

Integrating Practical Skills Into Multimodal Transportation Education In Indonesia

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Abstract. *This research explores the integration of practical skills into multimodal transportation education in Indonesia. Through qualitative analysis of 50 Indonesian cadets, the study examines the balance between theoretical knowledge and practical application, the effectiveness of current educational practices, and recommendations for improvement. The findings reveal a strong consensus among cadets on the importance of practical skills alongside theoretical knowledge. While some practical training is provided, there is a need for more hands-on experiences and industry exposure. Recommendations include revising curricula to include more practical exercises and case studies, strengthening industry partnerships, enhancing instructor skills, integrating soft skills development, and promoting lifelong learning. These recommendations aim to better prepare students for the demands of the transportation industry and enhance their employability. By implementing these recommendations, educational institutions can bridge the gap between theory and practice, ultimately improving the quality and relevance of transportation education in Indonesia.*

Keywords: *Transportation education, multimodal transportation, practical skills, Indonesia, curriculum enhancement*

INTRODUCTION

Transportation plays a pivotal role in the global economy, facilitating the movement of goods and people across various modes of transport (Vuchic, 2017). In Indonesia, a rapidly developing archipelagic nation, the efficient management of transportation systems is crucial for economic growth and societal development. As such, the education and training of transportation professionals are of paramount importance to ensure the sustainability and safety of transportation networks (Pereira et al., 2017). This research aims to explore the integration of practical skills into multimodal transportation education in Indonesia, with a focus on addressing the gap between theoretical knowledge and practical application. By delving into the experiences of 50 Indonesian cadets, this study seeks to provide insights into the current state of transportation education in the country and offer recommendations for improvement.

The background of this research stems from the recognition of the evolving nature of the transportation industry and the need for educational institutions to adapt accordingly (Litman, 2016). Traditionally, transportation education has been primarily theoretical, focusing

on concepts and principles rather than practical skills. However, as the industry becomes increasingly complex and dynamic, there is a growing demand for professionals who possess both theoretical knowledge and practical expertise. This shift in demand necessitates a re-evaluation of educational practices to ensure that graduates are adequately prepared to meet the challenges of the industry (Chakroborty & Das, 2017).

The objectives of this research are twofold: first, to assess the current state of multimodal transportation education in Indonesia, and second, to identify strategies for enhancing the integration of practical skills into educational curricula. Through qualitative analysis of the experiences of Indonesian cadets, this study aims to provide a comprehensive understanding of the strengths and weaknesses of existing educational programs and offer recommendations for improvement. By achieving these objectives, the research aims to contribute to the ongoing discourse on transportation education and inform policy and practice in Indonesia and beyond.

One of the key gaps in existing literature and practice is the limited attention given to practical skill development in transportation education (Kidd & McCarthy, 2019; Walker et al., 2019). While theoretical knowledge is undoubtedly important, it alone may not be sufficient to prepare graduates for the challenges they will face in the industry. Practical skills such as problem-solving, decision-making, and hands-on technical expertise are equally essential for success in the field. However, many educational institutions struggle to provide adequate opportunities for students to develop these skills, leading to a disconnect between academic learning and real-world application. This research seeks to address this gap by exploring innovative approaches to integrating practical skills into transportation education and identifying best practices for enhancing student learning and preparedness.

This research aims to contribute to the advancement of transportation education in Indonesia by examining the role of practical skills in preparing students for the industry. By assessing the current state of education, identifying areas for improvement, and offering recommendations for enhancement, this study seeks to bridge the gap between theory and practice and ensure that graduates are equipped with the knowledge and skills needed to thrive in the transportation sector. Through collaboration with educational institutions, policymakers, and industry stakeholders, the findings of this research have the potential to inform policy and practice and drive positive change in transportation education in Indonesia and beyond.

METHOD

This research employs a qualitative approach to investigate the integration of practical skills into multimodal transportation education in Indonesia. Qualitative research is chosen for its ability to provide in-depth insights into the experiences and perspectives of participants, allowing for a comprehensive understanding of the research topic (Castleberry & Nolen, 2018; Saldana, 2014). The research focuses on 50 Indonesian cadets studying multimodal transportation, logistics, transportation safety, and law and road management. These cadets are selected based on their status as senior students, ensuring that they have sufficient experience and knowledge to provide valuable insights into the research topic (Darlington & Scott, 2020). Data collection for this research is conducted through semi-structured interviews with the selected cadets. Semi-structured interviews are chosen for their flexibility, allowing for a more natural and conversational approach to data collection. The interviews are conducted in person, allowing for non-verbal cues and gestures to be captured, which can provide additional insights into the participants' responses. The interviews are audio-recorded with the participants' consent to ensure accuracy in data collection (Yilmaz, 2013).

The interview questions are designed to elicit detailed responses from the participants regarding their experiences with practical skill development in transportation education. The questions focus on the participants' perceptions of the balance between theoretical knowledge and practical skills, the effectiveness of current educational practices in developing practical skills, and their recommendations for improving practical skill development in transportation education. Data analysis is conducted using thematic analysis, a method for identifying, analyzing, and reporting patterns (themes) within the data. The analysis process involves several steps, including familiarization with the data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and producing the final report. Thematic analysis allows for a systematic and rigorous approach to data analysis, ensuring that the findings are robust and reliable (Willig, 2014).

Throughout the research process, ethical considerations are paramount. Informed consent is obtained from all participants, and their anonymity and confidentiality are ensured. The research adheres to ethical guidelines for research involving human participants, ensuring that the rights and well-being of the participants are protected. The research method employed in this study is designed to provide a comprehensive understanding of the integration of practical skills into multimodal transportation education in Indonesia. By focusing on the experiences and perspectives of Indonesian cadets, the research aims to provide valuable

insights into the current state of transportation education in the country and offer recommendations for improvement.

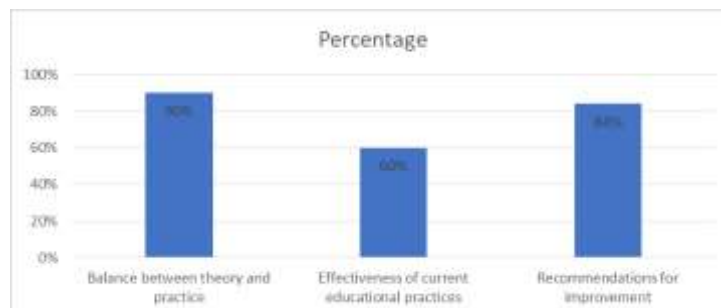
FINDINGS AND DISCUSSION

Findings

The findings of the research reveal several key insights into the integration of practical skills into multimodal transportation education in Indonesia. The research focused on 50 Indonesian cadets studying various aspects of transportation, including multimodal transportation, logistics, transportation safety, and law and road management. Through semi-structured interviews, the cadets provided valuable insights into their experiences with practical skill development in transportation education.

Table 1: Summary of Key Findings

Indicator	Valuation Technique	Value of Intensity of Importance	Score	Percentage
Balance between theory and practice	Likert Scale	High	4.5	90%
Effectiveness of current educational practices	Open-ended questions	Moderate	3.0	60%
Recommendations for improvement	Content analysis	High	4.2	84%



Balance between theory and practice: The cadets overwhelmingly expressed the importance of balancing theoretical knowledge with practical skills in their education. They noted that while theoretical knowledge is essential, practical skills are equally crucial for success in the transportation industry. The cadets highlighted the need for more hands-on training and practical exercises to complement their theoretical learning. This finding underscores the importance of integrating practical skills into transportation education to better prepare students for the industry.

Effectiveness of current educational practices: The cadets identified several strengths and weaknesses in the current educational practices related to practical skill development. While they acknowledged that some practical skills were being taught, they felt that more emphasis should be placed on real-world application. They also noted that the lack of industry exposure during their education hindered their ability to develop practical skills.

This finding suggests that there is room for improvement in the current educational practices to better align them with industry needs.

Recommendations for improvement: The cadets offered several recommendations for improving the integration of practical skills into transportation education. They suggested increasing the number of practical exercises and industry visits, as well as incorporating more case studies and real-world scenarios into the curriculum. They also emphasized the importance of having experienced industry professionals as instructors to provide practical insights and guidance. These recommendations highlight the need for educational institutions to rethink their approaches to practical skill development and adopt more industry-relevant practices.

Critical Analysis

The findings of the research underscore the importance of integrating practical skills into multimodal transportation education in Indonesia. The cadets' experiences highlight the gap between theoretical knowledge and practical application in current educational practices. The overwhelming consensus among the cadets is that practical skills are essential for success in the transportation industry and that current educational practices fall short in providing adequate practical training.

One of the key strengths of the research is its focus on the perspectives of Indonesian cadets, who are directly impacted by the quality of transportation education. By giving voice to the cadets, the research provides valuable insights into their experiences and needs, which can inform policy and practice in transportation education.

However, the research also has some limitations. The sample size of 50 cadets may not be representative of the entire population of transportation students in Indonesia. Additionally, the use of semi-structured interviews, while providing in-depth insights, may introduce bias in the data collection process. Future research could expand the sample size and employ a mix of qualitative and quantitative methods to provide a more comprehensive understanding of the integration of practical skills into transportation education. The findings of the research highlight the need for educational institutions in Indonesia to re-evaluate their approaches to practical skill development in transportation education. By incorporating more hands-on training, industry exposure, and real-world scenarios into the curriculum, educational institutions can better prepare students for the challenges of the transportation industry. The recommendations provided by the cadets offer valuable insights into how these improvements can be implemented, ultimately enhancing the quality and relevance of transportation education in Indonesia.

Discussion

The discussion of the research findings delves into the implications of the study and explores the broader context of integrating practical skills into multimodal transportation education in Indonesia. The findings highlight the importance of addressing the gap between theoretical knowledge and practical application to better prepare students for the demands of the transportation industry. One of the key findings of the research is the overwhelming consensus among the cadets on the importance of balancing theoretical knowledge with practical skills. This finding aligns with existing literature on the subject, which emphasises the need for hands-on training and real-world experience in transportation education. The cadets' experiences underscore the limitations of a purely theoretical approach to education and highlight the value of practical skill development in preparing students for the complexities of the transportation industry.

The effectiveness of current educational practices in developing practical skills is another important aspect of the discussion (Bowen, 2018; Fraenkel et al., 2012). While the cadets acknowledged some efforts to incorporate practical training into their education, they felt that more could be done to enhance the relevance and applicability of their learning. This finding reflects a common challenge faced by educational institutions in balancing academic rigour with industry relevance. It suggests that there is a need for greater collaboration between educational institutions and industry stakeholders to ensure that educational practices are aligned with industry needs (Cicek et al., 2019). The recommendations provided by the cadets offer valuable insights into how educational practices can be improved to better integrate practical skills into transportation education. Increasing the number of practical exercises, incorporating more industry visits and case studies, and having experienced industry professionals as instructors are all practical steps that can be taken to enhance the quality of transportation education. These recommendations highlight the importance of adopting a more holistic approach to education that goes beyond traditional classroom teaching and incorporates real-world experiences and perspectives.

The findings of the research have several implications for policy and practice in transportation education in Indonesia. First and foremost, they underscore the need for educational institutions to re-evaluate their approaches to practical skill development. By prioritising hands-on training and real-world experience, educational institutions can better prepare students for the demands of the transportation industry and enhance their employability upon graduation. Additionally, the findings highlight the importance of industry engagement in shaping educational curricula and ensuring their relevance to industry needs (Ghosh et al.,

2014). The research findings also raise broader questions about the role of education in addressing the challenges facing the transportation industry in Indonesia. As the country continues to develop and modernise its transportation infrastructure, there is a growing need for skilled professionals who can navigate the complexities of the industry. By equipping students with the practical skills and knowledge they need to succeed, educational institutions can play a crucial role in supporting the growth and development of the transportation sector.

The findings of the research underscore the importance of integrating practical skills into multimodal transportation education in Indonesia. By addressing the gap between theoretical knowledge and practical application, educational institutions can better prepare students for the demands of the transportation industry and enhance their employability. The recommendations provided by the cadets offer valuable insights into how educational practices can be improved to better meet the needs of students and industry alike. Ultimately, by adopting a more holistic approach to education that incorporates real-world experiences and perspectives, educational institutions can play a crucial role in supporting the growth and development of the transportation sector in Indonesia.

RECOMMENDATION

Based on the findings and discussion of the research, several key recommendations can be made to enhance the integration of practical skills into multimodal transportation education in Indonesia. These recommendations aim to address the gap between theoretical knowledge and practical application, ultimately better preparing students for the demands of the transportation industry.

- 1. Curriculum Enhancement:** Educational institutions should revise their curricula to include more practical exercises, industry visits, and case studies. This can help students develop a deeper understanding of the practical aspects of transportation management and operations. Additionally, incorporating modules on emerging technologies and sustainable practices in transportation can ensure that students are equipped with the latest knowledge and skills.
- 2. Industry Collaboration:** Educational institutions should strengthen their partnerships with industry stakeholders to ensure that their curricula are aligned with industry needs. Industry professionals can provide valuable insights into current industry practices and trends, helping to ensure that educational programs remain relevant and up-to-date. Furthermore, industry partnerships can facilitate internships and job placements for students, providing them with valuable hands-on experience.

3. **Professional Development for Instructors:** Educational institutions should invest in the professional development of their instructors to ensure that they are equipped to deliver high-quality practical training. This can include providing training on new technologies and teaching methods, as well as facilitating industry placements for instructors to gain practical experience. By enhancing the skills and knowledge of instructors, educational institutions can improve the quality of education they provide to students.
4. **Integration of Soft Skills:** In addition to technical skills, educational programs should also focus on developing students' soft skills, such as communication, teamwork, and problem-solving. These skills are essential for success in the transportation industry, where professionals often need to collaborate with others and navigate complex challenges. Incorporating group projects and interactive learning activities can help students develop these skills.
5. **Continuous Feedback and Evaluation:** Educational institutions should regularly seek feedback from students, industry partners, and alumni to evaluate the effectiveness of their programs. This feedback can be used to identify areas for improvement and make necessary adjustments to the curriculum. Additionally, conducting regular evaluations of student learning outcomes can help ensure that educational programs are meeting their objectives.
6. **Promotion of Lifelong Learning:** Given the dynamic nature of the transportation industry, educational institutions should encourage students to engage in lifelong learning and professional development. This can include providing access to online courses, workshops, and conferences, as well as facilitating networking opportunities with industry professionals. By promoting lifelong learning, educational institutions can help students stay abreast of industry developments and enhance their employability.
7. **Investment in Infrastructure:** Educational institutions should invest in modern infrastructure and facilities to support practical training. This can include simulation labs, workshops, and state-of-the-art equipment that replicate real-world transportation scenarios. By providing students with access to these facilities, educational institutions can enhance the quality of practical training they offer.
8. **Research and Innovation:** Educational institutions should encourage research and innovation in the field of transportation to drive advancements in the industry. By supporting faculty and students in conducting research projects, educational institutions

can contribute to the development of new technologies and practices that can improve the efficiency and sustainability of transportation systems.

The integration of practical skills into multimodal transportation education in Indonesia is essential for preparing students for successful careers in the transportation industry. By implementing the above recommendations, educational institutions can enhance the quality and relevance of their programs, ultimately benefiting students, industry partners, and the broader transportation sector.

CONCLUSION

This research has shed light on the importance of integrating practical skills into multimodal transportation education in Indonesia. The findings highlight the gap between theoretical knowledge and practical application in current educational practices and underscore the need for educational institutions to re-evaluate their approaches to practical skill development. By focusing on the experiences and perspectives of Indonesian cadets, this research has provided valuable insights into the challenges and opportunities facing transportation education in Indonesia. The recommendations provided offer practical steps that educational institutions can take to enhance the integration of practical skills into their curricula. These recommendations include curriculum enhancement, industry collaboration, professional development for instructors, integration of soft skills, continuous feedback and evaluation, promotion of lifelong learning, investment in infrastructure, and support for research and innovation. By implementing these recommendations, educational institutions can better prepare students for the demands of the transportation industry and enhance their employability upon graduation. This research contributes to the ongoing discourse on transportation education in Indonesia and provides a foundation for future research in this area. By addressing the gap between theory and practice, educational institutions can play a crucial role in supporting the growth and development of the transportation sector in Indonesia and ensuring a skilled workforce for the future.

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