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ISLAMIC PEDAGOGICAL COMPETENCIES FOR SUSTAINABLE HOSPITALITY EDUCATION

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ABSTRACT
Teaching competency is pivotal in advancing higher education, particularly in preparing students to address sustainability challenges in the hospitality sector. This study develops a comprehensive framework that integrates the Sustainable Hospitality Education (SHE) Teacher Competency Scale with UNESCO's Education for Sustainable Development (ESD) competencies and the Islamic educational principles of *tarbiyah* (holistic nurturing), *ta'dib* (ethical formation), and *ta'lim* (knowledge cultivation). Employing a mixed-method design, qualitative data were gathered from semi-structured interviews with 20 academic experts, and quantitative data were collected from 304 undergraduate hospitality students. Thematic analysis and exploratory factor analysis (EFA) identified five key competency dimensions: Motivation and Values, Knowledge and Expertise, Pedagogical Competence, Sustainability Integration, and Collaborative Growth. The final 20-item scale demonstrated strong reliability and validity. The results highlight the significance of fostering educators' ethical commitment, sustainability literacy, and collaborative engagement with industry stakeholders. For Islamic higher education institutions, the study provides a validated and context-sensitive framework for curriculum enhancement, professional development, and policy formulation. By aligning sustainability competencies with Islamic values of stewardship (*khilafah*) and social cooperation (*ta'awun*), the framework contributes to producing educators and graduates capable of leading transformative change toward a just and sustainable society.

Keywords: Curriculum Development, Islamic Higher Education, Sustainable Hospitality Education, Teacher Professional Development

INTRODUCTION
Sustainability has emerged as one of the defining challenges of the twenty-first century, as nations confront environmental degradation, social inequality, and economic instability. The United Nations, through the Sustainable Development Goals (SDGs), highlights education as a fundamental driver for cultivating sustainable societies. Within this global framework, Education for Sustainable Development (ESD) seeks to empower learners with the knowledge, skills, values, and attitudes needed to make responsible decisions for environmental integrity, social equity, and economic viability (Rauch & Steiner, 2013; Ghorbani et al., 2018). ESD emphasizes transformative learning that nurtures critical thinking, ethical awareness, and active participation, competencies vital for navigating complex sustainability challenges (Bertschy et al., 2013; Molderez & Ceulemans, 2018).

In the hospitality and tourism sector, recognized as one of the most dynamic yet resource-intensive industries, education for sustainability plays a pivotal role in preparing graduates capable of balancing economic success with environmental and social stewardship (Piramanayagam et al., 2023; Zizka & Varga, 2021). As hospitality operations directly impact ecosystems and communities, integrating sustainability principles into professional training

ensures that graduates not only manage resources efficiently but also act as ethical agents in promoting sustainable lifestyles (Zizka, 2022; Keisyafa et al., 2024). However, despite growing recognition of the need for sustainability education, research indicates that many hospitality programs continue to treat sustainability as an isolated subject rather than as a cross-cutting educational philosophy (Dodds & Kuehnel, 2010; Piramanayagam et al., 2023).

To address this issue, higher education institutions have begun to embed sustainability in curricula through competency-based frameworks that specify what students and educators should know and be able to do. These frameworks commonly include systems thinking, anticipatory learning, and collaborative problem-solving, competencies essential for sustainable practice across professions (Bertschy et al., 2013; Rauch & Steiner, 2013; Di et al., 2025). Nevertheless, most competency models are designed for general education or Western institutional contexts, offering limited applicability to hospitality disciplines that rely heavily on experiential learning, customer engagement, and ethical decision-making (Zizka, 2022). Moreover, while ESD-related competency instruments have been validated in science and teacher education (Eliyawati et al., 2023), few studies have adapted these frameworks to the hospitality field, particularly in Islamic higher education, where pedagogy integrates moral and spiritual dimensions (Hidayat et al., 2024).

Islamic education provides a rich philosophical foundation for sustainability by integrating *ta'lim* (knowledge transmission), *tarbiyah* (holistic development), and *ta'dib* (ethical formation) (Daud, 2025). These principles closely align with sustainability values such as *khilafah* (stewardship) and *ta'awun* (social cooperation), emphasizing human responsibility toward the environment and society (Hidayat et al., 2024). This moral-spiritual orientation strengthens the ethical basis of sustainability, ensuring that professional competence is guided by values of justice, balance, and accountability before God. Nevertheless, there remains a paucity of empirical studies that operationalize these Islamic principles within measurable teaching competencies, particularly in sustainability-oriented hospitality programs (Ghorbani et al., 2018; Piramanayagam et al., 2023).

This study addresses this gap by developing and validating a teaching competency framework for Sustainable Hospitality Education (SHE) that unites global sustainability standards with Islamic educational philosophy. The proposed SHE Teacher Competency Framework integrates the UNESCO ESD core competencies, validated measurement approaches from sustainability education research (Eliyawati et al., 2023), and Islamic moral principles to create a comprehensive tool for assessing and improving teaching performance. By situating this study in the context of Islamic higher education, particularly at institutions offering hospitality programs, the research positions sustainability not only as a professional responsibility but also as a spiritual duty grounded in Qur'anic ethics. In doing so, it contributes to bridging global and Islamic paradigms of education, demonstrating how sustainability can be taught as both a scientific and a moral imperative for achieving the SDGs (Nandiyanto et al., 2025; Di et al., 2025).

METHOD

This study adopted a mixed-methods design combining qualitative and quantitative approaches to develop and validate a competency framework for Sustainable Hospitality Education (SHE) educators (Susilawati et al., 2025). In the qualitative phase, 20 hospitality educators representing various academic ranks participated in semi-structured interviews exploring sustainable teaching competencies, critical sustainability skills, pedagogical integration, best practices, and development challenges. Thematic analysis, as described by Braun and Clarke (2006), was conducted in NVivo 12, ensuring rigor through double-blind coding, intercoder reliability assessments, and member validation. (Saldaña, 2021; Nowell et al., 2017). An initial 38-item

competency list was refined through expert and student reviews (Boateng et al., 2018), producing 25 final items. At the same time, the quantitative phase empirically validated these dimensions through a large-scale student survey (n = 304). Exploratory Factor Analysis (EFA) confirmed the latent structure and data adequacy (Field, 2018), with KMO and Bartlett's tests supporting model suitability. EFA was chosen to allow competency structures to emerge inductively in the evolving SHE context (Costello & Osborne, 2005), ensuring both contextual and empirical validity.

The theoretical foundation integrated the SHE Teacher Competency Scale with global and Islamic educational paradigms to ensure a comprehensive model of sustainability-oriented teaching. The SHE framework highlights motivation, pedagogical competence, sustainability integration, and collaborative growth (Sibbel, 2009), aligning with UNESCO's Education for Sustainable Development (ESD) competencies, systems thinking, anticipatory, normative, strategic, and interpersonal skills, central to achieving the SDGs (Wiek et al., 2011; Ragadhita et al., 2026a; Maryanti et al., 2022; Fiandini et al., 2025; Xing et al., 2025; Imaniyati et al., 2025; Di et al., 2025; Wiyanarti & Nurjannah, 2026; Yu et al., 2026; Nurjamin et al., 2026). To contextualize the framework within Islamic higher education, the principles of *tarbiyah* (holistic nurturing), *ta'dib* (ethical cultivation), and *ta'lim* (knowledge transmission) were embedded, resulting in a holistic, culturally grounded competency model that unites global sustainability standards with Islamic pedagogical values in hospitality education.

RESULTS AND DISCUSSION

Emergent Dimensions of Sustainable Teaching Competence

The demographic profile of the interviewed educators shows that most participants were female (80%) and predominantly within the 40–49 age range (50%), indicating a group of mid-career professionals. Participants' teaching experience was fairly balanced, with 30% having 10–19 years of experience and the rest distributed across other experience levels. In terms of qualifications, half held a master's degree, while 40% possessed a doctoral degree, reflecting a strong academic background. Regarding academic rank, 50% were associate professors, and the remaining 50% were divided equally between lecturers and professors (25% each). Overall, the sample represents a diverse yet highly experienced and academically qualified group, providing a credible foundation for interpreting the study's qualitative findings.

Through an inductive process of categorization, the identified elements were consolidated into five core dimensions: Motivation and Values, Knowledge and Expertise, Pedagogical Competence, Sustainability Integration, and Collaborative Growth (see Table 1). This framework provides a holistic, systematic understanding of the competencies essential to Sustainable Hospitality Education (SHE). By synthesizing and organizing initial concepts into these dimensions, the study establishes a structured foundation that highlights the critical skills, knowledge, and values educators need to embed sustainability into hospitality curricula while maintaining both academic rigor and industry relevance.

Table 1. Refined Presentation of SHE Teacher Competency Dimensions

No.	Category	Initial Concepts
	Motivation and Values	
1	Passion for Sustainability	Emphasizing an educational approach centered on green responsibility; Acknowledging sustainability as the cornerstone of future education; Demonstrating a passion for advancing. Sustainable education: Actively incorporating concepts of social responsibility into teaching practices.
2	Commitment to Industry Practices	Participating in industry-driven green certification projects to enhance practical skills; Actively engaging in international seminars focused on sustainable education; Integrating the United Nations SDGs into the teaching mission; and encouraging industry collaboration for sustainable projects.
3	Ethical Responsibility	Understanding and recognizing the role of sustainability in educational content, proactively promoting social responsibility and sustainable education, advocating for a deep ecological perspective in educational practice, and upholding strong educational ethics and a sense of responsibility.
4	Global Alignment	Actively incorporating social responsibility concepts into educational practices; Demonstrating a passion for promoting sustainable education; Balancing industry demands with critical educational values, avoiding over-commercialization of the curriculum; Aligning sustainability education with global environmental trends.
	Knowledge and Expertise	
5	Sustainability Management	Teaching subject content that encompasses sustainable management practices; Mastering green hotel operation standards, including energy audits and waste management; Proficient in international standards and regulations for sustainable tourism and hotel management; Merging industry-driven green innovations with educational methodologies.
6	Global Trends	Possessing broad humanistic and environmental knowledge, with an emphasis on cross-cultural perspectives; Familiarity with international sustainable tourism policies; Integrating sustainability theories into the curriculum; Merging industry-driven green

No.	Category	Initial Concepts
		innovations with educational methodologies; Tracking global sustainability innovations and trends.
7	Sustainability Theory	Integrating sustainability theories into the curriculum; Combining professional expertise with sustainability education; Incorporating industry-driven green innovations into educational methodologies; Introducing sustainability principles through interdisciplinary approaches.
8	Interdisciplinary Knowledge	Incorporating sustainable solutions from diverse cultural and environmental contexts; Monitoring global green policy shifts in the tourism sector; Providing educational insights into international green certifications and standards; Combining local and global sustainability solutions in hospitality education.
	Pedagogical Competence	
9	Teaching for Sustainability	Promoting a green educational culture and moral development; Integrating sustainability principles into the curriculum; Strengthening community engagement through service-learning opportunities; Becoming a leader in shaping students' environmental awareness and thinking; Embedding sustainability principles into case studies and discussions.
10	Active Learning	Expanding the impact of sustainable practices through after-class projects; Facilitating stakeholder conflict simulations through role-playing exercises; Discussing the importance of green practices with students; Encouraging classroom interactions to stimulate innovative thinking; Using practical examples to deepen students' understanding of sustainability.
11	Critical Thinking and Creativity	Promoting classroom engagement to stimulate innovative and critical thinking; Discussing the importance of green practices with students; Encouraging students' critical thinking in designing sustainable solutions; Integrating critical analysis of sustainability challenges into curriculum activities.
12	Practical Application	Applying classroom practice to solve real-world problems related to sustainability; Cultivating students' ability to apply sustainability principles in crises (e.g., COVID-19); Guiding students to recognize the global relevance of sustainability for their professional development; Facilitating hands-on projects for sustainability practices in hospitality.

No.	Category	Initial Concepts
	Sustainability Integration	
13	Identifying Sustainability Elements	Combining students' social needs with sustainability education, emphasizing the shared responsibility for environmental protection and sustainable development; Enhancing students' practical abilities through cultural heritage and green tourism initiatives; integrating sustainability with community-based practices.
14	Curriculum Integration	Strengthening the integration of social and environmental responsibility within the curriculum; Reinforcing sustainable thinking through interdisciplinary case studies (e.g., ecological footprint analysis); Introducing a "Triple Bottom Line" (economic, social, environmental) assessment framework into the curriculum; Strengthening community engagement through service-learning initiatives; Designing sustainability-focused curriculum projects.
15	Real-World Application	Enhancing students' practical skills through cultural heritage and green tourism; Fostering community engagement through service learning; Applying sustainable practices to real-world hospitality management scenarios.
16	Flexibility and Adaptability	Adapting teaching content to reflect changes in green management practices with flexibility; Modifying teaching strategies in response to evolving social development trends; Enhancing curriculum design to facilitate the timely integration of sustainability education; Standardizing the integration of sustainability education into curriculum design to ensure scientific rigor and accuracy.
	Collaborative Growth	
17	Professional Development	Actively engaging in professional development opportunities to enhance sustainability teaching methods and ensure alignment with industry practices; Continuously reviewing course content and teaching strategies to evaluate the integration of sustainability principles; A lifelong commitment to learning that drives innovation in sustainability education.
18	Collaboration with Colleagues	Collaborating with colleagues to co-develop sustainability-focused curricula and teaching materials for a holistic approach to hospitality education; Fostering cross-departmental collaboration to merge education and practical application in sustainability

No.	Category	Initial Concepts
		initiatives; Cultivating students' sense of social responsibility through focused teaching strategies; Creating opportunities for faculty exchange programs focused on sustainability education.
19	Industry Collaboration	Partnering with industry experts and local organizations to integrate real-world sustainability challenges into the classroom for hands-on learning experiences; Collaborating with local governments to contribute to sustainable urban and regional planning projects; Partnering with non-governmental organizations (NGOs) to organize and implement sustainable education projects; Facilitating collaboration with global industry leaders on sustainability best practices.
20	Lifelong Learning	Actively participating in global sustainability forums and workshops to refine teaching approaches and broaden expertise in sustainable hospitality education; Continuously improving the teaching and evaluation of green management principles and related course content; Collaborating with colleagues to co-create sustainability-focused curricula and teaching materials for integrated hospitality education; A lifelong commitment to learning that drives green education innovation.

Qualitative coding of 20 interview transcripts yielded 127 initial codes, which were refined to 114 and consolidated into 87 concepts, which were then categorized into five overarching competency dimensions: Motivation and Values, Knowledge and Expertise, Pedagogical Competence, Sustainability Integration, and Collaborative Growth (Table 1). This inductive process ensured both theoretical rigor and practical relevance. The findings indicate that SHE teacher competencies transcend conventional teaching skills, emphasizing ethical motivation, interdisciplinary understanding, and applied pedagogy. *Motivation and Values* reflect educators' commitment to sustainability and ethical responsibility, while *Knowledge and Expertise* involve mastery of sustainability theories and management practices. *Pedagogical Competence* highlights critical thinking and active learning; Sustainability Integration focuses on embedding sustainability into curricula and community engagement; and Collaborative Growth underscores lifelong learning and industry partnerships. Together, these dimensions form a comprehensive framework for preparing hospitality educators to lead sustainable transformation in the industry.

The initial coding generated 38 items with clear semantic meaning, which were subjected to expert review to ensure content validity (Boateng et al., 2018). The review included two hospitality academicians and five undergraduate students, who assessed the items for clarity, conciseness, and alignment with the theoretical framework. Based on their feedback, items were revised, merged, or eliminated to improve precision and avoid redundancy. This iterative process, guided by measurement reliability principles, yielded a final scale comprising 25 items across five well-defined dimensions. This refined competency framework provides a theoretically sound and practically applicable foundation for assessing SHE teacher competencies.

Validation of the Sustainable Hospitality Education (SHE) Competency Framework

To validate the scale, quantitative analyses were conducted to examine its structure and reliability, following the procedures outlined in Fiandini et al. (2024). The pretest version comprised 25 items, measured on a 5-point Likert scale, and was analyzed using SPSS 26.0. Bartlett's test of sphericity ($\chi^2 = 4480.501$, $p < 0.001$) confirmed significant inter-item correlations, and the KMO value of 0.906 indicated excellent sampling adequacy. Principal Component Analysis with varimax rotation extracted five factors with eigenvalues above one, explaining 71.71% of the variance. After removing five items with loadings below 0.5, the final 20-item scale retained strong loadings (0.635–0.912) and high internal consistency ($\alpha = 0.929$), with subscale reliability coefficients ranging from 0.825 to 0.877.

Furthermore, the finalized Sustainable Hospitality Education (SHE) Teacher Competency Scale included five dimensions: Motivation and Values ($\alpha = 0.877$), Knowledge and Expertise ($\alpha = 0.863$), Pedagogical Competence ($\alpha = 0.869$), Sustainability Integration ($\alpha = 0.825$), and Collaborative Growth ($\alpha = 0.866$). These dimensions reflect the multidimensional and interdependent nature of SHE educator competencies, encompassing ethical commitment, interdisciplinary mastery, innovative teaching, sustainability-oriented curriculum design, and professional collaboration. Administered to 312 undergraduate hospitality students (304 valid responses), the Exploratory Factor Analysis (EFA) confirmed the five-factor structure, demonstrating that the scale reliably captures key competencies essential for effective teaching and leadership in sustainable hospitality education.

Exploratory Factor Analysis (EFA) was employed not only to identify key competency dimensions but also to validate the structural integrity of the SHE Teacher Competency framework. EFA revealed latent variables that clustered related competencies into coherent dimensions, enhancing the model's clarity and empirical rigor. The dataset met the statistical assumptions for factor analysis, with a Kaiser-Meyer-Olkin (KMO) value of 0.906 indicating excellent sampling adequacy and Bartlett's test of sphericity ($\chi^2 = 4480.501$, $df = 300$, $p < .001$) confirming significant inter-item correlations. Principal Component Analysis with varimax rotation extracted five factors with eigenvalues greater than one, explaining 71.71% of the cumulative variance. Five items with factor loadings below 0.5 were removed, resulting in a refined 20-item scale with loadings ranging from 0.635 to 0.838. Reliability analysis confirmed strong internal consistency, with an overall Cronbach's alpha of 0.929 and subscale coefficients ranging from 0.825 to 0.877.

The final five-factor structure represents a psychometrically robust and theoretically grounded framework for assessing SHE teacher competencies. The dimensions include Motivation and Values ($\alpha = 0.877$), emphasizing ethical responsibility and commitment to sustainability; Knowledge and Expertise ($\alpha = 0.863$), highlighting mastery of sustainability theories and policies; Pedagogical Competence ($\alpha = 0.869$), focusing on effective and innovative teaching; Sustainability Integration ($\alpha = 0.825$), reflecting the incorporation of sustainability into curriculum and assessment; and Collaborative Growth ($\alpha = 0.866$), underscoring continuous learning and professional partnership. Collectively, these dimensions capture the essential competencies needed to advance sustainability education within the hospitality sector.

The findings confirm that SHE educator competencies are multidimensional and interrelated. Motivation and Values foster educators' ethical commitment to sustainability, while Knowledge and Expertise ensure mastery of sustainability content, both of which shape Pedagogical Competence, which drives effective sustainability teaching. Sustainability Integration and Collaborative Growth reinforce innovation, community engagement, and alignment with industry standards. The validated five-dimensional model provides a comprehensive, empirically supported framework for assessing SHE educator competencies

and guiding curriculum design, professional development, and performance evaluation. These results, summarized in Table 2, reveal a clear, interpretable factor structure with strong loadings across all retained items, offering valuable insights for advancing sustainability-oriented pedagogy in hospitality education.

Table 2. Results of the Exploratory Factor Analysis of the Scale (N=304)

Items	Factor Loadings				
	F1	F2	F3	F4	F5
Q1: My teacher is passionate about promoting sustainability in hospitality education.	0.756				
Q2: My teacher emphasizes the importance of sustainability in the hospitality industry.	0.778				
Q3: My teacher integrates the concept of social responsibility into their teaching practice.	0.901				
Q4: My teacher actively participates in sustainability-related industry projects and events.	0.804				
Q5: My teacher integrates sustainable hospitality management practices into the course content.		0.759			
Q6: My teacher applies international sustainability standards in the classroom.		0.902			
Q7: My teacher provides real-world examples to illustrate sustainability in hospitality.		0.796			
Q8: My teacher encourages us to think critically about global sustainability trends in the hospitality industry.		0.747			
Q9: My teacher effectively incorporates sustainability principles into the teaching materials.			0.782		
Q10: My teacher uses interactive teaching methods to explore sustainability topics.			0.769		
Q11: My teacher encourages student participation in sustainability-related projects.			0.765		
Q12: My teacher fosters critical thinking about sustainability challenges in the hospitality industry.			0.912		
Q13: My teacher helps us recognize sustainability themes in various subjects within hospitality education.				0.896	

Items	Factor Loadings				
	F1	F2	F3	F4	F5
Q14: My teacher integrates sustainability principles throughout the curriculum.				0.761	
Q15: My teacher encourages us to apply sustainability practices in real-world hospitality scenarios.				0.757	
Q16: My teacher adapts teaching content to reflect the latest sustainability trends in the industry.				0.817	
Q17: My teacher actively engages in professional development to enhance sustainability teaching.					0.757
Q18: My teacher collaborates with colleagues to develop sustainability-focused curricula and teaching materials.					0.764
Q19: My teacher partners with industry experts to bring real-world sustainability challenges into the classroom.					0.785
Q20: My teacher fosters cross-departmental collaboration to enhance sustainability education.					0.763
Variance Explained (%)	14.666	14.561	14.470	14.413	13.601
Cumulative Variance Explained (%)	14.666	29.228	43.697	58.110	71.711

Note: The factor loadings are expressed in absolute values greater than 0.4. The rotation method used is Varimax.

Subsequently, the validated five-dimensional framework of Sustainable Hospitality Education (SHE) educator competencies provides a robust, interrelated structure for advancing sustainability-oriented teaching. Motivation and Values ($\alpha = 0.877$) provide the ethical and motivational foundation for sustainable education, while Knowledge and Expertise ($\alpha = 0.863$) ensure mastery of sustainability concepts and industry practices. Pedagogical Competence ($\alpha = 0.869$) translates these elements into effective classroom practice, and Sustainability Integration ($\alpha = 0.825$) embeds sustainability principles across lesson planning, curriculum design, and assessment. Finally, Collaborative Growth ($\alpha = 0.866$) emphasizes continuous professional development and engagement with peers and industry experts. The refined 20-item scale demonstrated strong factor loadings (0.635–0.912) and excellent reliability (Cronbach's $\alpha = 0.929$), confirming its psychometric soundness as a comprehensive tool for assessing and enhancing educator competencies in sustainable hospitality education.

This study reinforces the philosophical foundation of Islamic education as an integrated model of intellectual, moral, and social development. The findings demonstrate how the SHE Teacher Competency Scale aligns with the tripartite principles of *ta'lim* (knowledge acquisition), *tarbiyah* (holistic nurturing), and *ta'dib* (ethical formation), affirming the unity of knowledge and ethics as emphasized in Islamic pedagogy (Kayode & Jibril, 2023). The framework positions

sustainability education as a means of moral cultivation rather than mere cognitive mastery. Through the lens of *maqāṣid al-sharī'ah*, the competencies reflect the preservation of intellect (*ḥifẓ al-'aql*), the protection of life (*ḥifẓ al-nafs*), and the safeguarding of the environment (*ḥifẓ al-bi'ah*). These alignments affirm that Islamic educational values can be operationalized through structured sustainability competencies that translate ethical commitments into professional teaching practice (Maulana et al., 2023; Rahmah et al., 2024).

Moreover, the validated SHE Teacher Competency Scale offers an evidence-based foundation for embedding sustainability into hospitality education. Beyond serving as a measurement instrument, the scale functions as a guiding framework for curriculum innovation, faculty capacity building, and institutional development (Lozano et al., 2017). It enables universities to move sustainability from a peripheral topic to a core educational philosophy, thereby addressing global calls for sustainable education (Mulder, 2017; Khamdamovna, 2025). Empirical studies demonstrate that techno-economic and eco-based educational initiatives, such as the use of sustainable materials, energy-efficient design, and eco-innovation, enhance the achievement of sustainability learning outcomes (Apriliani et al., 2026; Syahrudin et al., 2026; Henny et al., 2025). In doing so, the framework advances pedagogical excellence and systemic transformation in hospitality programs that link technical competency with moral consciousness (Mulder et al., 2015; Basnur et al., 2024; Kholik et al., 2025).

One of the most significant applications of the SHE framework lies in curriculum reform and innovation. Traditional hospitality programs often emphasize operational efficiency while neglecting environmental, social, and ethical dimensions (Prabawani et al., 2022). The integration of SHE competencies enables educators to identify and address gaps in sustainability literacy, ethical reasoning, and social responsibility, much as project-based approaches in Islamic science education integrate moral and environmental objectives (Darojah et al., 2024). Such integration enables the creation of courses and modules that equip graduates with both technical expertise and the moral sensitivity required to navigate complex global challenges (Haq et al., 2024; Nurnabila et al., 2023).

Besides, the framework also supports experiential and interdisciplinary learning as essential strategies for developing sustainability-oriented graduates. Students' engagement in community-based and laboratory projects, such as ecoenzyme production or sustainable packaging design, nurtures systems thinking and reflective learning (Sesrita et al., 2025; Ragadhita et al., 2025; Tohe et al., 2025). Collaboration across disciplines, environmental studies, engineering, and education further strengthens students' capacities for innovation, ethical judgment, and global citizenship (Wahyuni et al., 2025; Awalussillmi et al., 2023). Such experiential learning not only deepens students' scientific understanding but also develops their ethical awareness and sense of social responsibility, preparing them to act as transformative agents in the hospitality industry.

The findings also emphasize the importance of faculty development for sustainable education (Rieckmann, 2018; Prabawani et al., 2022). The validated scale provides a foundation for assessing and enhancing educators' sustainability competencies. Continuous professional learning through workshops, micro-credentials, and sustainability-based research projects ensures that teachers remain pedagogically and ethically competent (Doherty et al., 2018; Khamdamovna, 2025). Furthermore, fostering mentorship and peer collaboration among educators helps create academic communities committed to sustainability as a shared institutional culture and collective moral responsibility (Henny et al., 2025; McClelland, 1973).

Another crucial implication concerns institutional performance assessment and recruitment strategies. Conventional university evaluation systems often privilege publication counts and student satisfaction while overlooking engagement with sustainability (Tavitiyaman & Zhang, 2024). The SHE framework proposes new performance indicators, including

curriculum innovation, community engagement, and sustainability-linked projects (Mulder, 2017). Studies show that institutions that emphasize eco-innovation, through waste reduction, low-carbon production, and resource conservation, demonstrate improved social accountability and alignment with the SDGs (Apriliani et al., 2026; Basnur et al., 2024; Syahrudin et al., 2026). Similarly, hiring policies that prioritize candidates with experience in sustainability pedagogy and community outreach can strengthen institutional commitments to social and environmental ethics (Kholik et al., 2025; Henny et al., 2025).

The industry's shift toward sustainability further underscores the framework's practical relevance (Hsu, 2021; Jones et al., 2017). As sustainability becomes central to global economic and environmental strategies, universities must collaborate with hospitality businesses, NGOs, and policymakers to align competencies with societal needs (Maulana et al., 2023; Rahmah et al., 2024). Industry–academia partnerships, advisory boards, and sustainability internships enhance student employability and generate real-world social impact (Nurnabila et al., 2023). Within Islamic higher education, these collaborations gain additional moral significance by actualizing *amanah* (trusteeship), *khalifah* (stewardship), and *maṣlaḥah* (public good), concepts that closely mirror the ethics of sustainability (Kayode & Jibril, 2023).

In hospitality education, the integration of sustainability competencies bridges global priorities with faith-based ethical values (Zeng et al., 2024; Daud & Laguindab, 2025). The SHE framework allows Islamic higher education institutions to align their curricula with international sustainability goals while remaining rooted in Islamic pedagogical principles. Sustainability, in this context, extends beyond environmental awareness to include social justice, ethical consumption, and community well-being, values that reflect the *maqāṣid al-sharīʿah*. As such, Islamic hospitality education can emerge as a model of values-driven sustainability leadership, preparing graduates to act responsibly across diverse cultural and professional settings (Ximenes, 2025).

Finally, this study positions its findings within the broader global discourse on the SDGs (Filho et al., 2018). Parallel efforts across disciplines, from green material innovation (Apriliani et al., 2026; Basnur et al., 2024) and eco-friendly production (Syahrudin et al., 2026) to sustainability education in schools (Ximenes, 2025; Khamdamovna, 2025), illustrate the widespread integration of SDG-oriented learning frameworks. The present study extends this movement into Islamic higher education, demonstrating how sustainability competencies can be localized within spiritual and moral paradigms. By harmonizing global sustainability imperatives with Islamic educational philosophy, this framework offers a distinctive model for cultivating graduates who are intellectually capable, ethically grounded, and socially conscious, committed to the goals of sustainable human development.

CONCLUSION

This study makes a significant contribution to Sustainable Hospitality Education (SHE) by developing and validating a comprehensive framework for assessing teacher competencies in sustainability-oriented instruction. The exploratory factor analysis identified five core dimensions: Motivation and Values, Knowledge and Expertise, Pedagogical Competence, Sustainability Integration, and Collaborative Growth, representing the essential skills for embedding sustainability principles into hospitality education. The validated 20-item scale demonstrated excellent reliability (Cronbach's Alpha = 0.929), establishing it as a robust tool for evaluating educator competencies. Beyond its psychometric strength, the framework reflects the holistic philosophy of Islamic education, which integrates *ta'lim* (knowledge transmission), *tarbiyah* (nurturing), and *ta'dib* (ethical formation), aligning with the objectives of *maqasid al-shariah*, particularly the preservation of intellect (*hifẓ al-'aql*), environment (*hifẓ al-bi'ah*), and community welfare (*hifẓ al-nafs*). The model not only enriches theoretical understanding but also

offers practical implications for curriculum design, teacher evaluation, and professional training, emphasizing the need for continuous learning and collaboration to address sustainability challenges. Ultimately, this framework equips educators to prepare future hospitality professionals for a sustainability-driven industry while advancing the Islamic educational aim of nurturing *insan kamil*, a balanced, ethical, and socially responsible individual.

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