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Enhancing Collaboration Between Transportation Education And Industry In Indonesia: A Cadet Perspective

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Abstract*. This qualitative study investigates the perspectives of 50 cadets enrolled in Indonesian transportation institutes on collaboration between transportation education and industry. The research reveals a high perceived importance of industry-academia collaboration, highlighting its value in providing real-world experience and industry insights. However, challenges such as curriculum misalignment, limited practical training opportunities, and ineffective industry feedback mechanisms hinder effective collaboration. Recommendations include strengthening collaboration through internships and industry projects, regularly reviewing and updating curricula, expanding practical training opportunities, establishing structured industry feedback mechanisms, providing professional development for educators, and promoting lifelong learning. Implementing these recommendations can enhance collaboration, improve education programme relevance, and better prepare students for the transportation sector's demands. This research contributes to the development of a skilled workforce, driving the growth and competitiveness of the transportation industry in Indonesia.*

Keywords*: transportation education, industry collaboration, curriculum alignment, practical training, industry feedback.*

INTRODUCTION

The transportation industry plays a pivotal role in facilitating economic growth and development, particularly in countries like Indonesia, where a vast archipelago necessitates efficient and well-coordinated transportation systems. To meet the demands of this dynamic sector, it is crucial to ensure that transportation education programs are closely aligned with industry requirements (Cicek et al., 2019; Gavalas et al., 2022). However, achieving this alignment poses a significant challenge, as highlighted by the gap between the skills and knowledge imparted by educational institutions and those demanded by the industry. This research aims to address this gap by investigating the perspectives of 50 cadets enrolled in Indonesian transportation institutes, with a focus on multimodal transportation, logistics, transportation safety, and law and road management. Through qualitative analysis, the study seeks to identify strategies for fostering closer collaboration between transportation education and industry, ultimately enhancing the employability of graduates and the industry's workforce development.

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The primary objective of this research is to explore the current state of collaboration between transportation education and industry in Indonesia and to propose practical strategies for bridging the gap between academia and industry (Chen et al., 2017; Green, 2021). This objective is informed by the recognition that the transportation sector is rapidly evolving, driven by technological advancements, changing market dynamics, and regulatory requirements. To remain relevant and competitive, it is imperative for educational institutions to adapt their curricula and teaching methodologies to align with industry needs. By gaining insights into the perspectives of cadets, who represent the future workforce of the transportation industry, this research aims to provide valuable recommendations for enhancing the relevance and effectiveness of transportation education in Indonesia.

One of the key challenges facing transportation education in Indonesia is the disconnect between academic theory and industry practice (Fei, 2018; Tyson et al., 2018). While academic programs often focus on theoretical concepts and principles, industry demands practical skills and knowledge that are directly applicable to the workplace. This gap can lead to a mismatch between the skills possessed by graduates and those required by employers, resulting in difficulties in securing employment and contributing to industry growth. By addressing this gap through collaborative initiatives between education and industry, this research seeks to ensure that graduates are well-prepared to meet the challenges of the transportation sector and contribute effectively to its development (Prayogo, 2020).

Another critical issue facing transportation education in Indonesia is the lack of exposure to real-world industry practices. While theoretical knowledge is essential, practical experience is equally important for developing the skills and competencies required in the workplace. However, limited opportunities for internships and industry placements often hinder students' ability to gain practical experience. This research aims to identify ways to overcome this challenge by proposing innovative approaches to integrating practical training into the curriculum, thereby enhancing students' employability and industry readiness. This research addresses a pressing need to enhance the collaboration between transportation education and industry in Indonesia. By exploring the perspectives of cadets enrolled in transportation institutes, this study seeks to identify strategies for bridging the gap between academia and industry, ultimately ensuring that graduates are well-equipped to meet the demands of the transportation sector (Berg, 2013). Through its findings and recommendations, this research aims to contribute to the ongoing efforts to enhance the quality and relevance of transportation education in Indonesia, thereby supporting the sustainable development of the transportation industry.

METHOD

The research method employed in this study is qualitative in nature, aiming to provide a comprehensive understanding of the perspectives and experiences of cadets enrolled in Indonesian transportation institutes. Specifically, the research focuses on 50 cadets studying multimodal transportation, logistics, transportation safety, and law and road management (Aderonmu et al., 2017). The qualitative approach is deemed appropriate for this study as it allows for an in-depth exploration of the complex issues surrounding collaboration between transportation education and industry in Indonesia. Data collection for this research is primarily conducted through semi-structured interviews with the cadets. Semi-structured interviews are chosen as they provide flexibility in probing for detailed information while allowing for the exploration of new topics as they arise. The interviews are conducted in-person at the transportation institutes to ensure a conducive environment for open and honest communication. Each interview is audio-recorded with the consent of the participants to ensure accurate capture of the data (Kim et al., 2017; Padgett, 2016).

To ensure the reliability and validity of the data, a pilot study is conducted prior to the main data collection. The pilot study involves interviewing a small sample of cadets to test the interview questions and identify any potential issues or ambiguities. The feedback from the pilot study is used to refine the interview protocol and ensure that the questions are clear and relevant to the research objectives. Data analysis for this research is conducted using thematic analysis, a method commonly used in qualitative research to identify patterns and themes within the data (Willig, 2014). The audio-recorded interviews are transcribed verbatim, and the transcripts are then coded line-by-line to identify recurring themes and patterns. These codes are then grouped into broader themes, which are further refined and analysed to develop a comprehensive understanding of the data.

Throughout the research process, efforts are made to ensure ethical considerations are upheld. Informed consent is obtained from all participants prior to their involvement in the study, and measures are taken to ensure the confidentiality and anonymity of the participants. The research also adheres to the principles of beneficence and non-maleficence, ensuring that the well-being of the participants is prioritized and that no harm is caused as a result of their participation (Saldana, 2014). The research method employed in this study is qualitative, focusing on semi-structured interviews with 50 cadets enrolled in Indonesian transportation institutes. Thematic analysis is used to analyse the data, aiming to provide valuable insights into the perspectives of cadets and inform strategies for bridging the gap between transportation education and industry in Indonesia.

FINDINGS AND DISCUSSION

Findings

The findings of the research shed light on the perspectives of 50 cadets enrolled in Indonesian transportation institutes regarding collaboration between transportation education and industry. Through qualitative analysis, several key themes emerge, providing valuable insights into the challenges and opportunities for bridging the gap between academia and industry in the transportation sector.

Table 1: Summary of Key Findings

Indicator	Valuation Technique	Value of Intensity of Importance	Score	Percentage
Industry-Academia Collaboration	Likert Scale	High	45/50	90%
Alignment of Curriculum	Open-ended Questions	Moderate	35/50	70%
Practical Training Opportunities	Semi-Structured Interviews	Low	25/50	50%
Industry Feedback Mechanisms	Focus Group Discussions	Moderate	30/50	60%

Industry-Academia Collaboration: The majority of cadets (90%) perceive industry-academia collaboration as highly important for their education and future career prospects. They recognise the value of industry partnerships in providing real-world insights, practical experience, and networking opportunities. However, while the importance is acknowledged, some cadets express concerns about the limited engagement between transportation institutes and industry stakeholders. They highlight the need for more structured collaboration initiatives, such as industry guest lectures, internships, and industry-sponsored projects, to bridge the gap between theory and practice.

Alignment of Curriculum: Approximately 70% of cadets believe that the current curriculum adequately covers theoretical concepts but lacks alignment with industry needs and practices. They express the need for a more industry-relevant curriculum that incorporates practical skills and knowledge demanded by employers. Cadets suggest the inclusion of industry-specific case studies, simulations, and hands-on projects to enhance the relevance and applicability of their education. Moreover, they emphasise the importance of regular curriculum reviews and updates to keep pace with evolving industry trends and technologies.

Practical Training Opportunities: Half of the cadets (50%) report limited access to practical training opportunities, such as internships and industry placements. They express frustration over the lack of practical experience, which they believe hinders their readiness for the workforce. Cadets highlight the importance of hands-on training in developing practical skills, problem-solving abilities, and industry connections. They call for increased

collaboration between transportation institutes and industry partners to expand internship opportunities and provide students with valuable real-world experience.

Industry Feedback Mechanisms: Sixty percent of cadets express the need for more effective mechanisms for gathering industry feedback on the relevance and effectiveness of their education. While some transportation institutes have established industry advisory boards or feedback sessions, cadets feel that these mechanisms are not utilised optimally. They suggest regular surveys, focus group discussions, and industry forums as effective ways to solicit feedback and ensure ongoing alignment between education and industry needs.

Critical Analysis: The findings of the research highlight the importance of enhancing collaboration between transportation education and industry in Indonesia to better prepare cadets for the workforce. The high perceived importance of industry-academia collaboration underscores the recognition among cadets of the value of real-world experience and industry insights in complementing their theoretical education. However, the gap between perception and reality is evident in the challenges faced by cadets regarding curriculum alignment, practical training opportunities, and industry feedback mechanisms.

The moderate valuation of curriculum alignment reflects the disconnect between academic theory and industry practice, with many cadets feeling that their education lacks relevance to the demands of the transportation industry. This gap underscores the need for transportation institutes to regularly review and update their curricula to ensure alignment with industry needs and emerging trends. Moreover, the low valuation of practical training opportunities highlights the urgent need for transportation institutes to expand internship programmes and provide students with hands-on experience to enhance their employability.

The findings also underscore the importance of establishing effective industry feedback mechanisms to ensure ongoing alignment between education and industry needs. While some initiatives exist, such as industry advisory boards, their effectiveness is questioned by cadets who feel that their input is not adequately considered. Thus, there is a clear need for transportation institutes to adopt more robust mechanisms, such as regular surveys and focus group discussions, to gather timely feedback and improve the quality and relevance of their education programmes.

Discussion

The discussion of the research findings provides a deeper understanding of the challenges and opportunities for collaboration between transportation education and industry in Indonesia. The key themes that emerged from the findings, including industry-academia collaboration, curriculum alignment, practical training opportunities, and industry feedback

mechanisms, highlight the complex nature of the relationship between academia and industry in the transportation sector.

Industry-Academia Collaboration: The high importance placed on industry-academia collaboration by the cadets underscores the recognition of the value of real-world experience and industry insights in enhancing their education and future career prospects. This finding aligns with the broader literature on the importance of collaboration between academia and industry in preparing students for the workforce. However, the challenges faced by cadets in accessing meaningful collaboration opportunities suggest that there is room for improvement in this area. Transportation institutes should explore innovative ways to strengthen their ties with industry partners, such as through internship programmes, industry-sponsored projects, and industry advisory boards. These initiatives can provide students with valuable exposure to industry practices and help bridge the gap between theory and practice.

Curriculum Alignment: The findings regarding curriculum alignment highlight a common challenge faced by many educational institutions: ensuring that the curriculum remains relevant and up-to-date with industry needs. The discrepancy between the perceived importance of curriculum alignment and the cadets' assessment of the current curriculum suggests that there is a need for transportation institutes to review and revise their curricula regularly. By incorporating industry-specific case studies, simulations, and hands-on projects, transportation institutes can enhance the practical relevance of their education and better prepare students for the demands of the transportation industry.

Practical Training Opportunities: The limited access to practical training opportunities reported by cadets is a significant concern, as practical experience is crucial for developing the skills and competencies required in the transportation sector. Transportation institutes should work closely with industry partners to expand internship programmes and provide students with more opportunities for hands-on training. By doing so, transportation institutes can enhance the employability of their graduates and ensure that they are well-prepared for the workforce.

Industry Feedback Mechanisms: The findings regarding industry feedback mechanisms highlight the importance of establishing effective channels for gathering feedback from industry partners. While some transportation institutes have implemented industry advisory boards and feedback sessions, these mechanisms may not be utilised optimally. Transportation institutes should consider implementing more structured feedback mechanisms, such as regular surveys and focus group discussions, to gather timely feedback from industry partners. By incorporating industry feedback into their curriculum development process,

transportation institutes can ensure that their education programmes remain relevant and responsive to industry needs.

The findings of this research have important implications for transportation education in Indonesia. By addressing the challenges identified, transportation institutes can enhance their collaboration with industry partners, improve the relevance of their education programmes, and better prepare their students for the demands of the transportation sector. Moving forward, it is essential for transportation institutes to continue to engage with industry partners, review and revise their curricula regularly, expand internship programmes, and establish effective feedback mechanisms. By doing so, transportation institutes can play a vital role in developing a skilled and competent workforce that can drive the growth and development of the transportation industry in Indonesia.

RECOMMENDATION

Based on the findings and discussion of the research, several recommendations can be made to enhance collaboration between transportation education and industry in Indonesia:

1. **Enhanced Industry-Academia Collaboration:** Transportation institutes should strengthen their collaboration with industry partners through various initiatives, such as internships, industry-sponsored projects, and industry advisory boards. These collaborations can provide students with valuable real-world experience and industry insights, bridging the gap between theory and practice.
2. **Curriculum Review and Update:** Transportation institutes should regularly review and update their curricula to ensure alignment with industry needs and practices. This can be achieved by incorporating industry-specific case studies, simulations, and hands-on projects into the curriculum to enhance its practical relevance.
3. **Expanded Practical Training Opportunities:** Transportation institutes should work closely with industry partners to expand internship programmes and provide students with more opportunities for practical training. This can help students develop the skills and competencies required in the transportation sector and enhance their employability.
4. **Establishment of Effective Industry Feedback Mechanisms:** Transportation institutes should establish more structured mechanisms for gathering feedback from industry partners, such as regular surveys and focus group discussions. This feedback can be used to inform curriculum development and ensure that education programmes remain relevant and responsive to industry needs.

5. **Professional Development for Educators:** Transportation institutes should provide professional development opportunities for educators to stay updated with industry trends and practices. This can help educators better prepare students for the demands of the transportation sector and enhance the quality of education programmes.
6. **Partnerships with Government and Industry Associations:** Transportation institutes should establish partnerships with government agencies and industry associations to stay informed about policy developments and industry trends. These partnerships can provide valuable insights into the future direction of the transportation sector and help shape education programmes accordingly.
7. **Promotion of Lifelong Learning:** Transportation institutes should promote lifelong learning among students and educators to ensure that they remain updated with industry developments throughout their careers. This can be achieved through continuing education programmes and professional certifications.
8. **Encouragement of Industry Engagement:** Transportation institutes should encourage students to engage with industry partners through networking events, seminars, and conferences. This can help students build valuable industry connections and gain a better understanding of industry practices.

CONCLUSION

The research findings highlight the importance of collaboration between transportation education and industry in Indonesia to bridge the gap between academia and industry practices. The study revealed that while cadets recognise the significance of industry-academia collaboration, there are challenges related to curriculum alignment, limited practical training opportunities, and ineffective industry feedback mechanisms. To address these challenges, transportation institutes should enhance collaboration with industry partners, regularly review and update their curricula, expand practical training opportunities, establish effective industry feedback mechanisms, provide professional development for educators, and promote lifelong learning among students and educators. By implementing these recommendations, transportation institutes can improve the relevance and quality of their education programmes, better prepare students for the workforce, and contribute to the development of a skilled and competent workforce in the transportation sector. Ultimately, these efforts can drive the growth and development of the transportation industry in Indonesia, ensuring its competitiveness in the global market.

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