Study of Wood Workshop Room Standards in Wood, Stone and Plumbing Workshop, Faculty of Engineering, State University of Medan

Liana Atika,[1] Zhilli Izzadati Khairuni[2], Riansyah Putra[3], Syafiatun Siregar[4], Mena Fadilia Lukman[5], Safrinanda Harahap[6]

{liana_atika@unimed.ac.id[1], zhilli_ft@unimed.ac.id[2,] riansyahputra@unimed.ac.id[3], syafiatunsiregar@unimed.ac.id[4], fadillia@unimed.ac.id[5], safrinandaharahap@gmail.com[6]}

Universitas Negeri Medan, Jl. Willem Iskandar V. Medan Estate[12345], Universitas Negeri Padang, Jl. Prof. Dr. Hamka, Air Tawar[6]

Abstract. The purpose of this study is to determine the feasibility of the large area of the wood workshop in the Wood, Stone and Plumbing Workshop of the Faculty of Engineering, Unimed. This research is a type of research with an evaluative descriptive method. The subject in this study is the Unimed, especially the wood workshop, while the object of the research is the area of the workshop. The data collection method is by means of interviews, observations, and documentation. Data analysis techniques are carried out by quantitative methods. The results of this study are the area of the working space of the workshop, has not met the space standard, which is 128 m2 smaller than the standard size of 256 m2.

Keywords: Workshop, Wood.

1 Introduction

Vocational secondary education is a level of education aimed at developing students' abilities to perform specific types of work. The primary focus is to prepare students for the workforce while instilling a professional attitude [1]. Vocational high schools offer specialized courses, such as in wood construction, where students are trained to manage woodworking facilities like the Wood Workshop. This training ensures that students are equipped to oversee the proper functioning of these facilities, helping to create a successful educational program[2].Vocational high schools have majors in the field of wood construction expertise, so that the department has the facilities and infrastructure to produce wood construction work called the Wood Workshop[3]. Of course, in that case, building engineering education students are prepared to be ready in the management of woodworking workshop facilities and infrastructure so that an educational program can be successful.

ICIESC 2024, September 17, Medan, Indonesia

DOI 10.4108/eai.17-9-2024.2352878

Educational infrastructure plays a key role in the success of teaching and learning processes. This success relies on the availability of adequate facilities and effective management [4]. Proper management can help create a clean, organized, and aesthetically pleasing environment, making it comfortable for both students and instructors to work in the woodworking workshop [5]. Additionally, the availability of necessary tools and equipment is essential for the smooth operation of the educational process, benefiting both lecturers and students [6].

The purpose of managing educational facilities and infrastructure is to ensure that the learning environment is conducive to effective and efficient teaching [7]. A well-equipped and well-maintained facility directly contributes to the quality and effectiveness of the learning process. This process involves both lecturers and students utilizing the available resources to achieve the best possible learning outcomes [8].

The researcher observed the Wood Workshop at the Faculty of Engineering, State University of Medan, particularly focusing on the Building Engineering Education program's use of the woodworking facilities [9]. Observations were made based on the standards set out in Permendiknas No.40 of 2008, which outlines the requirements for educational facilities and infrastructure [10]. During the observation, the researcher noted that the room's capacity did not align with the number of students in the program[11]. Additionally, the hand tools and machinery available did not meet the necessary standards for producing wood-based projects. Furthermore, the furniture in the woodworking area was not fit for use, prompting the researcher to explore these issues further[12].

2. Theoretical Foundations

A feasibility study is considered viable when it meets specific criteria, which are used as benchmarks to assess the data collected during the research. The alignment of the data with these criteria determines the decision regarding the feasibility[13].

Space, in this context, is defined as a three-dimensional area where activities and objects are located, and it is particularly designed for a specific purpose. A workshop, as a type of space, is a place used for practical activities or skill exercises to facilitate the realization of vocational education [14]. Space quality requirements include both general and special criteria [15]. General requirements are those that must be adapted to the local context, while special requirements involve standard dimensions used to guide the design and construction of workshop spaces. The size of the woodworking workshop is determined by the number of practical lessons outlined in the vocational curriculum[16].

Workshop facilities are essential for supporting practical activities. According to Government Regulation No. 19 of 2005 regarding National Education Standards, educational institutions must have both facilities (such as furniture, equipment, educational media, and other resources) and infrastructure (including land, classrooms, faculty offices, laboratories, and specialized rooms like workshops) that support the learning process [17].

The quality of the facilities in a workshop directly impacts the effectiveness of practical exercises. Adequate workshop facilities enable students to complete projects efficiently, as they provide all the necessary tools and equipment [18]. Without these resources, the teaching and learning process would face significant obstacles[19]. Tools, whether software or

hardware, are crucial in enabling students to learn various skills and produce the desired outcomes. Hardware refers to physical tools, such as machines and manual equipment, while software consists of programs or digital tools used for learning and project management. Workshops are typically equipped with hardware tools, as these are essential for practical exercises [20].

Practical facilities can be categorized into three types [21]: 1) Main equipment, which refers to tools or machines used for skill development (commonly called workstations), 2) Standard equipment, which matches the quantity of the main equipment, and 3) Additional equipment, which supplements but does not match the main equipment in quantity.

3. Research Methods

This study employs an evaluative descriptive method, which describes the existing conditions in the research setting [18]. The focus of the research is on the physical condition of the wood workshop room, including its size, lighting, and the number and type of equipment and furniture available. The goal is to gather information about the current state of these facilities and assess whether they meet the required standards for educational use. The research does not test hypotheses but simply describes the real conditions based on the observed variables.

4. Research Results

Analysis of the actual conditions versus the standards reveals that the woodworking workshop at the Faculty of Engineering, State University of Medan does not meet the required standards for a proper woodworking practice room. The workshop area is insufficient for the number of students, as it covers only 128 m², while the standard minimum requirement for such a space is 256 m². This discrepancy highlights the need for improvement in the workshop's size and capacity to meet the practical needs of students and support effective learning.

References

[1] N. Hikmah, N. Saridewi, and S. Agung, “Penerapan Laboratorium Virtual untuk Meningkatkan Pemahaman Konsep Siswa,” EduChemia: Jurnal Kimia dan Pendidikan, vol. 2, no. 2, pp. 186–195, Jul. 2017, doi: 10.30870/EDUCHEMIA.V2I2.1608.

[2] “The Influence of the Index Card Match Type Cooperative Learning Model on the Learning Outcomes of Vocational High School Students | Indonesian Journal of Technical and Vocational Education Training.” Accessed: Nov. 18, 2024. [Online]. Available: https://journal.mgedukasia.or.id/index.php/ijtvet/article/view/33

[3] D. R. Sahid and E. R. Rachlan, “Pengelolaan Fasilitas Pembelajaran Guru dalam Meningkatkan Mutu Pembelajaran Pendidikan Jasmani di Sekolah Menengah Kejuruan (SMK),” Indonesian Journal of Education Management & Administration Review, vol. 3, no. 1, pp. 24–39, Jun. 2019, doi: 10.4321/IJEMAR.V3I1.2945.

[4] S. M. Harahap, K. Wijaya, Z. Izzadati, L. Atika, and C. M. Rani, “The Influence of the Index Card Match Type Cooperative Learning Model on the Learning Outcomes of Vocational High School Students,” Indonesian Journal of Technical and Vocational Education Training, vol. 1, no. 1, pp. 18–24, Jun. 2024, doi: 10.62945/IJTVET.V1I1.33.

[5] H. Sulistiani et al., “Workshop Teknologi Metaverse Sebagai Media Pembelajaran,” Journal of Social Sciences and Technology for Community Service (JSSTCS), vol. 4, no. 1, pp. 74–79, Mar. 2023, doi: 10.33365/JSSTCS.V4I1.2642.
[6] S. Susanti, “PENERAPAN MODEL PEMBELAJARAN INDEX CARD MATCH TERHADAP AKTIVITAS BELAJAR SISWA PADA MATA PELAJARAN PENDIDIKAN AGAMA ISLAM,” TAJDID: Jurnal Pemikiran Keislaman dan Kemanusiaan, vol. 6, no. 1, pp. 22–36, Apr. 2022, doi: 10.52266/TADJID.V6I1.813.
[7] M. Kholil and R. A. Ramadhani, “Analisis Kelayakan Investasi Workshop Pembuatan Spare Parts Mesin Industri dengan Menggunakan Metode Kriteria Investasi,” JIEMS (Journal of Industrial Engineering and Management Systems), vol. 8, no. 2, Mar. 2017, doi: 10.30813/JIEMS.V8I2.120.
[8] R. B. Pratama, “Tinjauan Kelayakan Sarana dan Prasarana Workshop Kayu SMK Negeri 1 Padang Berdasarkan Permendiknas Nomor 40 Tahun 2008,” 2021.
[9] “Investment Feasibility Study Workshop Manufacture of Industrial Machinery Spare Parts Using Investment Criteria Method in CV. Utama Karya Mandiri”.
[10] P. S. Studi Teknik Audio Video K Negeri and Y. M. Jl Rw onginsidi No, “Pembuatan Sistem Informasi Manajemen Bengkel di Sekolah Menengah Kejuruan Negeri 3 Yogyakarta,” Jurnal Pendidikan Teknologi dan Kejuruan, vol. 22, no. 3, pp. 324–338, Nov. 2015, doi: 10.21831/JPTK.V22I3.6839.
[11] A. J. Rahmah, “Pengembangan media pembelajaran produk kayu design modern dengan produk furniture rubik’s cube folding stool chair sebagai bahan pembelajaran di workshop kayu Departemen Teknik Sipil Universitas Negeri Malang / Ariesna Jelita Rahmah</p>,” Jul. 2023.
[12] J. Triyastuti, “Analisis kelayakan bengkel praktikum pemesinan di SMKN 1 Singosari dan SMK PGRI 3 Malang / Jayanti Triyastuti,” Feb. 2014.
[13] A. K. Sari et al., “PENGEMBANGAN KOMPETENSI GURU SMKN 1 LABANG BANGKALAN MELALUI PEMBUATAN MEDIA PEMBELAJARAN AUGMENTED REALITY DENGAN METAVERSE,” Panrita Abdi - Jurnal Pengabdian pada Masyarakat, vol. 4, no. 1, pp. 52–59, Jan. 2020, doi: 10.20956/pa.v4i1.7620.
[14] E. Wati and N. Kusmariyatni, “Hubungan Hasil Belajar dengan Strategi Belajar Aktif Trading Place terhadap Prestasi Belajar,” Mimbar Pendidikan Indonesia, vol. 2, no. 1, pp. 98–105, Dec. 2021, doi: 10.23887/MPI.V2I1.34198.
[15] A. D. Permadi, T. Rijanto, Munoto, and M. Widyartono, “Keterlaksanaan Program Revitalisasi SMK dalam Upaya Meningkatkan Kualitas Kelulusan Di SMK,” Jurnal Pendidikan Teknik Elektro, vol. 9, no. 3, 2020.
[16] U. V. Wardina, N. Jalinus, and L. Asnur, “KURIKULUM PENDIDIKAN VOKASI PADA ERA REVOLUSI INDUSTRI 4.0,” Jurnal Pendidikan, vol. 20, no. 1, pp. 82–90, Mar. 2019, doi: 10.33830/JP.V20I1.240.2019.
[17] L. Atika and S. Januariyansah, “PENGARUH PEMBELAJARAN KOOPERATIF TIPE GRUP INVESTIGASI TERHADAP HASIL BELAJAR MEKANIKA TEKNIK,” JMEL : Journal of Mechanical Engineering Learning, vol. 9, no. 2, Dec. 2020, Accessed: Nov. 18, 2024. [Online]. Available: https://journal.unnes.ac.id/sju/jmel/article/view/43001
[18] L. Atika, D. M. Yulanto, and S. Ulgari, “DEVELOPMENT OF VIRTUAL REALITY TEACHING MATERIALS BUILDING MATERIALS PRACTICE COURSES BASED ON INDUSTRIAL NEEDS OF THE SOCIETY 5.0 ERA,” Jurnal PenSil, vol. 12, no. 3, pp. 351–362, Sep. 2023, doi: 10.21009/jpensil.v12i3.37545.

[19] L. Atika, D. Yulanto, and S. Ulgari, “The Effectiveness of The Implementation of Virtual Reality-Based Era 5.0 Learning in Building Materials Practice Courses,” Jan. 2024, doi: 10.4108/EAI.24-10-2023.2342141.

[20] D. M. Yulanto, H. Iskandar, and L. Atika, “THE RELATIONSHIP OF SELF-EFFICACY WITH WORK READINESS OF VOCATIONAL EDUCATION STUDENTS,” Jurnal Pendidikan Teknik Mesin, vol. 11, no. 1, pp. 103–110, May 2024, Accessed: Nov. 18, 2024. [Online]. Available: https://jptm.ejournal.unsri.ac.id/index.php/jptm/article/view/30

[21] L. Atika, V. P. Dhana, and S. Ulgari, “UPAYA PENINGKATAN KUALITAS PEMBELAJARAN JARAK JAUH DI PERGURUAN ISLAM AR-RIDHA MEDAN MARELAN MELALUI PELATIHAN KOLABORASI G-SUITE FOR EDUCATION,” Jurnal Pengabdian Masyarakat Bumi Raflesia, vol. 5, no. 3, pp. 1062–1066, Dec. 2022, doi: 10.36085/JPMBR.V5I3.4216.