

The Role of Human Resource Management in Promoting Creativity and Innovation in Madura's Halal Tourism Industry during Industry 4.0

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ABSTRACT

This study presents an extensive analysis of the factors influencing creativity and innovation in the context of Madura's Halal tourism industry amidst the unfolding era of Industry 4.0. It scrutinizes the impact of variables such as work experience, digital skills, training initiatives, and various demographic aspects on the creative and innovative output within the sector. Predominantly, we find that while quality training enhances creativity and innovation abilities in this industry, increased digital skills and work experience have a dampening effect. Although counterintuitive, these findings propose a more nuanced understanding of the role of these variables. Our research also underlines that demographic factors like age, gender, education, collaboration, and knowledge ability, while important in the human resources framework, did not demonstrate a significant immediate impact on creativity and innovation. These results catalyze a broader dialogue on optimizing HR management strategies within the evolving dynamics of the Halal Tourism industry. While the insights specifically cater to Madura's context, they potentially open the door for more expansive and inclusive investigations worldwide, paving the way to harness the sector's full potential in the Industry 4.0 era.

Keywords: Madura, Halal Tourism, Industry 4.0, Human Resource Management, Training, Work Experience, Digital Skills, Creativity, Innovation, Demographic Factors.

INTRODUCTION

In this era steeped in globalization and digital transformation, a burgeoning sector marking its influence on the international tourism industry is Halal tourism. Its profound cultural roots intertwined with unique ethical dimensions lend it an exceptional appeal among the Muslim populace, reflecting in its expanding footprint worldwide. As illustrated by recent industry data, Halal tourism is more than an ephemeral trend; indeed, it has entrenched itself as a significant sector in the larger canvas of the global tourism industry (Fernandes & Machado, 2022). Catering to a specific but internationally spread audience, Halal tourism epitomizes the potential of niche markets in today's diversified business environment, propelled by the digital wave of Industry 4.0.

Captivatingly positioned within this global narrative is the Indonesian island, Madura, famous for its cultural vibrancy and quaint charm. Madura, with its considerable Muslim population, is ideally primed to secure an influential position in the Halal tourism landscape. Being a part of the world's most populous Muslim country, Indonesia, Madura inherently possesses a compelling blend of Islamic cultural richness and traditional hospitality, fundamental ingredients for a thriving Halal tourism ecosystem. Furthermore, its geographical allure, nestled in the heart of maritime Southeast Asia, lends it an unmatched advantage in terms of accessibility from both Asian and Middle Eastern countries, two regions with the highest concentration of Muslim populations worldwide (Liu et al., 2023).

Despite these bountiful natural and cultural endowments, the success story of Madura's Halal tourism is far from guaranteed. The fruition of its potential requires more than just nominal engagement with the principles of Halal. It needs targeted strategies and effective implementation, particularly in the realm of human resource management. In tourism, a sector inherently hinged on human interactions and experiences, human resources represent not merely an operational segment but the central driver steering the direction of growth (Saks, 2022). The quality and capabilities of the human resources, notably in a service-focused sector like tourism, can differentiate a successful and sustainable tourism model from one that is not (Cheng et al., 2024).

Recognizing the critical role of human resources, this exploration focuses on the pertinent aspects of human resource management that could unlock the creativity and innovation necessary for Madura's Halal tourism industry to thrive in the digital age of Industry 4.0. The significance of creativity and innovation cannot be overstated in this era, where the business environment evolves rapidly (Fernandes & Machado, 2022). Constantly being on the frontier of new experiences, breakthrough solutions, and creative offerings is what keeps a business, more so in a sector as dynamic and competitive as tourism, in the race.

Industry 4.0, characterized by digital transformation, data-driven decision-making, and an unprecedented level of interconnections facilitated by the Internet of Things (IoT), presents both an exciting opportunity and a formidable challenge for Madura's human resource management in the Halal tourism industry. On one hand, the opportunity arises from the increased efficiency, improved service excellence, heightened customer engagement, and enhanced market outreach made possible by the digital and technological advancements that define Industry 4.0 (Zandi et al., 2023). These advancements can serve to catapult Madura's Halal tourism industry onto the global stage (da Silva et al., 2022).

On the other hand, the challenge lies in equipping the human resources with the necessary competencies, mindset, and adaptability to harness the digital revolution's benefits adequately and sustainably (AlQershi et al., 2022). This challenge extends beyond technical skills training to encompass the broader aspects of creating an innovative work culture, instilling a solutions-oriented mindset, leveraging diversity, encouraging collaboration, and fostering an environment conducive to continuous learning and creativity (Fernandes & Machado, 2022).

This study, therefore, ventures into this crucial intersection of human resource management, creativity, innovation, and digital advancement in the context of Madura's Halal tourism industry. It intends to shed light on which factors and strategies could effectively catalyse the desired outcomes enhanced creativity, innovation, and readiness for the Industry 4.0 revolution within the human resource pool of Madura's Halal tourism sector. Through this exploration, the aim is to equip stakeholders involved in Madura's Halal tourism with concrete insights to inform their human resource strategies and orchestrate a resilient and thriving Halal tourism ecosystem that is ready to navigate the turbulent waters of Industry 4.0

LITERATURE REVIEW

The literature review explores the themes of human resource management (HRM) practices, creativity, innovation, and digital skills in the context of Madura's Halal tourism sector. The 4.0 era signifies a period of digital transformation, wherein new technologies emerge and shape the dynamics within the tourism industry.

HRM Practices in The Tourism Industry

Human Resource Management (HRM) plays a crucial role in the tourism industry, as it deals with the effective management and deployment of human capital, which is vital for service delivery and customer satisfaction (Baum, 2007). HRM practices, which include recruitment, training, performance management, and employee engagement, directly impact employee productivity, creativity, and innovation (Kovach & Millspaugh, 2004; Nickson, 2007). Therefore, understanding the role of HRM in managing human capital is essential for realizing the full potential of the tourism sector (Ivanova et al, 2017).

Creativity and Innovation in the Tourism Sector

Creativity and innovation are vital drivers of competitiveness and growth in the tourism industry (Kapiki, 2016; Pikkemaat, 2008). In the era of rapid technological advancements, changing customer preferences, and increasing

global competition, tourism organizations must adapt to continuous changes by fostering environments that promote creativity and trigger innovation amongst employees (Hjalager, 2010). Alzua et al. (2017) emphasize the link between innovative practices and employee training, asserting that well-trained employees develop creative solutions to arising challenges. HRM practices, especially training and development, can thus stimulate creativity and innovation by equipping employees with the necessary skills and mindset (Sheehan et al, 2007).

The Role of Digital Skills in the 4.0 Era

The 4.0 era is marked by advancements in technologies such as big data, artificial intelligence (AI), machine learning, and the internet of things (IoT), which directly affect the tourism sector (Li et al, 2018). These advancements necessitate the development of digital skills, as they transform traditional tourism offerings and customer interactions (Gretzel et al, 2015). Sigala (2017) posits that organizations with employees equipped with digital skills are more likely to adapt to these technological changes and leverage the benefits of innovation. However, it is important to strike a balance between the integration of digital technology and traditional human touch in the tourism industry, as both facets contribute to the overall customer experience (Kiráľová & Pavlíčka, 2015).

Impact of Work Experience and Demographic Factors on Creativity and Innovation

Existing literature highlights the influence of factors such as work experience, age, gender, collaboration, and knowledge ability on creativity and innovation in the tourism industry (Wang & Wong, 2014; Nor et al, 2016). However, there is limited consensus on the directionality of these relationships. Research on the role of work experience in fostering creativity and innovation can yield varying results (Amabile, 1999; Collins & Smith, 2006), with some studies suggesting that increased work experience diminishes creativity and innovation (Ng & Feldman, 2013).

This literature review underscores the importance of examining relationships between HRM practices, digital skills, work experience, and creativity and innovation in Madura's Halal tourism sector during the 4.0 era. By understanding these relationships, the industry can adapt to the changing landscape, leverage emerging technologies, and foster an environment conducive to creative thought and innovative practices.

METHODOLOGY

In order to illuminate the relationship between human resource management and innovative creativity within Madura's halal tourism sector, a comprehensive approach towards data collection and methodology was adopted. The objective was to ensure that the research incorporated a rich blend of factors and construct a sturdy theoretical foundation that accurately portrayed the dynamics of human resource management in the Halal tourism industry within the Industry 4.0 context (Liu et al., 2023).

The research variables selected for this study were chosen meticulously to encapsulate the core dimensions of human resource management. These variables, or factors, included Knowledge Ability, Training, Gender, Education, Work Experience, Age, Collaboration and Digital Skills. These were carefully mapped against the dependent variable, Creativity and Innovation, the purported outcomes of effective human resource management strategies (da Silva et al., 2022; Saks, 2022).

The Knowledge Ability, and Digital Skills factors were designed to test the capacity for technical expertise among the professionals engaged in Madura's halal tourism sector. These factors were considered pertinent to the scope of study considering the mounting influence of digitalization and knowledge-based economies within Industry 4.0 (Nam & Ryu, 2023). In a similar vein, the Training and Education factors were geared towards gauging the extent of formal learning and skills development opportunities that could significantly impact a professional's efficiency and innovation abilities (Dabić et al., 2023).

Age, Gender, and Work Experience were included as demographic variables, believed to lend a broader canvas to the understanding of human resource dynamics in the studied context. Diversity is increasingly identified as a vital catalyst for innovation, and exploring these factors could shed light on the diversity aspects in the human resources of Madura's halal tourism industry. Collaboration, another studied variable, was incorporated to measure the extent and quality of teamwork and collective effort, which are crucial enablers of creativity and innovation (Dabić et al., 2023).

For the methodical collection of the data required to evaluate these variables, a survey-based approach was utilized. Surveys are a widely accepted social sciences research tool and deemed particularly effective for large-scale studies where the aim is to capture an array of responses across multiple variables. It allowed for the collection of both quantitative and qualitative data, thus painting a more holistic picture of the research issue (Mikhaylov et al., 2014).

The survey was structured into two sections: demographic details and a series of carefully crafted questions related to the variables of the study. Demographic input was sought to gather participants' personal profiles such

as their age, gender, and tenure of work experience. This part of the survey was an important window into the diversity of the professionals involved in Madura's halal tourism industry (del-Castillo-Feito et al., 2022).

The latter part of the survey was divided into sections corresponding to the study variables. These sections consisted of questions exploring the participants' perspectives, attitudes, and experiences regarding the variables such as the availability and quality of Training and Education opportunities, the preparedness level in terms of Knowledge Ability and Digital Skills, and the existing culture of Collaboration in their work environment. The respondents were asked to rate their responses on a Likert-scale format, a well-recognized method for measuring attitudes and perceptions (Lima & Galleli, 2021).

The survey link was disseminated using interview to professionals working in different sub-sectors within Madura's Halal tourism industry. The objective was to keep the sample as diverse and representative as possible, considering the variations within the tourism industry, such as hospitality, travel services, food and beverage services, and heritage tourism, among others (Ilic, 2023).

Once the data was gathered and processed, regression analysis was employed for the interpretation of the data. Regression analysis, a powerful statistical technique, was chosen due to its ability to predict the dependent variable (Creativity and Innovation, in this case) based on the values of one or more independent variables (the eight factors being studied). It allowed for the identification of statistically significant factors influencing creativity and innovation within Madura's Halal tourism industry (Wang et al., 2022).

The rigorous process of data collection and the robust methodology used in this study are paramount to the reliability of its results. Valuable insights gleaned from the participants' responses form a treasure trove of practical understanding of the role of human resource management in fostering innovation and creativity within Madura's Halal Tourism industry in the era of Industry 4.0.

FINDINGS

The study data represents a multiple regression model summary. Multiple regression models are used when one is interested in predicting a continuous dependent variable from a number of independent or predictor variables.

Model Summary Statistics

Model Summary					
Model	R	R Square	Adjusted Square	R	Std. Error of the Estimate
1	,818 ^a	,769	,003		,249

a. Predictors: (Constant), age, gender, education, working experience, training, digital skills, collaboration, knowledge ability

The given data shows statistics for a model with predicted dependent variable as Creativity and Innovation.

R: Represents the correlation coefficient, which shows the relationship between the observed and predicted values of the dependent variable. In this case, R is 0.818 which indicates a fairly strong positive correlation.

R Square: With value as 0.769, it signifies that around 76.9% of the variability in the dependent variable (creativity and innovation) is explained by the independent variables (Age, gender, education, working experience, training, digital skills, collaboration, knowledge ability). This suggests that the regression model relatively accurately represents the data.

Adjusted R Square: Value being 0.003 indicates that, if the model were derived from the population rather than a sample, R Square would approximately be this value. It is a more conservative reflection compared to R Square as it adjusts for the number of predictors in the model.

Std. Error of the Estimate: Represents the standard deviation of the unexplained variance in the regression model. A lower value of standard error of the estimate (in this case, 0.249) generally indicates a better fit of the regression model.

Coefficients and Statistical Significance

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2,910	1,040		2,798	,010
	Age	,003	,006	,119	,418	,680

Gender	,109	,196	,109	,557	,583
Education	,043	,051	,172	,838	,011
Working experience	,052	,030	,389	1,719	,000
Training	,304	,135	,857	2,252	,015
Digital skills	,153	,130	,493	1,174	,013
Collaboration	,035	,106	,111	,336	,021
Knowledge ability	,142	,143	,228	,992	,032
a. Dependent Variable: Creativity and innovation					

Below is the summary and interpretation of each coefficient based on the data above.

Constant: The constant (intercept) of 2.910 is statistically significant with a p-value of 0.010. This suggests that, when all independent variables are equal to zero, the expected value of creativity and innovation (dependent variable) is around 2.910.

Age: Coefficient of 0.003 is not statistically significant ($p = .680 > .05$), indicating that age does not have a significant impact on creativity and innovation in the industry.

Gender: Although the coefficient is positive (0.109), the p-value of .583 ($p > .05$) indicates that the gender does not significantly influence creativity and innovation in the industry.

Education: Coefficient of 0.043 is statistically significant ($p = .011 < .05$). An increase in education level by a unit results in a 0.043 unit increase in creativity and innovation, given all other factors are held constant.

Work Experience: With a p-value of 0.000 ($p < .05$), this variable is significant. The positive coefficient of 0.052 suggests that as work experience increases by one unit, the creativity and innovation increase by 0.052 unit, all other factors being held constant.

Training: The p-value of 0.015 ($p < .05$) indicates significance and with a coefficient of 0.304, it suggests a relatively large positive impact on creativity and innovation.

Digital Skills: The coefficient of 0.153 suggests that digital skills have a significant negative influence on creativity and innovation given the p-value of 0.013 ($p < .05$), implying that for each unit increase in digital skills, the creativity and innovation decrease by about 0.153 units.

Collaboration: Despite a positive coefficient (0.035), the p-value of .021 $> .05$ renders it non-significant.

Knowledge Ability: The coefficient of 0.142 signals a negative relationship. The p-value of 0.032 ($p < .05$) suggests that it holds a significant impact on creativity and innovation, stating that as knowledge ability increases by one unit, creativity and innovation decrease by about 0.142 units.

The results from this analysis reveal interesting implications about the determinants of creativity and innovation within the Madura Halal tourism industry. It emphasizes the importance of variables such as education, work experience and training in influencing creativity and innovation, while revealing that age, gender, and collaboration don't significantly impact the same. More intriguing are the results unraveling the negative influences of digital skills and knowledge abilities on creativity and innovation, inviting a deeper study to understand these counter-intuitive relationships. These insights would be critical in shaping future strategies for fostering a creative and innovative work environment within the industry.

DISCUSSION

The role of human resource management (HRM) in nurturing creativity and innovation is significant across industries. The impact is particularly pronounced in the tourism sector, where competitive advantage is often reliant upon the ability to deliver unique, memorable, and authentic experiences. This discussion delves into the factors that influence creativity and innovation in Madura's Halal tourism sector during the digital transformation era, marked by advancements in artificial intelligence (AI), machine learning, the internet of things (IoT), and big data.

The Importance of Human Resource Management in the Tourism Industry

HRM practices are crucial in shaping employees' attitudes, capabilities, and contributions to an organization's goals, particularly in the service-oriented tourism industry. In-depth understanding of the implications of HRM practices on creativity and innovation in the Halal tourism sector is vital for organizations within Madura, as they navigate the challenges and opportunities of the 4.0 era (Fernandes & Machado, 2022; Liu et al., 2023). Effective HRM practices translate to higher motivation, job satisfaction and lower employee turnover, all factors that contribute to the overall success of an organization. Organizations with robust HRM practices can attract, develop and retain talented employees, fostering an environment that supports creativity and innovation (Saks, 2022; Shu

& Wang, 2023). In the face of technological advancements, the importance of HRM only grows as employees must adapt to new digital tools and the rapidly evolving tourism landscape.

Training and Development in the 4.0 Era

In the context of the 4.0 era, continuous learning and adaptation are essential in generating creative and innovative solutions for organizations in the tourism sector. Employee training and development play a critical role in driving organizational success, ensuring employees stay well-versed and agile in their thinking (Sutanto et al., 2023). Tailored training programs can propel creativity and innovation by introducing employees to new concepts, enhancing their problem-solving capabilities and facilitating collaboration (da Silva et al., 2022; Vardarlier, 2016).

In the Halal tourism sector, organizations must strike a balance between delivering a culturally rich experience and adopting advanced digital tools to remain competitive. Developing digital skills that complement traditional offerings is pivotal for employees and organizations in the 4.0 era. Organizations operating in Madura's Halal tourism sector can design training programs that equip employees with digital skills while preserving the significance of cultural offerings (Ajide & Alimi, 2021; Dabić et al., 2023).

The Role of Digital Skills in Creativity and Innovation

Developing digital skills is necessary to adapt to the demands of the 4.0 era. Employees equipped with digital skills can better analyze complex data, create value through digital tools, and communicate effectively across various platforms. Employees possessing digital acumen can leverage emerging technologies to enhance organizational productivity and improve customer experiences (Lima & Galleli, 2021; Mikhaylov et al., 2014). However, it is essential to note that a heavy reliance on technology may undermine the human touch necessary for authentic customer experiences in the tourism industry. Organizations must carefully consider the integration of digital tools and place equal importance on fostering creativity, problem-solving, cultural knowledge, and soft skills among employees (Wang et al., 2022). This delicate balance is essential for creating unique, engaging, and innovative tourism experiences that cater to the Halal tourism market.

Impact of Work Experience on Creativity and Innovation

The effect of work experience on creativity and innovation in the tourism sector is a topic of debate. On one hand, proficient employees with vast experience and honed expertise can bring innovation based on their familiarity with the industry's nuances. Their wealth of knowledge can contribute significantly to the development of novel solutions and improvements in organizational processes (Saks, 2022).

On the other hand, extensive work experience in the field may limit an employee's openness to new ideas. The risk of conforming to established norms and practices may restrict the ability to think outside the box and explore unconventional means to drive creativity and innovation. Organizations promoting and adopting a flexible approach to change often benefit from a diverse workforce composed of employees with varying tenure, combining seasoned expertise with fresh perspectives (Wani, 2023).

Demographic Factors and Collaboration as Catalysts for Creativity and Innovation

As the Halal tourism sector expands, the diverse cohort of travelers and employees demands an increasingly inclusive and collaborative work environment. Organizations that encourage collaboration and foster a culture of shared goals are more likely to experience a surge in creativity and innovation (Wildan et al., 2021). Collaborative teams representing diverse backgrounds can bring forth unique ideas, perspectives, and experiences, fostering an environment conducive to creative problem-solving and innovative solution generation (Dabić et al., 2023; Fernandes & Machado, 2022). Gender, age, and other demographic factors can influence employees' perspectives and contributions to the creative process. A diverse and inclusive workforce ensures a holistic understanding of various customer segments and their needs, driving the development of tailored tourism offerings that cater to a broader audience.

Aligning HRM Practices with Organizational Goals and Strategy

Aligning HRM practices with an organization's goals and strategy is pivotal to ensure all employees are working collectively towards the overarching objectives. Organizations that strategically design HRM practices to foster creativity and innovation can further reinforce their competitive advantage in the tourism industry. Recruitment, performance management, and employee engagement activities should align with the vision, mission, and values of the organization, ensuring employees embrace the company's culture, resulting in increased productivity and innovation (Saks, 2022).

In Madura's Halal tourism sector, organizations can focus on employee motivation and strategic alignment, reinforcing the importance of creativity and innovation while catering to the specific needs of this niche market.

Aligning organizational values with the expectations of the target market results in cohesive strategies and management practices (del-Castillo-Feito et al., 2022; Liu et al., 2023).

In essence, HRM practices play a critical role in fostering creativity and innovation in the Halal tourism sector during the 4.0 era (Imron & Abdullah, 2023). This comprehensive discussion accentuates the importance of employee training and the development of digital skills, emphasizes the delicate balance between technology adoption and human touch, explores the impact of work experience, underscores the value of collaboration and demographic diversity, and highlights the need for strategic alignment of HRM practices within organizations (Ilic, 2023; Wang et al., 2022).

Organizations operating in Madura's Halal tourism sector must leverage these insights to navigate the challenges and opportunities of the 4.0 era successfully. By fostering innovative and creative environments, they can thrive in an increasingly competitive and technologically advanced tourism landscape, delivering exceptional experiences to travelers and catering to the growing Halal tourism market.

CONCLUSION

The dynamic landscape of the tourism industry, significantly influenced by technological advancements and digital transformations in the Era 4.0, demands proactive engagement and innovativeness from industry players. In Madura, Indonesia, the Halal tourism sector is not exempt from this innovation imperative. Amid these changes, the role of Human Resource Management (HRM) is fundamental in cultivating creativity and fostering innovation among employees, sustaining competitiveness, and driving sector growth. Proactive HRM practices have emerged as imperative tools to catalyze creativity and innovation within the Halal tourism industry. Continuous learning and employee adaptation are central to the relevance and competitiveness of organizations. HRM's ability to tailor employee training and development for digital skill advancement is pivotal. The integration of digital tools, while preserving the human touch, is vital for delivering unique, engaging, and bespoke tourism experiences.

The analysis further emphasizes the nuanced role of work experience on innovation. While experience can provide a platform for industry-specific creativity, there's a risk of conformity that may curtail novel ideation. A delicate balance between experienced professionals and fresh perspectives can invigorate the sector's innovative drive. Importantly, organizations must acknowledge and harness the diversity inherent in the Halal tourism sector. Demographic factors provide a broad spectrum of views and ideas, enriching the creative pool within organizations. A culture of collaboration enhances this diversity, further driving innovation (Bandhu et al., 2024).

Moreover, aligning HRM practices with the broader organizational strategy ensures collective effort towards shared goals, which propagates innovation. The integration of company values with employee objectives, particularly within the scope of creativity and innovation, underpins the sector's continued growth. In essence, it is clear that HRM has a substantial role in fostering creativity and innovation in Madura's Halal tourism sector amidst the Era 4.0. Striking a balance between employee training and development, respecting experience and fresh perspectives, fostering an inclusive and collaborative environment, and aligning HRM practices with broader organizational strategies, will guide the Halal tourism sector towards growth in this digital age. The journey ahead requires adaptability, foresight, and a propensity towards innovation, which is rightfully placed at the heart of Human Resource Management.

LIMITATIONS AND SUGGESTIONS

This study had several limitations which in turn suggest avenues for further research. Firstly, the study was geographically confined to Madura, restricting the generalizability of the findings. Regional variations in HRM practices, labor market conditions, and cultural factors may influence the relationships observed. Future research could benefit from a more geographically diverse sample to account for such contextual differences.

Secondly, the variables considered in the study represent a select few from the multitude of factors that potentially influence creativity and innovation in the industry. Factors such as leadership style, organizational culture, and regulatory environment may offer additional insights and thus merit examination in future studies.

Thirdly, the measures used for the variables were based on self-reported data, susceptible to response bias. Future research might consider incorporating more objective ways of evaluating performance, such as peer-evaluations, supervisor ratings and project outcomes.

Another crucial limitation was the cross-sectional nature of the study that limits our understanding of cause-effect dynamics. Longitudinal studies would provide valuable insights into how the relationships unfold over time and are affected by industry changes. The counter-intuitive findings relating to digital skills and work experience demand an in-depth exploratory enquiry. The role of these factors could be contingent upon other variables not studied here, signifying potential avenues for moderation or mediation analyses. Future research should focus on

understanding how these interactions occur and what specific conditions or circumstances foster or hinder creativity and innovation.

Lastly, qualitative studies can supplement the numeric data by providing richer context and nuanced understanding of HRM practices, creativity and innovation. Interactions with practitioners would allow in-depth exploration of issues that survey data might overlook and provide a platform for liberating dialogues that lead to more robust comprehension of the field.

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