

Quality Education in the Hospitality Industry: Its Impact on Sustainable Tourism in Central Java

Arya Dirgantara^{1,*} Waluyo Pambudi²

¹ Universitas Islam Negeri Walisongo Semarang

² Sekolah Tinggi Ilmu Ekonomi Pariwisata Indonesia

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Abstract: The growth of the tourism industry in Central Java, bolstered by product development and hospitality infrastructure, is highly dependent on the quality of its human resources. This research aims to investigate the impact of quality education in the hospitality industry on the sustainability of tourism in Central Java. The novelty of this study lies in its comprehensive integration of the Competency-Based Curriculum (CBC) for hospitality with the pillars of sustainable tourism (economic, social, environmental) within an analytical framework that focuses on the regional characteristics of Central Java. The findings indicate that CBC significantly enhances graduate employability through the mastery of technical skills, while also equipping them with the mindset and capacity to implement eco-friendly practices (green hospitality), preserve local culture, and manage economic impacts sustainably. Furthermore, factors such as the application of corporate image practices, social media development, and government program support also contribute to industry growth. This study concludes that strategic investment in adaptive and high-quality vocational hospitality education, supported by multi-sectoral partnerships, is an essential catalyst. This is crucial not only for improving graduate readiness for work and competitiveness but also for supporting responsible, inclusive, and long-term tourism growth in Central Java, aligning with the achievement of Sustainable Development Goal Target 4.4 (SDG 4.4) and promoting social justice.

Keywords:

Pendidikan Vokasi; Perhotelan; Pariwisata Berkelanjutan; Jawa Tengah; SDG 4

Abstrak: Pertumbuhan industri pariwisata di Jawa Tengah, yang didukung oleh pengembangan produk dan infrastruktur perhotelan, sangat bergantung pada kualitas sumber daya manusia. Penelitian ini bertujuan untuk menyelidiki dampak pendidikan berkualitas di industri perhotelan terhadap keberlanjutan pariwisata di Jawa Tengah. Kebaruan studi ini terletak pada integrasi komprehensif Kurikulum Berbasis Kompetensi (KBK) perhotelan dengan pilar-pilar pariwisata berkelanjutan (ekonomi, sosial, lingkungan) dalam kerangka analitis yang berfokus pada karakteristik regional Jawa Tengah. Temuan menunjukkan bahwa KBK secara signifikan meningkatkan kesiapan kerja lulusan melalui penguasaan keterampilan teknis, sekaligus membekali mereka dengan pola pikir dan kapasitas untuk mengimplementasikan praktik ramah lingkungan (green hospitality), melestarikan budaya lokal, dan mengelola dampak ekonomi secara berkelanjutan. Selain itu, faktor-faktor seperti penerapan praktik citra perusahaan, pengembangan media sosial, dan dukungan program pemerintah juga berkontribusi pada pertumbuhan industri. Studi ini menyimpulkan bahwa investasi strategis dalam pendidikan vokasi perhotelan yang adaptif dan berkualitas tinggi, didukung oleh kemitraan multisektoral, merupakan katalisator esensial. Hal ini krusial tidak hanya untuk meningkatkan kesiapan kerja dan daya saing lulusan, tetapi juga untuk menopang pertumbuhan pariwisata yang bertanggung jawab, inklusif, dan berorientasi jangka panjang di Jawa Tengah, sejalan dengan pencapaian Target 4.4 Sustainable Development Goals (SDG 4.4) dan pendorong keadilan sosial.

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Corresponding Author: ✉ aryadirgantara@walisongo.ac.id

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INTRODUCTION

The hospitality industry is a pivotal sector contributing significantly to Indonesia's economic growth and tourism development, particularly in Central Java (Xu et al., 2022). This sector plays a crucial role in generating employment opportunities and attracting both domestic and international tourists (Škarica, 2020). However, the rapid expansion of the hospitality industry necessitates a consistent supply of competent and highly skilled human resources. The quality of human capital within the hospitality sector is profoundly shaped by vocational education, primarily through hospitality-focused Vocational High Schools (Sekolah Menengah Kejuruan/SMK). Therefore, ensuring high-quality education in hospitality SMKs is paramount for fostering sustainable tourism growth and achieving Sustainable Development Goal (SDG) 4, specifically Target 4.4. This target emphasizes a substantial increase in the number of youth and adults possessing relevant skills, including technical and vocational proficiencies, for employment, decent work, and entrepreneurship.

Competency-based curricula are widely recognized as a fundamental approach to enhancing the quality of education in hospitality vocational high schools (SMKs). These curricula are meticulously designed to equip graduates with competencies that directly align with industry demands. The implementation of such curricula is expected to produce hospitality SMK graduates who are not only technically proficient but also possess essential soft skills, such as effective communication, teamwork, and professional ethics. Moreover, integrating sustainable tourism principles into the curriculum has become increasingly vital to ensure that hospitality SMK graduates acquire the necessary awareness and capacity to actively contribute to sustainable tourism development.

Despite these efforts, several studies have indicated a persistent gap between the skills possessed by hospitality SMK graduates and the evolving demands of the industry. (Almutairi & Alsuwayl, 2023) highlight that teachers' understanding of Universal Design for Learning (UDL), a framework that can enhance educational quality, still requires considerable improvement. (Syre-Hager, 2022) further emphasizes the importance of teachers' comprehensive understanding of UDL and its effective implementation strategies to enhance student engagement in the learning process. Meanwhile, (Karlina et al., 2025) demonstrates that robust support from school principals is indispensable for the successful adoption and sustained impact of UDL. These findings collectively suggest that improving the quality of education in hospitality SMKs mandates a comprehensive approach, encompassing enhanced teacher competencies and fortified support from educational leadership.

Based on the preceding discussion, this study is guided by the following research question: How does the implementation of a competency-based curriculum in hospitality vocational high schools (SMKs) in Central Java influence graduates' work readiness and their contribution to achieving Sustainable Development Goal 4 (SDG 4) targets, particularly Target 4.4, and the broader development of sustainable tourism?

Correspondingly, this study aims to analyze the impact of implementing a competency-based curriculum on the work readiness of graduates from hospitality vocational high schools (SMKs) in Central Java. Identify the contribution of competency-based curriculum implementation to achieving Sustainable Development Goal (SDG) 4, notably Target 4.4, in Central Java.

METHOD

This study adopts a qualitative research approach, a method chosen for its inherent suitability in exploring the complex layers of social reality, the subjective meanings individuals ascribe to their experiences, and the dynamic interactions that resist quantification through numerical data. From a sociological viewpoint, this approach enables the researcher to investigate how quality education is perceived, implemented, and experienced by diverse social actors within the tourism ecosystem. Furthermore, it allows for an examination of how these perceptions collectively shape and influence tourism sustainability, particularly from human-centric and local cultural perspectives.

Operationally, data collection emphasizes methods designed for in-depth exploration. In-depth interviews serve as the primary data collection technique, conducted with a diverse range of key informants. These informants include leaders of hospitality education institutions, lecturers and instructors, managers and staff from hotels and restaurants, local tourism entrepreneurs (such as homestay operators and tour guides), representatives from local government agencies responsible for tourism oversight, and members of local communities directly affected by tourism activities. Additionally, participant and non-participant observations, conducted in both hospitality education settings and tourism destinations, will yield rich visual and behavioral contextual data. Focus Group Discussions (FGDs) are also utilized to capture collective perspectives and interaction dynamics among participants on critical issues, such as challenges in aligning curricula with industry needs or potential conflicts of interest within sustainable tourism development.

this study employs thematic analysis and narrative analysis to identify patterns, categories, and emergent themes derived from interview transcripts and observational field notes. Thematic analysis will facilitate the identification of recurring themes regarding the definition of "quality education," local indicators of "sustainable tourism," and the intricate ways in which these two concepts interact within the Central Java context. Narrative analysis, conversely, will enable a deeper understanding of the personal stories and lived experiences that underpin participants' perspectives. The findings of this qualitative study are expected to transcend mere descriptive accounts, offering rich interpretations and profound explanations of social processes, underlying values, and the challenges and opportunities encountered in promoting sustainable tourism through quality education. These insights will ultimately provide a robust

foundation for policy recommendations and practical strategies that are both socially sensitive and contextually grounded.

RESULT AND DISCUSSION

Highquality education within the hospitality sector is a crucial catalyst for promoting and ensuring the long-term sustainability of tourism in Central Java. Fundamentally, the enhancement of human resource capabilities, nurtured through structured and comprehensive educational programs, not only elevates service standards and stimulates innovation across tourism destinations but also cultivates a vital awareness and practice of sustainability principles. Indeed, educational excellence that thoughtfully integrates managerial, operational, ethical, and environmental dimensions directly correlates with the adoption of eco-friendly practices, the preservation of local cultural heritage, and a more equitable distribution of economic benefits among local communities.

Consequently, strategic investment in hospitality education one that is both globally relevant and sensitive to local wisdom is not simply an operational imperative. Rather, it represents a crucial prerequisite for fostering responsible, competitive, and future-oriented tourism growth throughout Central Java (Ananda & Anisykurlillah, 2025). This investment is also instrumental in addressing sustainability challenges by critically enhancing the alignment among educational outcomes, prevailing industry needs, and the core principles of sustainable tourism development.

Vocational Education and Its Relevance to Industry Needs

It is essential to discuss the pivotal role of vocational education in preparing a skilled and work-ready workforce. Academic literature on effective vocational education models consistently highlights how competency-based curricula (CBCs) can significantly enhance the relevance of education to industry needs. (Anthony Jnr, 2021) examines sustainable practices within higher education institutions, the foundational principles of which are readily adaptable to the context of Vocational High Schools. Furthermore, exploring additional sources on vocational education in Indonesia is crucial for identifying robust strategies to improve its overall quality and strengthen its alignment with labor market demands.

To achieve this, the following considerations are paramount:

1. Environmental and sustainability-related content must be comprehensively integrated into the curriculum to ensure that students thoroughly understand the critical importance of sustainable practices.
2. Students should be actively encouraged to participate in projects focused explicitly on sustainability, such as tree-planting initiatives, waste management activities, and recycling campaigns.
3. Real-world challenges pertinent to sustainable tourism should form the basis for learning activities, thereby fostering students' ability to develop innovative solutions to complex and practical problems.

The implementation of a Competency-Based Curriculum (CBC) in hospitality Vocational High Schools (SMKs) in Central Java has emerged as a fundamental strategy for bridging the extant gap between educational outcomes and prevailing labor market demands. The CBC is specifically designed to ensure that students acquire not only foundational theoretical knowledge but also practical skills and professional work attitudes directly relevant to industry requirements. By emphasizing specific, measurable, and practice-oriented learning outcomes, the curriculum empowers hospitality SMK graduates to develop a robust portfolio of competencies that can be immediately applied in professional settings. Within the dynamic hospitality context of Central Java, curriculum alignment with industry standards is therefore indispensable for producing a workforce that is job-ready, adaptable, and responsive to ongoing developments in the tourism sector.

The direct impact of CBC implementation on graduates' work readiness is manifested through several key mechanisms. Foremost, integrated internship programs, often referred to as Practical Work Experience (Praktik Kerja Lapangan/PKL), constitute a core element of the CBC, providing students with invaluable opportunities to immerse themselves in real-world workplace environments, refine their operational skills, and cultivate professional networks. Strong, collaborative partnerships between schools and industry stakeholders are instrumental in ensuring that the competencies taught remain closely aligned with current market demands, including proficiency in English, which is frequently a critical prerequisite in the hospitality industry. This synergistic alignment minimizes the need for extensive on-the-job training by employers, thereby enabling graduates to adapt more rapidly to their roles and responsibilities within the workplace. Moreover, curricula developed through close collaboration with industry partners actively contribute to producing graduates whose competency profiles precisely meet employer expectations.

Nevertheless, optimizing the enduring impact of the CBC continues to present challenges that necessitate sustained attention. Factors such as variations in implementation quality across different schools, the consistent availability of adequate practical training facilities, and the level of commitment and consistency demonstrated by industry partners in providing high-quality internship placements and mentorship are critical determinants of success. Periodic verification and validation of curricula and work-preparation programs, a practice consistently emphasized in various employment-access enhancement strategies, are essential for maintaining their ongoing relevance and effectiveness. Thus, while the CBC inherently enhances work readiness, continuous refinement in curriculum management and the strategic strengthening of partnerships remain paramount to ensuring that hospitality SMK graduates in Central Java remain competitive and responsive to the industry's dynamic evolution.

Beyond the formal curriculum, Extracurricular Activities can further augment student development:

1. Organizing visits to prominent sustainability projects or environmentally focused organizations provides students with direct, hands-on experience and invaluable exposure to effective sustainable practices in the real world.
2. Establishing strategic partnerships with local companies facilitates the development of internship programs specifically emphasizing sustainable practices, thereby allowing students to learn directly from experienced industry professionals and acquire practical, relevant insights.
3. Encouraging students to engage in innovation projects related to technology or sustainable solutions applicable within the community fosters creativity, sharpens problem-solving skills, and cultivates a profound sense of environmental responsibility.

Competency-Based Curriculum in Hospitality Vocational High Schools

Review the literature on the implementation of competency-based curricula in hospitality vocational high schools (SMKs). The discussion should focus on how such curricula are designed, implemented, and evaluated. In addition, identify case studies that examine both the successes and challenges of applying competency-based curricula in hospitality SMKs in Indonesia or other countries (Silitonga, 2020).

1. Competency-Based Curriculum Design

A competency-based curriculum is designed to meet industry needs and to equip students with relevant skills. In the context of hospitality vocational high schools (SMKs), curriculum design typically involves needs analysis, module development, and the integration of workplace-based learning.

The development of a CBC within the hospitality education sector represents a strategic imperative to mitigate the mismatch between the supply and demand of competencies, while simultaneously advocating sustainable tourism practices, particularly in Central Java. Teleologically, the CBC is oriented toward the formation of human resource capacities that not only satisfy the technical and operational qualifications required by the industry but also internalize sustainability-oriented ethics and practices. This approach reflects a paradigm shift from vocational training alone toward holistic education that emphasizes environmental, social, and economic dimensions. Consequently, the quality of education in hospitality institutions is transformed into an essential catalyst for the development of the tourism ecosystem in Central Java one that is not only economically proactive but also resilient to long-term social and ecological imperatives.

The fundamental realization of the CBC is manifested through the incorporation of work-based learning experiences, particularly industry internship programs. Within the geographical context of Central Java, student placements in hospitality and tourism enterprises enable the practical application of theoretical knowledge and technical skills in real operational settings. Moreover, this practical immersion facilitates the direct internalization of

sustainability principles such as green hospitality initiatives and corporate social responsibility programs within everyday industry practices. This process of professional acculturation simultaneously cultivates a work ethic infused with sustainability values, thereby producing graduates who are not only competitive in the labor market but also possess the agency to act as proactive catalysts in the transformation toward sustainable tourism in Central Java.

2. Curriculum Implementation

The implementation of a competency-based curriculum in hospitality vocational high schools (SMKs) involves several key steps, namely teacher training, the strengthening of facilities and learning resources, and collaboration with industry partners.

The effectiveness of CBC implementation in hospitality education institutions in Central Java fundamentally depends on three interrelated and synergistic operational pillars, which are crucial for actualizing the contribution of quality education to sustainable tourism. First, continuous investment in enhancing teachers' pedagogical capacity through extensive training programs is imperative to ensure that educators possess up-to-date competencies and can internalize sustainability principles across all aspects of teaching and learning.

Second, the provision of representative infrastructure and learning resources including industry-standard hospitality laboratories is essential to facilitate the acquisition of practical skills and the simulation of sustainable practices, thereby bridging the gap between theoretical knowledge and operational application. Third, the establishment of strategic alliances with hospitality industry entities in the region is vital, serving as both a feedback mechanism for curriculum validation and a platform for students to gain substantive field experience that reflects real-world challenges and innovations in sustainable tourism practices. Collectively, these interventions ensure that educational outcomes not only meet industry competency standards but also proactively promote practices that support the ecological and sociocultural resilience of the tourism sector in Central Java.

3. Curriculum Evaluation

The evaluation of the competency-based curriculum is conducted to assess its effectiveness and relevance in meeting educational objectives and industry demands. Several evaluation methods may be employed, including:

- a. Practical examinations are used to directly assess students' technical skills and their ability to apply acquired competencies in real or simulated work situations.
- b. Feedback from industry stakeholders is collected to evaluate graduates' performance in the workplace, providing valuable insights into the extent to

which the curriculum aligns with current industry expectations and professional standards.

- c. Surveys are administered to graduates to assess their level of satisfaction with the curriculum and to evaluate their perceived work readiness upon entering the labor market.

Through a systematic and continuous evaluation process, the competency-based curriculum can be refined and updated to ensure sustained relevance, improved graduate employability, and stronger alignment with the evolving needs of the hospitality industry and sustainable tourism development in Central Java.

Methodologically, the development of a high-quality CBC is grounded in a comprehensive needs assessment that adopts a participatory, multi-stakeholder approach. This process involves deliberation with industry associations, operational executives such as hotel and restaurant managers, and representatives of local communities in Central Java. The primary objective is to identify a taxonomy of essential competencies, encompassing both technical capabilities such as front office operations and culinary arts and non-technical skills such as interpersonal communication and cross-cultural competence. Crucially, this needs assessment integrates sustainability imperatives including waste management, energy efficiency, the valorization of local products, and community empowerment as intrinsic pillars of the curriculum. The synthesis of these assessments subsequently serves as a rational foundation for the development of coherent learning units or modules that integrate theory and practice, thereby reinforcing the relevance of education to regional sustainability challenges.

The evaluation of the CBC constitutes a critical stage in ensuring the effectiveness and relevance of hospitality education programs in supporting sustainable tourism development in Central Java. This evaluation process requires a multidimensional approach in which practical examinations function as a primary instrument for directly measuring students' acquisition of operational skills, including their ability to apply environmentally friendly practices and deliver socially responsible services.

Comprehensive feedback from industry stakeholders, collected through surveys or structured dialogue forums with hospitality entrepreneurs in Central Java, is essential for validating graduates' performance in real workplace settings, particularly in relation to the application of knowledge and soft skills associated with sustainable destination management and engagement with local cultural contexts. Finally, graduate surveys serve as a vital mechanism for assessing satisfaction with the curriculum, identifying gaps between educational provision and labor market expectations, and tracing graduates' career contributions to sustainable tourism objectives in the region. Collectively, these evaluation methods provide a holistic perspective on the capacity of the CBC to produce

human resources who are not only professionally competent but also strongly committed to the principles of sustainability.

Program Challenges

Significant challenges continue to confront vocational education in the hospitality sector, with direct implications for graduates' work readiness and the sustainability of tourism development.

First, the skills gap between educational curricula and industry requirements remains a major challenge. Despite progress in curriculum development, studies indicate that some hospitality SMK graduates still lack essential practical skills required in real workplace settings (Radovic et al., 2016). This condition reflects the need for continuous curriculum evaluation and revision to ensure closer alignment with the evolving demands of the hospitality industry. Insufficient technical competencies can hinder graduates' ability to adapt to the highly competitive nature of hospitality-related occupations.

Second, limited resources within many hospitality vocational high schools (SMKs) present a significant barrier to the effective implementation of competency-based learning. Inadequate facilities and shortages of practical training equipment collectively reduce the overall effectiveness of instructional processes, thereby resulting in limited hands-on experience for students prior to entering the workforce. These constraints further exacerbate skills mismatches and consequently diminish graduates' competitiveness in the labor market.

Furthermore, graduates' work readiness in hospitality SMKs requires deeper investigation by considering multiple dimensions, including technical skills, soft skills, and work experience. Comparative studies examining the work readiness of vocational SMK graduates and graduates from academic education pathways may provide valuable insights into existing differences and gaps. By gaining a more comprehensive understanding of these factors, educational programs can be more strategically designed to better prepare graduates for the challenges of the hospitality industry, thereby contributing more effectively to the sustainability of tourism development in Central Java.

Sustainable Tourism

Sustainable tourism and quality education are closely interconnected in supporting the development of the tourism sector in Indonesia.

First, the concept of quality tourism in Indonesia emphasizes the creation of satisfying and meaningful experiences for visitors (Suhartanto et al., 2020). This includes the provision of high-quality products and services, such as accommodation, food and beverage offerings, and tourism activities. By delivering unique experiences that meet or exceed tourists' expectations, the tourism sector can not only attract a

greater number of visitors but also encourage higher spending, which in turn increases local revenue and contributes to regional economic development.

Second, the principles of sustainable tourism underscore the importance of community involvement, environmental conservation, and education. The participation of local communities in decision-making processes ensures that they receive direct benefits from tourism activities, thereby strengthening local support for sustainable tourism practices. Moreover, environmental conservation is essential to preserving natural resources that serve as the primary attractions for tourism. Education and awareness of sustainability among local communities and tourists are also critical in minimizing the negative impacts of tourism and in ensuring the adoption of environmentally responsible practices.

The findings of this study indicate that achieving quality and sustainable tourism in Central Java requires the integration of quality education within the hospitality industry. By preparing a skilled workforce that is knowledgeable about sustainability principles, the tourism sector can achieve economic growth while simultaneously safeguarding the environment and local culture, thereby contributing to the attainment of the Sustainable Development Goals, particularly SDG 4.

Challenges and Opportunities

Despite progress in the tourism sector, several significant challenges remain that must be addressed to achieve sustainability goals. First, resource management represents a significant challenge. It is essential to ensure that natural and cultural resources are not overexploited, as uncontrolled exploitation can lead to environmental degradation and the loss of cultural heritage. Therefore, sustainable management strategies involving multiple stakeholders, including government, industry actors, and local communities, are required to maintain a balance between tourism development and resource conservation.

Second, awareness and education are critical aspects in supporting sustainable tourism. Increasing awareness among tourists and local communities regarding the importance of sustainable tourism practices helps create a supportive environment for responsible tourism. Effective educational programs can enhance understanding of the positive impacts of sustainable tourism and encourage more responsible behavior among both tourists and residents. Through increased awareness, tourists and local communities can actively contribute to environmental protection and the preservation of local culture (Rezvani et al., 2019).

Overall, although challenges related to resource management and educational awareness persist, there are substantial opportunities to develop more integrated approaches to support sustainable tourism in Central Java. By leveraging quality education within the hospitality industry, the tourism sector can be better prepared to address these challenges and ensure sustainable growth.

Furthermore, with the growing interest in responsible tourism and authentic travel experiences, Indonesia has significant potential to develop high-quality and

sustainable tourism that not only generates economic benefits but also preserves cultural heritage and the environment for future generations. With appropriate strategies, tourism development in Indonesia can serve as a model for other countries in integrating quality and sustainability. Dewi et al. (2022) discuss quality and sustainable tourism in Indonesia, offering relevant insights into this potential.

Within the context of sustainable tourism, this study also underscores the growing scholarly attention devoted to the relationship between food, environmentally friendly practices, hygiene, and food production. Tourists' perceptions of food services constitute an important component of sustainable tourism studies. From a macro-level perspective, existing literature tends to focus on culinary tourism as part of destination marketing strategies or tourist attractions. However, there remains considerable scope for further research adopting a micro perspective that emphasizes business practices and sustainability within culinary tourism.

Previous studies have demonstrated that environmentally friendly practices in restaurants, for example, continue to face challenges despite growing awareness of environmental issues. Interaction among various stakeholders, including the public sector, business partners, and customers, is crucial for strengthening environmentally sustainable practices within the tourism industry. Consequently, there is a clear need for further research that connects culinary tourism with sustainability and investigates how environmentally responsible practices can be integrated into tourists' culinary experiences. Naruetharadhol and Gebsoambut (2020) provide valuable perspectives through their study of food tourism in Southeast Asia, while Sulistyadi et al. (2019) offer additional insights into sustainable tourism models in Indonesia.

Sustainable Development Goals and SDG 4

The Sustainable Development Goals, particularly SDG 4 on quality education, are highly relevant to sustainable tourism development. Target 4.4 emphasizes increasing the number of youth and adults who possess relevant skills, including technical and vocational skills, for employment and decent work. In the context of tourism, especially the hospitality sector, quality vocational education plays a strategic role in equipping the workforce with competencies aligned with sustainability principles (Sulistiyadi et al., 2019).

By strengthening vocational education through competency-based curricula, hospitality SMKs can contribute directly to the achievement of SDG 4 (Silitonga, 2021). Graduates who possess relevant technical skills, soft skills, and sustainability awareness are better positioned to support responsible tourism practices and long-term industry resilience. Moreover, the implementation of sustainable programs within the hospitality industry, as discussed by (Ardiansyah & Iskandar, 2021), provides a broader context for understanding how hospitality graduates can actively contribute to sustainability initiatives. These findings reinforce the argument that quality education is a

foundational pillar in advancing sustainable tourism development in Central Java and Indonesia more broadly.

While numerous studies have examined vocational education, competency-based curricula, and workforce readiness in general, there remains a limited empirical research base that specifically explores the impact of implementing competency-based curricula in hospitality vocational high schools (SMKs) in Central Java.

In particular, few studies have comprehensively analyzed how such curricular implementation influences graduates' work readiness while simultaneously contributing to the achievement of Sustainable Development Goal (SDG) 4, especially Target 4.4, and the advancement of sustainable tourism (Buhalis et al., 2023). Moreover, existing research tends to address these issues in isolation, rather than integrating educational outcomes, labor market relevance, and sustainability objectives within a single analytical framework (Boz et al., 2017).

Based on the identified research gaps and informed by the literature review, the following research hypotheses are proposed and are empirically testable:

- a. There is a positive relationship between the implementation of a competency-based curriculum in hospitality SMKs in Central Java and graduates' work readiness.
- b. The implementation of a competency-based curriculum in hospitality SMKs in Central Java contributes positively to the achievement of SDG 4.4, particularly in terms of enhancing relevant technical and vocational skills for employment.
- c. Graduates of hospitality SMKs who are trained under a competency-based curriculum make a greater contribution to sustainable tourism practices in Central Java compared to those trained under non-competency-based curricula.

Identification of the Contribution of the Competency-Based Curriculum to the Achievement of SDG 4 Targets

The implementation of a CBS within Central Java's education system, particularly at the vocational education level (Misbah et al., 2020), is specifically designed to align educational outcomes with labor market demands. Sustainable Development Goal (SDG) 4, which aims to "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all," places explicit emphasis on Target 4.4. This target seeks 'to substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent work, and entrepreneurship.' By fundamentally orienting the learning process toward the mastery of applicable skills, knowledge, and professional attitudes, the CBC demonstrates direct conceptual alignment with the essence of Target 4.4 (Wawire et al., 2025). This approach contrasts with traditional content-based curricula, which tend to prioritize the accumulation of theoretical knowledge without guaranteeing its direct relevance to the professional world.

The specific contribution of the CBC to the achievement of Target 4.4 can be identified through its strong emphasis on practical learning experiences and industry relevance (Kasuga & Kalolo, 2025). Through integrated components such as internships or Practical Work Experience programs (Praktik Kerja Lapangan/PKL), the CBC directly equips students with both technical competencies and soft skills required by industrial sectors, including hospitality and tourism in Central Java. Strategic partnerships with business and industry actors enable adaptive curriculum revisions, ensuring that the competencies taught remain current and responsive to labor market dynamics. Unlike earlier curricular approaches that often resulted in a mismatch between graduate competencies and industry expectations, the CBC systematically seeks to reduce this gap, thereby significantly enhancing graduates' opportunities to secure decent employment or engage in entrepreneurship, in line with the work-readiness indicators emphasized in Target 4.4.

However, identifying and substantiating the contribution of the CBC to the achievement of Target 4.4 in Central Java requires a comprehensive and comparative evaluation methodology. Scientifically measuring this impact may be achieved through graduate tracer studies that compare employment absorption rates, job quality, average income levels, and entrepreneurship rates between graduates from schools that consistently implement the CBC and those from institutions with less competency-oriented or only partially implemented curricula. Both quantitative indicators, such as the percentage of graduates employed within six months of graduation, and qualitative indicators, such as employer satisfaction with graduate performance, are essential (Bridgstock et al., 2019). Such analyses must also account for external factors, including regional economic conditions and sectoral employment opportunities, in order to validly isolate and attribute the positive impacts generated by the implementation of the CBC in Central Java toward the achievement of SDG 4, particularly Target 4.4 (Ramadani et al., 2025).

Strategies and Policies for Improving the Quality of Hospitality Vocational Education

Improving the quality of hospitality vocational education is an essential prerequisite for the development of sustainable tourism in Central Java (Utami et al., 2023), given that competent human resources constitute the backbone of this industry (Midhat Ali et al., 2021). The first strategic priority should focus on the continuous revitalization and adaptation of curricula to ensure alignment with global labor market demands and the principles of sustainable tourism. This entails integrating modules on green hospitality practices, sustainable waste management, multicultural service ethics, and digital technologies in hotel operations. Curricula should be designed using a competency based education (CBE) approach that emphasizes the mastery of relevant practical skills, supported by nationally and internationally recognized competency certifications (Tarmo & Kimaro, 2021). In addition, the continuous professional

development of educators and vocational instructors through regular industry-based training is imperative to ensure that their knowledge and skills remain current and industry relevant.

Second, the establishment of strategic and sustainable partnerships among vocational education institutions, the hospitality industry, and local governments represents a critical policy recommendation. This “triple helix” or “quadruple helix” model facilitates bidirectional knowledge transfer, whereby industry stakeholders provide input on competency requirements and market trends, while educational institutions supply appropriately skilled human resources. Internship or industrial work practice programs should be strengthened not only as learning platforms but also as quality assurance mechanisms and recruitment pathways. Local governments play a crucial role in facilitating these partnerships by providing incentives to industries actively involved in vocational education and by creating regular platforms for dialogue among stakeholders. Such collaboration can be further expanded through the development of vocational hospitality centers of excellence (Centers of Excellence/CoE) that focus on applied research and sustainable innovation.

Third, comprehensive supportive government policies are required to create a high quality vocational education ecosystem that effectively supports sustainable tourism development (Syafuruddin et al., 2025). These policies should include adequate budget allocations for modernizing facilities and practical training equipment in vocational schools, which often constitute a major constraint. Furthermore, governments need to establish adaptive and facilitative regulatory frameworks to support dual system education and intensive apprenticeship programs. The development of accurate labor market information systems and the regular implementation of graduate tracer studies are also critical tools for evaluating curriculum effectiveness and educational programs, as well as for informing future policy adjustments. Through the synchronization of vocational education policies with the master plan for sustainable tourism development in Central Java, positive synergies can be created to optimize the potential of both sectors.

Research on quality education in the hospitality industry and its impact on sustainable tourism, particularly in the context of Central Java, reveals several significant elements of novelty. First, although numerous studies have addressed the importance of vocational education quality in the tourism sector, comprehensive analyses that explicitly integrate competency-based hospitality curricula with the economic, social, and environmental pillars of sustainable tourism within a single analytical framework remain limited. The novelty of this study lies in its emphasis on how specific elements of competency-based curricula not only produce technically work-ready graduates but also cultivate change agents who possess the awareness and capacity to proactively implement sustainable practices. This approach goes beyond conventional employability analyses by examining the contribution of vocational education in shaping sustainability-oriented values and capacities from the outset of the educational process.

Second, this study introduces novelty through its in-depth contextualization and localization within Central Java, a region with distinctive characteristics in Indonesia's tourism landscape. With its rich cultural heritage, diverse destinations ranging from world heritage sites to natural attractions, and a rapidly growing hospitality industry, Central Java requires context-specific analysis. Previous studies have often adopted general or national and global perspectives. Consequently, this research provides a more nuanced understanding of the specific challenges and opportunities arising from the interaction between vocational education systems and the demands of sustainable tourism at the regional level. The resulting policy recommendations are therefore more relevant and applicable to local issues, filling gaps in regional literature and offering a valuable case study model for sustainable tourism development in regions with similar characteristics.

Research on the impact of quality education in the hospitality industry on sustainable tourism development in Central Java also carries substantial social implications, particularly in terms of local community empowerment and improvements in quality of life. Relevant vocational education equips individuals with the skills needed to access decent and sustainable employment in the tourism sector, thereby contributing to the reduction of unemployment and poverty in the region. Through active participation in tourism management and operations grounded in sustainability awareness, local communities become not only economic beneficiaries but also active stewards of their cultural and environmental heritage. This fosters a sense of community ownership and pride in tourism destinations, which is essential for maintaining social cohesion and preventing the exploitation of culture and natural resources by external actors. Accordingly, this study demonstrates how investment in education can serve as a catalyst for social mobility and collective welfare enhancement.

Furthermore, the social implications of this research extend to inclusive development and social justice considerations. High-quality hospitality education that integrates sustainable tourism principles promotes more ethical and socially responsible industry practices. These include the provision of fair wages, safe working conditions, and respect for the rights of workers and indigenous communities. At the same time, enhanced professional capacity through education leads to improved service quality and more positive tourist experiences, indirectly strengthening Central Java's reputation as a culturally rich and hospitable destination and fostering intercultural understanding. With a well-educated and sustainability-conscious workforce, the social risks associated with mass tourism, such as cultural homogenization and unequal benefit distribution, can be effectively mitigated, thereby supporting the creation of a more equitable and harmonious society amid ongoing tourism development.

CONCLUSION

Quality education in the hospitality sector plays a strategic role as a key pillar and catalyst in realizing sustainable and competitive tourism development in Central Java. Through the implementation of a relevant competency-based curriculum (CBC) that is integrated with sustainability principles, vocational education not only enhances graduates' work readiness but also fosters the internalization of green hospitality practices, the preservation of local culture, and the economic and social empowerment of communities. Therefore, investment in the development of competent human resources with strong sustainability awareness constitutes an essential strategy that directly improves the quality of the tourism industry while simultaneously contributing significantly to the achievement of Target 4.4 of the Sustainable Development Goals (SDG) 4.

Conceptually and empirically, the discussion in this study confirms that the quality of hospitality vocational education is not merely a complementary element, but rather a transformative foundation that shapes the direction and success of sustainable tourism development in Central Java. The adoption of a competency-based curriculum effectively bridges industry needs with the development of relevant workforce skills, encompassing not only technical and operational competencies but also the formation of sustainability-oriented mindsets and capacities. Graduates produced through this approach are better equipped to implement environmentally friendly practices, respect and preserve local cultural heritage, and actively function as agents of change within the tourism industry.

Nevertheless, the optimization of vocational education's contribution to sustainable tourism is highly dependent on strong and sustained synergy among educational institutions, the hospitality industry, and local governments. Supportive policies, strategic partnerships, and adaptive evaluation systems are critical prerequisites to ensure the effective implementation of the competency-based curriculum. Through such a collaborative approach, hospitality vocational education can serve as a key instrument in advancing tourism development that is not only economically beneficial, but also socially equitable, inclusive, and environmentally responsible in Central Java.

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