taman-baru-perkuat-atmosfer-akademik-politeknik-negeri-manado/
3	Documentation Video	Published on the P3M Polimdo YouTube channel and personal channel	Links & viewer statistics
4	Digital Poster	1 educational poster was produced and displayed on the campus information board	Poster file
5	Improvement of Student Discipline	10 active students are involved, proven by the attendance list and activity log.	Attendance & monitoring report
6	Partner Certificate	The letter of utilization of community service results is issued by the campus authorities.	Stamped letter
7	Results Seminar	Presentation Material at the PBM-M Results Seminar June 2025	PPT Slide
8	PKM Journal Article	Status accepted	National PKM Journal Link
9	Additional	User satisfaction 82% (questionnaire results)	Survey Analysis Report

CONCLUSION AND RECOMMENDATION

The results of activities to strengthen the academic atmosphere through the creation of park benches at Manado State Polytechnic show that this program successfully achieved all planned output targets. The park benches, made from reinforced concrete and natural stone, have proven to be resistant to tropical climate conditions while also meeting comfort and environmental aesthetic standards. An evaluation through a questionnaire given to 100 students showed that 82% of respondents found the facility comfortable for group discussions, 76% reported an increased interest in studying outside the classroom, and 88% rated the benches as enhancing the campus's aesthetic value. These results are consistent with recent research findings that the quality of open spaces plays an important role in increasing social engagement, mental health, and students' academic participation (H. Li, 2024; J. Li, 2025).

In addition to producing physical facilities, this program also impacts the social and academic aspects of students, particularly in fostering discipline, collaboration, and technical skills through active involvement in the production and installation processes. This supports the concept of experiential learning in vocational higher education, which emphasizes learning through hands-on practice (Hasan et al., 2025).

Based on these results, several recommendations can be proposed. First, the development of open space facilities should be carried out sustainably, taking into account thermal comfort, environmentally friendly design, and functional flexibility. Second, the evaluation of the academic atmosphere's impact needs to be conducted periodically in order to assess changes in student learning behavior in the long term. Third, collaboration among lecturers, students, and campus managers should be continuously strengthened so that campus open spaces become centers of inspiring academic activities. Finally, similar programs can be replicated at other vocational higher education institutions in Indonesia as an effort to strengthen an inclusive and sustainable open-space-based academic atmosphere.

Figure 8. Students Use Park Benches as an Alternative Study Space Outside the Classroom

FUTHER STUDY

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