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Understanding the Role of Curiosity, Green Technology Perceptions, and Creativity in Shaping Task Performance and Environmental Impact in Fashion Industry

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Abstract Insert text.
This study focuses on digitalization within the creative industry sector in Bandung, specifically examining how the use of green technology enhances performance output. The research investigates the role of curiosity in preparing human resources in the fashion creative industry to effectively utilize digital green technology and foster creativity to complete tasks and improve environmental conditions. To achieve this, the research employs a survey method, gathering data from 353 employees actively engaged in the creative industry. The analysis is conducted using Covariance-Based Structural Equation Modeling (CB SEM), a robust statistical technique that allows for a nuanced understanding of the relationships among the variables involved. The findings of this study reveal a noteworthy and significant influence of curiosity on how employees perceive green technology. Additionally, the results highlight the vital role of creativity in shaping both task performance and the overall environmental impact of the industry. This research contributes novel insights to the existing body of literature by addressing the previously limited exploration of perceptions surrounding green technology and their subsequent effects on both performance and environmental outcomes in the fashion sector. By focusing on these aspects, the study fills a gap in understanding how curiosity and creativity can drive the effective use of green technology in a rapidly evolving industry. The implications of the findings are profound, emphasizing that a synergistic combination of green technology, creativity, and task performance is essential for achieving improved environmental outcomes. Organizations in the fashion creative industry are encouraged to cultivate a culture that nurtures curiosity and creativity among employees. By doing so, they can not only enhance their operational efficiency but also contribute positively to environmental sustainability. This research ultimately underscores the importance of integrating innovative technologies with a creative mindset to foster a more sustainable future within the industry.
300 words maximum.

Keywords: Curiosity, Perceptions, Green, Technology, Creativity, Performance, Environmental.

1. Introduction

The progression of technological development has demonstrated a growing trajectory, and its application within daily life can streamline problem-solving processes. (Myovella et al., 2020; Li et al., 2020; Vu et al., 2020) Employing technological innovations can facilitate the creation of superior products, enhance the functionalities of existing products, develop novel components, and generate knowledge-based goods and services. (Giones & Brem, 2017; Srinivasan & Venkatraman, 2018; Song, 2019) The challenge of bolstering Indonesia's knowledge-based economic competitiveness necessitates collaboration among various stakeholders, particularly given that the country's current ranking within the global economic index remains suboptimal, thereby requiring targeted skill enhancement. (Abdul Hamid, 2022; Dumitru & Halpern, 2023; Lim, 2023) Consequently, evaluating the ability of human resources within the creative fashion industry to leverage advancements in green technology, which can support task execution and environmental sustainability, is imperative. The Bandung Cultural and Tourism Office has identified deficiencies in the utilization of technology, especially green technology, and the development of human resources in the creative economy continues to be inadequate. The integration of green technology and creativity is essential for individuals in accomplishing tasks and addressing environmental concerns, driven by their innate curiosity. To effectively utilize green technology and individual creativity, fostering curiosity in information-seeking behavior must be prioritized and enhanced. It has been observed that curiosity can improve readiness to utilize technology and creativity to

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perform tasks and responsibilities optimally, thereby positively influencing organizational performance and environmental sustainability.

The knowledge economy depends on the efficient and effective utilization of technology as a catalyst for innovation, establishing the foundation for prosperity and generating wealth within the knowledge sector. (Srinivasan & Venkatraman, 2018; Nambisan, 2017; Sussan & Acs, 2017) Digitalization has expedited processes and diminished operational barriers for organizations, thereby expanding customer bases, securing financial support, promoting rapid growth, and facilitating flexible and productive work practices. (Björkdahl, 2020; Giones & Brem, 2017; Song, 2019) Furthermore, the deployment of green technology supports environmental sustainability, offers economic benefits, and enhances the corporate brand image. (Hao et al., 2023; Guinot et al., 2022; Wan et al., 2022; Zhang et al., 2020)

Companies must adopt creative and innovative thinking approaches to generate new ideas, recognize market shortcomings, identify opportunities, seize those opportunities, and create added value. The readiness to employ green technology and creativity, driven by curiosity, forms the foundation of intellectual capacity, knowledge, problem-solving interest, and a conducive environment. (Acikgoz et al., 2023; El-Kassar et al., 2022; Koutstaal et al., 2022) Creativity underpins innovation by enabling the exploitation of emerging opportunities resulting from environmental changes. This process necessitates collective and creative efforts to foster innovation, ultimately contributing to sustainable environments. (Thi Ngoc Thuyen & Nhu Bich, 2024; Tu & Wu, 2021; Zhang et al., 2020)

Research findings by Venkatesh et al. (2022) indicate that technology serves as a supportive tool for communication with consumers. The results of Adebanjo et al. (2021) and Flores et al. (2020) demonstrate that the dimension of human capital readiness is recognized as the most crucial factor in implementing Industry 4.0 technologies. One important factor for achieving success in the creative fashion industry involves collaborating with suppliers and startups to generate innovation, while effectively using information systems plays a vital role in decision-making, planning, and managing human resources in the fashion industry. (Albors-Garrigos, 2020; Casciani et al., 2022; Huynh, 2022)

Further findings by Dissanayake & Weerasinghe (2022) and Park-Poaps et al. (2021) demonstrate that in the era of Industry 4.0, technological advancements can address critical challenges within the fashion industry, such as hyperpersonalization, environmental sustainability, and productivity enhancement. This underscores that the adoption of technology has emerged as a pivotal factor in the fashion sector, encompassing 3D design and modeling, digital technology, e-commerce, and digital platforms. Furthermore, research by Wang & Zhang (2023), Watat & Bonaretti (2022), and Wijewardhana et al. (2021) indicates that curiosity serves as an indicator capable of enhancing preparedness for technology utilization. Similarly, studies suggest that curiosity can influence individual creativity within organizational settings.

Research findings also indicate that technological advancements foster opportunities for innovation across various sectors of the fashion industry. Nevertheless, numerous SMEs in Indonesia are inadequately prepared in terms of possessing skilled human resources in information technology and facing infrastructural deficiencies, such as inadequate networks and internet connectivity. Furthermore, the instability of communication networks and the limitations inherent in telecommunications infrastructure present substantial challenges. (Sun et al., 2020; Tønnessen et al., 2021; Wang & Hu, 2020).

Previous studies have not yet explored the impact of curiosity on technology readiness and creativity, as well as its implications for improving employee performance within the creative fashion industry.

2. Materials and Methods

This research employs a survey approach that focuses on the creative fashion industry in Bandung. According to data from the Bandung Cultural and Tourism Office, there are 530 business operators in this field. Employees who have worked for at least one year at companies operating in the fashion sector in Bandung will be selected as respondents via simple random sampling techniques. To meet the model specification test requirements, a minimum of 300 data points from employees in the creative fashion industry in Bandung are necessary.

In this research, the instrument design involves adapting existing validated scales from previous studies to ensure reliability and relevance to the research variables. Using instruments that have previously undergone validation helps in maintaining consistency and accuracy in measuring the constructs related to digital leadership, psychological capital, and creativity. The validation process includes a pilot study to test the adapted instrument on a smaller sample, allowing for adjustments based on feedback and testing for clarity and comprehension. This step ensures that the final instrument is robust and suitable for the main data collection. Another consideration is that self-reports often capture subjective perceptions rather than objective measures. As a result, the findings may reflect personal opinions rather than universally applicable behaviors, limiting generalizability. Self-reported measures may not fully encompass the dynamics of digital leadership and psychological capital as experienced in real-world settings, which could impact the overall understanding of their relationship with creativity and task performance. Regarding ethical procedures, the research adheres to strict ethical considerations. Prior to conducting the survey, the author will clearly communicate that respondents' identities will be kept confidential and that their information will only be used for research purposes. This commitment to ethical standards enhances the credibility of the research while protecting the participants involved.

The study employs data from 353 respondents, encompassing various pertinent demographic details, such as gender, age, educational attainment, and participation in subsectors of the creative industry, with particular emphasis on the fashion sector. Moreover, it documents the nature of the respondents' businesses and their length of employment within the industry. Table 1 shows the diverse characteristics of the respondents on the basis of the available demographic data.

The study utilizes data from 353 respondents, encompassing various relevant demographic information, such as respondents' gender, age, education level, and their involvement in subsectors of the creative industry, particularly in fashion. Additionally, it records the type of business operated by respondents and their duration of employment in the industry. Table 1 in this analysis presents the diverse characteristics of the respondents based on the available demographic data.

For new methods and protocols, please provide a comprehensive description. Well-established methods can be briefly summarized and appropriately referenced.

Table 1 Characteristics of the respondents

Personal Information	Category	Frequency	Percentage (%)
Gender	Male	199	56.37%
	Female	154	43.63%
Age	< 30 years	181	51.27%
	31 - 40 years	99	28.05%
	> 40 years	73	20.68%
Education Level	High School	278	78.75%
	Diploma	71	20.11%
	Bachelor	4	1.13%
Work	< 3 years	115	32.58%
	4 - 6 years	95	26.91%
	7 - 10 years	127	35.98%
	> 10 years	16	4.53%
Unit	Fashion	196	55.52%
	Accessories	76	21.53%
	Footwear	81	22.95%

Table 1 shows the diverse characteristics of the respondents on the basis of various demographic factors. Among these respondents, females constitute 199 individuals, accounting for 56.37% of the total, whereas males constitute 154, accounting for 43.63%. In examining the age distribution, the largest cohort comprises individuals under 30 years of age, totaling 181 respondents, which represents 51.27% of the entire sample. The subsequent age group, those between 31 and 40 years, includes 99 respondents, constituting 28.05% of the total. Moreover, only 73, or 20.68%, of the individuals over 40 years of age were affected. The substantial proportion of female respondents and the concentration of younger individuals, particularly those under 30, indicate that the perspectives gathered in this research may predominantly reflect the views and experiences of a younger demographic.

The professional experience of the respondents revealed that 115 individuals, accounting for 32.58% of the sample, had less than three years of experience. An approximately equal subset includes 95 respondents, or 26.91%, who fall within the range of four to six years of experience. The predominant group comprises individuals with seven to ten years of experience, amounting to 127 individuals and accounting for 35.98% of the total respondents. Conversely, only 16 respondents, or 4.53%, had accumulated more than ten years of experience. This distribution suggests that a majority of the respondents possess relatively limited professional experience, with many having less than three years in their respective fields.

With respect to educational attainment, the data indicate that the majority of respondents, specifically 278 individuals or approximately 78.75%, have completed upper secondary education or high school. Conversely, a smaller segment, comprising 71 respondents or 20.11%, possesses a diploma. Moreover, only 4 individuals, accounting for 1.13%, have attained a bachelor's degree. From an educational standpoint, it is apparent that most respondents have completed high school, while the proportion of individuals with higher educational qualifications remains relatively small.

The work units indicate that the fashion sector is the most predominant sector, with 196 respondents representing 55.52% of the total. The accessories category includes 76 respondents, approximately 21.53%, whereas shoes are represented by 81 respondents, constituting 22.95%. Consequently, it can be inferred that the majority of respondents are employed within the fashion sector, which may reflect prevailing industry trends and preferences. The characteristics of these respondents suggest that they constitute a relatively young demographic, predominantly female, with limited work experience and a narrow range of educational backgrounds.

This research aims to investigate the influence of employee curiosity on the use of green technology and creativity, as well as its impact on task performance and the environment in the fashion industry. The study employs a quantitative approach with model verification to predict the relationships among curiosity, the use of green technology, and employee creativity in relation to task performance and environmental outcomes. For data analysis, the researcher will utilize techniques based on covariance-based structural equation modeling (CB SEM).

3. Results and Discussion

Before conducting the tests, we first perform data quality assessments by examining validity and reliability, as presented in Table 2 below:

Table 2 Results of Validity and Reliability Testing of the Research Instruments

Variables	Item	Standard loading	Standard loading^2	Measurement error (1- Standard loading^2)	Const Reliability	Variance Extracted
Curiosity	CS2	0,6849	0,4691	0,5309	0,9000	0,5007
	CS3	0,7419	0,5504	0,4496		
	CS4	0,7315	0,5351	0,4649		
	CS5	0,7533	0,5675	0,4325		
	CE1	0,6876	0,4728	0,5272		
	CE2	0,6690	0,4476	0,5524		
	CE3	0,6557	0,4299	0,5701		
	CE4	0,6880	0,4733	0,5267		
	CE5	0,7487	0,5606	0,4394		
Green Technology	T1.1	0,8165	0,6667	0,3333	0,9320	0,6334
	T1.2	0,8166	0,6668	0,3332		
	T1.3	0,8500	0,7225	0,2775		
	T1.4	0,8612	0,7417	0,2583		
	T2.1	0,8376	0,7016	0,2984		
	T2.2	0,6206	0,3851	0,6149		
	T2.3	0,7375	0,5439	0,4561		
	T2.4	0,7995	0,6392	0,3608		
	T1.1	0,8165	0,6667	0,3333		
	T1.2	0,8166	0,6668	0,3332		
	T1.3	0,8500	0,7225	0,2775		
	T1.4	0,8612	0,7417	0,2583		
Creativity	CR1	0,8078	0,6525	0,3475		
	CR2	0,8114	0,6584	0,3416		
	CR3	0,7813	0,6104	0,3896		
	CR4	0,8341	0,6957	0,3043		
	CR5	0,8294	0,6879	0,3121		
	CR6	0,6927	0,4798	0,5202		

	CR7	0,8236	0,6783	0,3217	0,9613	0,6571
	CR8	0,7998	0,6397	0,3603		
	CR9	0,8507	0,7237	0,2763		
	CR10	0,8504	0,7232	0,2768		
	CR11	0,7926	0,6282	0,3718		
	CR12	0,8086	0,6538	0,3462		
Task Performance	TS1	0,8970	0,8046	0,1954		
	TS2	0,8755	0,7665	0,2335		
	TS3	0,8598	0,7393	0,2607	0,9416	0,7635
	TS4	0,9055	0,8199	0,1801		
	TS5	0,8291	0,6874	0,3126		
Environmental Performance	EP1	0,8100	0,6561	0,3439		
	EP2	0,7913	0,6262	0,3738		
	EP3	0,8781	0,7711	0,2289	0,9138	0,6801
	EP4	0,8714	0,7593	0,2407		
	EP5	0,7667	0,5878	0,4122		

The results of the validity and reliability calculations demonstrate that the AVE value surpasses 0.5 and that the reliability value is above 0.7, indicating that the assessments are both valid and reliable. The researcher subsequently evaluated the research model and obtained the following results in Figure 1.

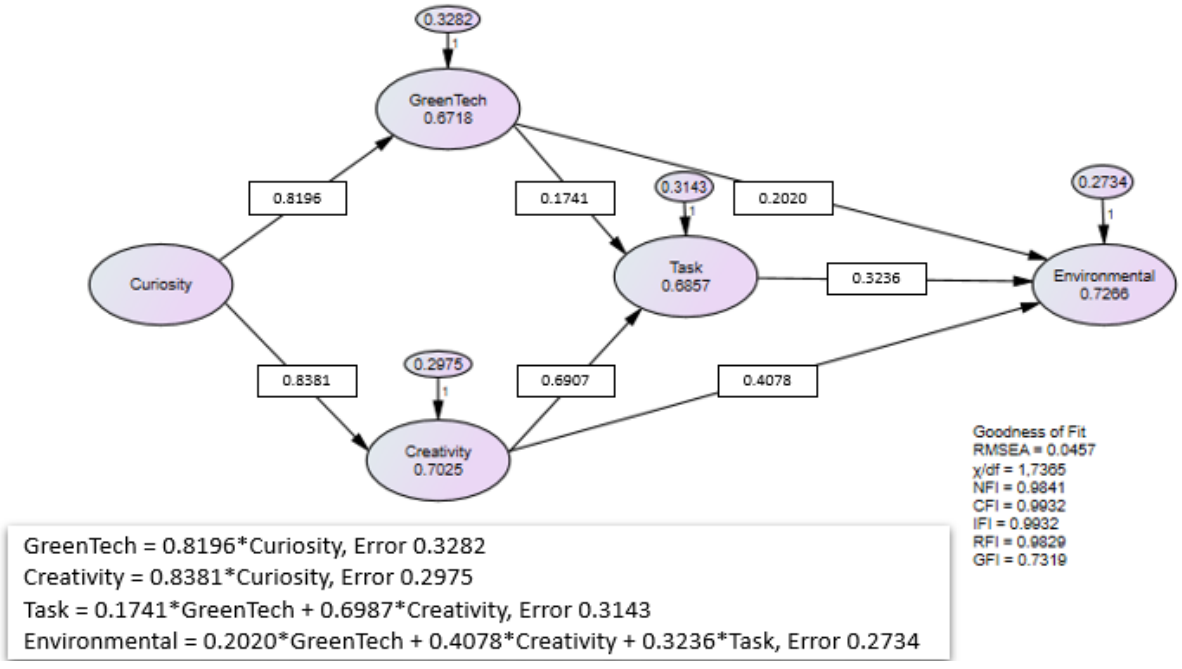

Figure 1 Results of the research model calculations, structural equations, and goodness of fit.

The goodness of fit results described above are based on the criteria established by Li (2016) and Wang & Rhemtulla (2021) within the framework of this research model, which includes the following:

The obtained RMSEA value is 0.0457. The RMSEA is one of the indices most commonly used to assess model fit. A value lower than 0.05 typically indicates that the model has a good fit. In this case, the value of 0.0457 demonstrates that this research model fits the observed data very well. The χ/df value is 1.7365. This ratio is used to evaluate whether the proposed model can adequately explain the data. A low χ^2 value indicates a good fit, whereas a χ/df ratio of less than 3 is considered to indicate a good fit. With a value of 1.7365, this model indicates a strong relationship between the model and the data, and it is not overly complex in terms of degrees of freedom. The NFI value is 0.9841. The NFI is an index that compares the proposed model with the null model. The NFI values range from 0 to 1, where higher values indicate better fit. With a value of 0.9841, this model shows a very good fit between the proposed model and the observed data.

The CFI value is 0.9932. The CFI is another index that compares the proposed model with the null model. CFI also ranges from 0 to 1, and values above 0.90 are generally considered to indicate a good fit. With a value of 0.9932, this model demonstrates an excellent fit, approaching the maximum value, which indicates that the model can explain the variability of the data very well. The IFI value is 0.9932. The IFI is similar to the CFI, where higher values indicate better fit. With a value of 0.9932, this model shows a significant improvement in fit compared with the null model, suggesting that the proposed model can explain the data effectively. The RFI value is 0.9829. The RFI compares the proposed model with the null model while considering the number of parameters used. Higher RFI values indicate better fit. With a value of 0.9829, this model indicates a good fit between the proposed model and the observed data. The obtained GFI value is 0.7319. The GFI indicates the proportion of variance explained by the model. GFI values range from 0 to 1, where higher values indicate better fit. Although the value of 0.7319 shows that this model does not achieve a very high level of fit, it remains acceptable within the context of the research.

Overall, the results of the goodness-of-fit analysis utilizing the aforementioned criteria suggest that this research model has an excellent fit to the observed data, notwithstanding the fact that one index (GFI) has a comparatively lower value relative to the others.

The calculation results reveal the following structural equations: Green Technology = 0.8196 * Curiosity, Error = 0.3282. Creativity = 0.8381 * Curiosity, Error = 0.2975. Task performance = 0.1741 * GreenTech + 0.6987 * Creativity, Error = 0.3143. Environmental Performance = 0.2020 * GreenTech + 0.4078 * Creativity + 0.3236 * Task, Error 0.2734.

Furthermore, the overall influence, or R2, of the structural equations is as follows: Green technology = 0.6718 with an error of 0.3282; creativity = 0.7025 with an error of 0.2975; task performance = 0.6857 with an error of 0.3143; and environmental performance = 0.7266 with an error of 0.2734.

Within this model, a substantial relationship is observed wherein green technology is affected by curiosity, with a coefficient of 0.8196. This suggests that an increase in curiosity positively influences the perception of green technology development. Nonetheless, there exists an error term of 0.3282, signifying the variability that the model fails to elucidate.

The Creativity variable is also influenced by Curiosity, with a coefficient of 0.8381. This finding indicates that curiosity contributes not only to green technology but also to creativity. The error component associated with this relationship is 0.2975, indicating variability that warrants further investigation.

Task performance is affected by two primary factors: green technology and creativity. The coefficient for green technology stands at 0.1741, whereas that for creativity is 0.6987. This suggests that creativity exerts a more substantial influence on task performance than does green technology. Nevertheless, an error term of 0.3143 is recorded, indicating the presence of additional factors that may influence task performance but have not been captured within this model.

Environmental performance is influenced by three variables: green technology, creativity, and task performance. The coefficient for green technology is 0.2020, that for creativity is 0.4078, and that for task performance is 0.3236. These findings indicate that all these variables contribute to environmental performance, with creativity and task performance making significant contributions. The error component for Environmental Performance is recorded at 0.2734, suggesting that while this model is quite good, other influencing factors still exist.

Next, we analyze the overall influence or R^2 of the established structural equations. R^2 indicates the proportion of variance in the dependent variable explained by the independent variables in the model. For Green Technology, the R^2 value is 0.6718, with an error of 0.3282. This suggests that approximately 67.18% of the variation in green technology is explained by curiosity. For creativity, the R^2 value is 0.7025, with an error of 0.2975, meaning that 70.25% of the variation in creativity is explained by curiosity. With respect to task performance, the R^2 value is 0.6857, with an error of 0.3143, indicating that 68.57% of the variation in task performance can be explained by green technology and creativity. For Environmental Performance, the R^2 value is 0.7266, with an error of 0.2734, indicating that 72.66% of the variation in environmental performance is explained by Green Technology, Creativity, and Task Performance.

Overall, the proposed research model demonstrates that curiosity significantly influences green technology and creativity, which subsequently affect task performance and environmental outcomes. Nevertheless, the discrepancies found in each relationship indicate that additional factors require further investigation to increase the model's precision. Research indicates that curiosity plays a critical role in the development of green technology, implying that heightened curiosity

positively shapes perceptions of environmentally sustainable technology. For example, Shi et al. (2023) emphasize how consumer attitudes toward green energy technology can be influenced by complex interaction dynamics involving curiosity. Similarly, Chen et al. (2025) underscore the importance of curiosity in fostering creativity and innovation within the workplace. Elevated levels of curiosity motivate individuals to explore novel ideas, thereby accelerating the adoption of green technology. Furthermore, Xu et al. (2021) elucidate how industrial advancements such as Industry 4.0 and 5.0 relate to the comprehension and application of emerging technologies. This finding indicates that curiosity impacts not only individuals but also broader industrial processes, thereby supporting progress in green technology.

The research findings demonstrate that curiosity significantly influences creativity. This implies that curiosity not only contributes to the advancement of green technology but also plays a pivotal role in fostering individual creativity. The study by Tsai & Zheng (2021) elucidates how employee curiosity can serve as a conduit to creativity within service industries. When employees exhibit curiosity, they are more predisposed to explore novel ideas and innovate in their service delivery methods. Zada et al. (2023) further reported that, despite the common perception that curiosity may entail risks, it possesses the capacity to increase employee creativity. Curiosity motivates individuals to seek new information and solutions, thereby generating innovative ideas. Additionally, Chang et al. (2023) reported that curiosity in the professional environment is directly correlated with the creative performance of research and development professionals, including scientists and engineers. This suggests that the impact of curiosity can vary depending on the work context; however, curiosity remains a vital factor in promoting creativity. The present study affirms that curiosity is a fundamental driver not only of the progression of green technology but also of the enhancement of creativity across diverse disciplines.

The research findings indicate that task performance is governed by two principal factors: green technology and creativity. This suggests that an individual's task execution may be influenced by the degree to which they utilize environmentally friendly technology and their level of creativity in completing their duties. The study by Qian & Jiang (2024) explores how internet usage within the context of tasks can influence employees' creative output. They emphasize that perceived organizational support can bolster the relationship between technological adoption and creative performance, which subsequently impacts overall task effectiveness. Jiang et al. (2023) also examine how the employment of personal technology in the workplace can affect employees' job performance. They observe that integrating green technologies into work processes can improve efficiency and effectiveness, thereby contributing to enhanced task performance. Furthermore, research conducted by Wang et al. (2021) demonstrated that job stress and job satisfaction have a complex interplay with employee creativity. They discovered that the utilization of social media within teams can moderate this relationship, indicating that a work environment conducive to creativity can augment task performance.

Environmental performance is influenced by three principal variables: green technology, creativity, and task performance. This finding indicates that an organization's operations within an environmental context are markedly affected by the adoption of environmentally friendly technology, the level of employee creativity, and their efficacy in executing tasks. A study conducted by Muñoz-Pascual et al. (2021) demonstrated that sustainable product innovation in SMEs is significantly shaped by human resources and employee creativity. Creativity functions as a crucial intermediary in enhancing sustainable innovation performance, which subsequently contributes to improved environmental performance.

Yavuz et al. (2023) elucidated the influence of Industry 4.0 technology and sustainable operational practices on sustainable performance. They underscore that the integration of green technology in production processes not only enhances efficiency but also assists enterprises in attaining superior environmental objectives. Concurrently, Ahmed et al. (2023) demonstrated that green innovation is integral to improving both environmental and organizational performance. The study further indicates that human resource practices and management commitment serve as moderating factors within this relationship, emphasizing that internal support is essential for optimal environmental outcomes. This investigation affirms that the synergistic effect of green technology, innovation, and task performance is fundamental to achieving enhanced environmental performance.

When employees exhibit curiosity, they tend to explore new ideas, technologies, and methods. This exploration fosters innovation, leading to the development of creative solutions that can drive the adoption of green technologies. Curious employees are more likely to engage in continuous learning. They seek out information and new experiences that can enhance their skills, making them more adaptable to changes in the industry. This adaptability is crucial, especially in sectors that are rapidly evolving due to technological advancements and sustainability challenges. Furthermore, curiosity enhances collaboration among team members. When individuals share their inquisitiveness, they stimulate discussions that can lead to brainstorming and the exchange of diverse perspectives. This collaborative environment promotes a sense of community, encouraging employees to work together towards common sustainability goals. Employees who feel encouraged to ask questions and explore new avenues often experience a greater sense of purpose in their roles. This satisfaction can translate into improved task performance, as motivated employees are likely to be more productive and dedicated to their work. Fostering employee curiosity not only encourages innovation and creativity but also contributes to enhanced performance and a positive workplace culture, ultimately benefiting the organization’s sustainability initiatives and environmental outcomes.

The theoretical implications of fostering employee curiosity within HR Management are expands the existing literature on motivation and engagement by highlighting curiosity as a critical driver of innovation. Curiosity shifts traditional HR practices

toward a more dynamic and flexible model. It suggests that HR frameworks should include strategies that nurture curiosity, which may lead to new theories around employee development, learning agility, and adaptability in changing environments. The study emphasis on curiosity can encourage interdisciplinary research, bridging HR with fields such as psychology, organizational behavior, and educational theory.

HR Management in the creative industry can have significant implications by fostering curiosity to drive green technology and creativity. First, managers should create a work culture that encourages exploration and innovation. They can achieve this by giving employees the freedom to experiment and propose new ideas, particularly those focused on sustainability. Second, training and skill development play a crucial role. Offering training on green technology and sustainable practices enhances employees' knowledge. This not only boosts creativity but also improves overall task performance. Next, organizations need to implement recognition systems that reward employees who innovate using green technology. This motivates more individuals to contribute to sustainability initiatives, leading to positive environmental impacts. Finally, establishing monitoring and evaluation systems that focus on environmental outcomes is essential. Regularly measuring the impact of green innovations and creativity helps companies understand the effectiveness of their strategies and make necessary adjustments. HR Management can stimulate creativity and sustainability while enhancing task performance and environmental outcomes in the creative industry.

4. Conclusions

This study effectively highlights the significant role of digitalization and green technology within the creative industry sector in Bandung. Research has demonstrated that curiosity among employees plays a crucial role in shaping their perceptions of green technology, which in turn influences their creativity and task performance. The findings suggest that fostering curiosity can lead to improved environmental outcomes, emphasizing the importance of integrating innovative technologies with a creative approach in the fashion industry.

Nevertheless, this research has certain limitations. The study predominantly concentrates on a specific geographical region, which may restrict the applicability of the findings to other areas or sectors. Furthermore, reliance on self-reported data could introduce biases that might impact the accuracy of the results.

For future research, it is advisable to broaden the scope of the study by incorporating a more diverse sample from multiple regions and sectors within the creative industry. This approach would facilitate a more comprehensive understanding of how perceptions of green technology and creativity interact across various contexts. Additionally, longitudinal studies could prove advantageous in assessing the long-term effects of curiosity and green technology on performance and environmental impact. Addressing these gaps will enable future research to contribute to a more thorough understanding of the factors influencing sustainability in the creative industry.

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Ethical considerations

To ensure the anonymity of participants, all gathered data were encrypted and kept confidential, with no personal identifying details associated with their answers. Additionally, written consent was obtained from each participant after they were thoroughly informed about the research goals and their rights as contributors.

Conflict of Interest

All authors declare no conflicts of interest.

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Understanding the Role of Curiosity, Green Technology Perceptions, and Creativity in Shaping Task Performance and Environmental Impact in Bandung's Fashion Industry

Abstract

This study focuses on digitalization within the creative industry sector in Bandung, specifically examining how the use of green technology enhances performance output. The research investigates the role of curiosity in preparing human resources in the fashion creative industry to effectively utilize digital green technology and foster creativity to complete tasks and improve environmental conditions. To achieve this, the research employs a survey method, gathering data from 353 employees actively engaged in the creative industry. The analysis is conducted using Covariance-Based Structural Equation Modeling (CB SEM), a robust statistical technique that allows for a nuanced understanding of the relationships among the variables involved. The findings of this study reveal a noteworthy and significant influence of curiosity on how employees perceive green technology. Additionally, the results highlight the vital role of creativity in shaping both task performance and the overall environmental impact of the industry. This research contributes novel insights to the existing body of literature by addressing the previously limited exploration of perceptions surrounding green technology and their subsequent effects on both performance and environmental outcomes in the fashion sector. By focusing on these aspects, the study fills a gap in understanding how curiosity and creativity can drive the effective use of green technology in a rapidly evolving industry. The implications of the findings are profound, emphasizing that a synergistic combination of green technology, creativity, and task performance is essential for achieving improved environmental outcomes. Organizations in the fashion creative industry are encouraged to cultivate a culture that nurtures curiosity and creativity among employees. By doing so, they can not only enhance their operational efficiency but also contribute positively to environmental sustainability. This research ultimately underscores the importance of integrating innovative technologies with a creative mindset to foster a more sustainable future within the industry.

Keywords: Curiosity, Perceptions, Green, Technology, Creativity, Performance, Environmental.

Introduction

The advancement of technology shows an increasing trend, and its application in life can simplify problem-solving. (Myovella et al., 2020; Li et al., 2020; Vu et al., 2020) Utilizing technology can facilitate the creation of better products, enhance existing product capabilities, develop new components, and generate new knowledge-based products and services. (Giones & Brem, 2017; Srinivasan & Venkatraman, 2018; Song, 2019) The challenge of enhancing knowledge-based economic superiority in Indonesia requires collaboration from various parties, especially considering the country's ranking in the global economic index is still not optimal, necessitating the improvement of specific skills. (Abdul Hamid, 2022; Dumitru & Halpern, 2023; Lim, 2023) Therefore, it is essential to assess the capabilities of human resources in the creative fashion industry in leveraging advancements in green technology, which can aid in task completion and environmental considerations. The weaknesses in utilizing technology, particularly green technology, have been identified by the Bandung Cultural and Tourism Office, and the development of human resources in the creative economy is still not optimal. The use of green technology and creativity becomes a crucial factor for individuals in completing tasks and addressing their environment, influenced by their curiosity. To effectively harness green technology and individual creativity, there must be an emphasis on curiosity in seeking information, which can be

enhanced. It can be identified that curiosity can improve readiness to use technology and creativity to fulfill their tasks and responsibilities optimally, positively impacting organizational performance and the environment.

The knowledge economy relies on the efficient and effective use of technology as a driving force for innovation, forming the foundation for prosperity and creating wealth in the knowledge sector. (Srinivasan & Venkatraman, 2018; Nambisan, 2017; Sussan & Acs, 2017) Digitalization has accelerated processes and reduced operational barriers for organizations, broadening customer bases, securing financial support, fostering rapid growth, and enabling flexible and productive work mechanisms. (Björkdahl, 2020; Giones & Brem, 2017; Song, 2019) Additionally, the use of green technology contributes to environmental sustainability, is more economical, and enhances the company's brand image. (Hao et al., 2023; Guinot et al., 2022; Wan et al., 2022; Zhang et al., 2020)

Companies must adopt creative and innovative thinking approaches to generate new ideas, recognize market shortcomings, identify opportunities, seize those opportunities, and create added value. (Anderson et al., 2014; Lee et al., 2020; Gouvea et al., 2021) The readiness to use green technology and creativity, driven by curiosity, forms the basis of intellectual capability, knowledge, problem-solving interest, and a supportive environment. (Acikgoz et al., 2023; El-Kassar et al., 2022; Koutstaal et al., 2022) Creativity serves as the foundation for innovation, allowing for the exploitation of new opportunities arising from environmental changes. (Sidharta et al., 2019; Manik et al., 2023) This process requires collective and creative efforts to stimulate innovation (AlEssa & Durugbo, 2022; Afsar & Umrani, 2020; Grošelj et al., 2021; Sidharta et al., 2023), ultimately impacting sustainable environments. (Thi Ngoc Thuyen & Nhu Bich, 2024; Tu & Wu, 2021; Zhang et al., 2020)

Research findings by Venkatesh et al. (2022) indicate that technology serves as a supportive tool for communication with consumers. The results by Adebanjo et al. (2021) and Flores et al. (2020) demonstrate that the dimension of human capital readiness is recognized as the most crucial factor in implementing Industry 4.0 technologies. One important factor for achieving success in the creative fashion industry involves collaborating with suppliers and startups to generate innovation, while effectively using information systems plays a vital role in decision-making, planning, and managing human resources in the fashion industry. (Albors-Garrigos, 2020; Casciani et al., 2022; Huynh, 2022)

Further findings by Dissanayake & Weerasinghe, (2022) and Park-Poaps et al. (2021) reveal that in the era of Industry 4.0, technology can address key challenges in the fashion industry, such as hyper-personalization, environmental sustainability, and productivity enhancement. (Castañeda-Navarrete et al., 2021; Jin & Shin, 2021) This indicates that technology adoption becomes a key factor in the fashion sector, including 3D design and modeling, digital technology, e-commerce, and digital platforms. (Huynh, 2022; McQuillan, 2020; Sun & Zhao, 2017) Additionally, research by Wang & Zhang, (2023); Watat & Bonaretti, (2022) and Wijewardhana et al. (2021) shows that curiosity is one indicator that can enhance readiness for technology use. Similarly, studies indicate that curiosity can influence individual creativity within an organization. (Gross et al., 2020; Manik et al., 2023)

Research findings also indicate that technological advancements create situations and opportunities for innovation across various aspects of the fashion industry. (Ahmad et al., 2020; Sehnem et al., 2023; Zhang et al., 2021) However, many small and medium enterprises (SMEs) in Indonesia remain unprepared in terms of having competent human resources in information technology, as well as facing limited infrastructure, such as inadequate networks and internet connectivity. Additionally, the instability of communication networks and the limitations of telecommunications infrastructure pose significant challenges. (Sun et al., 2020; Tønnessen et al., 2021; Wang & Hu, 2020)

Previous studies show that no research has yet examined the impact of curiosity on technology readiness and creativity, along with its implications for enhancing employee performance in the creative fashion industry.

Methods

This research employs a survey approach, focusing on the creative fashion industry in Bandung. According to data from the Bandung Cultural and Tourism Office, there are 530 business operators in this field. Employees who have worked for at least one year in companies operating in the fashion sector in Bandung will be selected as respondents using simple random sampling techniques. To meet the model specification test requirements, a minimum of 300 data points from employees in the creative fashion industry in Bandung is necessary.

The study utilizes data from 353 respondents, encompassing various relevant demographic information, such as respondents' gender, age, education level, and their involvement in subsectors of the creative industry, particularly in fashion. Additionally, it records the type of business operated by respondents and their duration of employment in the industry. Table 1 in this analysis presents the diverse characteristics of the respondents based on the available demographic data.

Table 1. characteristics of the respondents

Respondent		Frequency	%
Gender	Female	199	56.37%
	Male	154	43.63%
Age	< 30 years	181	51.27%
	31 - 40 years	99	28.05%
	> 40 years	73	20.68%
Work	< 3 years	115	32.58%
	4 - 6 years	95	26.91%
	7 - 10 years	127	35.98%
	> 10 years	16	4.53%
Education	High School	278	78.75%
	Diploma	71	20.11%
	Bachelor	4	1.13%
Unit	Fashion	196	55.52%
	Accessories	76	21.53%
	Footwear	81	22.95%

Table 1 in this analysis presents the diverse characteristics of the respondents based on various demographic factors. Among these respondents, females dominate with 199 individuals, accounting for 56.37% of the total, while males number 154, or 43.63%. When examining the age distribution, the largest group consists of individuals under 30 years old, totaling 181 respondents, which represents 51.27% of the overall sample. The next age group, those between 31 and 40 years old, includes 99 respondents, making up 28.05% of the total. Meanwhile, individuals over 40 years old number only 73, or 20.68%. The significant number of female respondents and the concentration of younger individuals, particularly those under 30, suggest that the perspectives gathered in this research may reflect the views and experiences of a younger demographic.

The work experience of the respondents, 115 individuals, or 32.58%, have less than three years of experience. A similar number, 95 respondents, or 26.91%, fall into the category of having between 4 to 6 years of work experience. The largest group consists of individuals with 7 to 10 years of experience, totaling 127 individuals, which represents 35.98% of the overall respondents. Meanwhile, only 16 respondents, or 4.53%, possess more than ten years of experience. This distribution indicates that most respondents have relatively limited experience, with many having less than three years in their respective fields.

Regarding education, the data shows that the majority of respondents, specifically 278 individuals or about 78.75%, have completed upper secondary education or high school. Conversely, a smaller segment, consisting of 71 respondents, or 20.11%, holds a diploma. Meanwhile, only 4 individuals, representing 1.13%, have obtained a bachelor's degree. From an educational perspective, it is evident that most respondents have completed high school, while the proportion of individuals with higher educational qualifications is quite small.

The work units, the fashion sector emerges as the most dominant, with 196 respondents contributing 55.52% of the total. The accessories category includes 76 respondents, or about 21.53%, while shoes are represented by 81 respondents, accounting for 22.95%. Thus, we can conclude that the majority of respondents work in the fashion sector, which may reflect certain trends and preferences within the industry. The characteristics of the respondents indicate that they form a relatively young group, with a predominance of females, limited work experience, and low educational diversity.

This research aims to investigate the influence of employee curiosity on the use of green technology and creativity, as well as its impact on task performance and the environment in the fashion industry. The study employs a quantitative approach with model verification to predict the relationships between curiosity, the use of green technology, and employee creativity in relation to task performance and environmental outcomes. For data analysis, the researcher will utilize techniques based on Covariance-Based Structural Equation Modeling (CB SEM).

Results and Discussion

Before conducting the tests, we first perform data quality assessments by examining validity and reliability, as presented in Table 2 below:

Table 2. Results of Validity and Reliability Testing of Research Instruments

Construct	Item	Standard loading	Standard loading2	Measurement error (1-Standard loading2)	Const Reliability	Varienace Extracted
Curiosity	CS2	0,6849	0,4691	0,5309	0,9000	0,5007
	CS3	0,7419	0,5504	0,4496		
	CS4	0,7315	0,5351	0,4649		
	CS5	0,7533	0,5675	0,4325		
	CE1	0,6876	0,4728	0,5272		
	CE2	0,6690	0,4476	0,5524		
	CE3	0,6557	0,4299	0,5701		
	CE4	0,6880	0,4733	0,5267		

	CE5	0,7487	0,5606	0,4394		
Green Technology	T1.1	0,8165	0,6667	0,3333	0,9320	0,6334
	T1.2	0,8166	0,6668	0,3332		
	T1.3	0,8500	0,7225	0,2775		
	T1.4	0,8612	0,7417	0,2583		
	T2.1	0,8376	0,7016	0,2984		
	T2.2	0,6206	0,3851	0,6149		
	T2.3	0,7375	0,5439	0,4561		
	T2.4	0,7995	0,6392	0,3608		
Creativity	CR1	0,8078	0,6525	0,3475	0,9613	0,6571
	CR2	0,8114	0,6584	0,3416		
	CR3	0,7813	0,6104	0,3896		
	CR4	0,8341	0,6957	0,3043		
	CR5	0,8294	0,6879	0,3121		
	CR6	0,6927	0,4798	0,5202		
	CR7	0,8236	0,6783	0,3217		
	CR8	0,7998	0,6397	0,3603		
	CR9	0,8507	0,7237	0,2763		
	CR10	0,8504	0,7232	0,2768		
	CR11	0,7926	0,6282	0,3718		
	CR12	0,8086	0,6538	0,3462		
	CR13	0,8429	0,7105	0,2895		
Task Performance	TS1	0,8970	0,8046	0,1954	0,9416	0,7635
	TS2	0,8755	0,7665	0,2335		
	TS3	0,8598	0,7393	0,2607		
	TS4	0,9055	0,8199	0,1801		
	TS5	0,8291	0,6874	0,3126		
Environmental Performance	EP1	0,8100	0,6561	0,3439	0,9138	0,6801
	EP2	0,7913	0,6262	0,3738		
	EP3	0,8781	0,7711	0,2289		
	EP4	0,8714	0,7593	0,2407		
	EP5	0,7667	0,5878	0,4122		

The results of the validity and reliability calculations show that the AVE value exceeds 0.5 and the reliability value is above 0.7, indicating that the tests are valid and reliable. Next, the researcher tests the research model, yielding the following results:

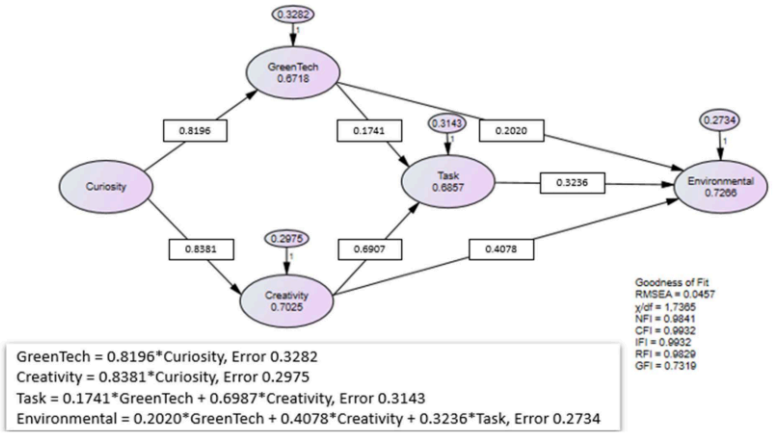

Figure 1. Results of the research model calculations, structural equations, and goodness of fit.

The Goodness of Fit results described above are based on the criteria by Li, (2016) and Wang & Rhemtulla (2021) in the context of this research model, which includes:

The obtained RMSEA value is 0.0457. RMSEA is one of the most commonly used indices to assess model fit. A value lower than 0.05 typically indicates that the model has a good fit. In this case, the value of 0.0457 demonstrates that this research model fits the observed data very well. The χ/df value is 1.7365. This ratio is used to evaluate whether the proposed model can adequately explain the data. A low χ^2 value indicates a good fit, while a χ/df ratio of less than 3 is considered to show a good fit. With a value of 1.7365, this model indicates a strong relationship between the model and the data, and is not overly complex in terms of degrees of freedom. The NFI value is 0.9841. NFI is an index that compares the proposed model with the null model. NFI values range from 0 to 1, where higher values indicate better fit. With a value of 0.9841, this model shows a very good fit between the proposed model and the observed data.

The CFI value is 0.9932. CFI is another index that compares the proposed model with the null model. CFI also ranges from 0 to 1, and values above 0.90 are generally considered to indicate a good fit. With a value of 0.9932, this model demonstrates an excellent fit, approaching the maximum value, which indicates that the model can explain the variability of the data very well. The IFI value is 0.9932. IFI is similar to CFI, where higher values indicate better fit. With a value of 0.9932, this model shows a significant improvement in fit compared to the null model, suggesting that the proposed model can explain the data effectively. RFI value is 0.9829. RFI compares the proposed model with the null model while considering the number of parameters used. Higher RFI values indicate better fit. With a value of 0.9829, this model indicates a good fit between the proposed model and the observed data. The obtained GFI value is 0.7319. GFI indicates the proportion of variance explained by the model. GFI values range from 0 to 1, where higher values indicate better fit. Although the value of 0.7319 shows that this model does not achieve a very high level of fit, it remains acceptable within the context of the research.

Overall, the results of the Goodness of Fit analysis using the above criteria indicate that this research model fits the observed data very well, even though one index (GFI) shows a lower result compared to the others.

The calculation results reveal the following structural equations: Green Technology = 0.8196 * Curiosity, Error 0.3282. Creativity = 0.8381 * Curiosity, Error 0.2975. Task Performance = 0.1741 * GreenTech + 0.6987 * Creativity, Error 0.3143. Environmental Performance = 0.2020 * GreenTech + 0.4078 * Creativity + 0.3236 * Task, Error 0.2734.

Additionally, the overall influence or R2 of the structural equations is as follows: Green Technology = 0.6718 with Error 0.3282. Creativity = 0.7025 with Error 0.2975. Task Performance = 0.6857 with Error 0.3143. Environmental Performance = 0.7266 with Error 0.2734.

In this model, a significant relationship exists where Green Technology is influenced by Curiosity with a coefficient of 0.8196. This indicates that an increase in curiosity positively contributes to the perception of green technology development. However, there is also an error component of 0.3282, which signifies variability that the model cannot explain.

The Creativity variable is also influenced by Curiosity, with a coefficient of 0.8381. This suggests that curiosity contributes not only to green technology but also to creativity. The error component for this relationship is 0.2975, indicating variability that still needs to be addressed in further research.

Task Performance is influenced by two factors: Green Technology and Creativity. The coefficient for Green Technology is 0.1741, while for Creativity, it is 0.6987. This shows that creativity has a greater impact on task performance compared to green technology. However, there is also an error recorded at 0.3143, indicating that other factors may influence task performance that have not been identified in this model.

Environmental Performance is influenced by three variables: Green Technology, Creativity, and Task Performance. The coefficient for Green Technology is 0.2020, for Creativity it is 0.4078, and for Task Performance, it is 0.3236. This indicates that all these variables contribute to environmental performance, with creativity and task performance having significant contributions. The error component for Environmental Performance is recorded at 0.2734, suggesting that while this model is quite good, other influencing factors still exist.

Next, we examine the overall influence or R^2 of the established structural equations. R^2 measures the proportion of variance in the dependent variable that can be explained by the independent variables in the model. For Green Technology, the R^2 value is 0.6718 with an error of 0.3282. This indicates that approximately 67.18% of the variation in Green Technology can be explained by Curiosity. For Creativity, the R^2 value is 0.7025 with an error of 0.2975, showing that 70.25% of the variation in Creativity can be explained by Curiosity. In terms of Task Performance, the R^2 value is recorded at 0.6857 with an error of 0.3143, indicating that 68.57% of the variation in task performance can be explained by Green Technology and Creativity. For Environmental Performance, the R^2 value is 0.7266 with an error of 0.2734, which shows that 72.66% of the variation in environmental performance can be explained by Green Technology, Creativity, and Task Performance.

Overall, the proposed research model indicates that Curiosity strongly influences Green Technology and Creativity, which in turn affect task performance and environmental performance. However, the error components present in each relationship suggest that other factors still need to be explored further to enhance the accuracy of this model. Existing research shows that curiosity significantly impacts the development of green technology. This indicates that an increase in curiosity positively

contributes to perceptions of environmentally friendly technology. In this context, the study by Shi et al. (2023) highlights how consumer attitudes toward green energy technology can be influenced by complex interaction dynamics, which include elements of curiosity. Meanwhile, research by Chen et al. (2025) emphasizes the importance of curiosity in the context of creativity and innovation in the workplace. High levels of curiosity can encourage individuals to explore new ideas, which can, in turn, accelerate the adoption of green technology. On the other hand, Xu et al. (2021) explains how industrial developments, such as Industry 4.0 and 5.0, relate to the understanding and application of new technologies. This suggests that curiosity plays a role not only in individual contexts but also in broader industrial contexts, facilitating advancements in green technology.

The research results show that curiosity significantly influences creativity. This means that curiosity not only contributes to the development of green technology but also plays a crucial role in fostering individual creativity. In study by Tsai & Zheng (2021) it explains how employee curiosity can serve as a bridge to creativity in services. When employees feel curious, they are more likely to explore new ideas and innovate in how they deliver services. Zada et al. (2023) adds that although there is an assumption that curiosity can be risky, it actually has the power to enhance employee creativity. Curiosity encourages individuals to seek new information and solutions, which can lead to fresh creative ideas. Furthermore, Chang et al. (2023) demonstrates that curiosity in the workplace directly relates to the creative performance of R&D professionals, including both scientists and engineers. This indicates that curiosity can vary in its impact depending on the work context, yet it remains an important factor in enhancing creativity. This study affirms that curiosity is a key driver that not only influences green technology but also strengthens creativity across various fields.

The research results indicate that task performance is influenced by two main factors: green technology and creativity. This means that how an individual performs their tasks can be affected by the extent to which they adopt environmentally friendly technology and how creative they are in completing their work. In the study by Qian & Jiang (2024) discusses how internet usage in the context of tasks can impact employees' creative performance. They highlight that perceived organizational support can strengthen the relationship between technology use and creative performance, which in turn can affect overall task performance. Jiang et al. (2023) also investigates how the use of personal technology in the workplace can influence employees' job performance. They note that integrating green technology into work processes can enhance efficiency and effectiveness, contributing to better task performance. Additionally, research by Wang et al. (2021) shows that job stress and job satisfaction have a complex relationship with employee creativity. They find that using social media within teams can moderate this relationship, indicating that a work environment that supports creativity can enhance task performance.

Environmental performance is influenced by three main variables: green technology, creativity, and task performance. This means that how an organization operates in an environmental context is significantly affected by the adoption of environmentally friendly technology, the level of employee creativity, and how well they perform their tasks. In the Muñoz-Pascual et al. (2021) study finds that sustainable product innovation in small and medium enterprises (SMEs) is greatly influenced by human resources and employee creativity. Creativity serves as an important mediator in enhancing sustainable innovation performance, which in turn contributes to better environmental performance.

Yavuz et al. (2023) explain how Industry 4.0 technology and sustainable operational practices can impact sustainable performance. They emphasize that implementing green technology in production processes not only improves efficiency but also helps companies achieve better environmental goals. Meanwhile, Ahmed et al. (2023) research shows that green innovation plays a crucial role in enhancing environmental and organizational performance. They also note that human resource practices and

management commitment can moderate this relationship, indicating that internal support is vital for achieving optimal environmental performance. This research affirms that the combination of green technology, creativity, and task performance is key to achieving better environmental performance.

Conclusions

This study effectively highlights the significant role of digitalization and green technology within the creative industry sector in Bandung. The research demonstrates that curiosity among employees plays a crucial role in shaping their perceptions of green technology, which in turn influences their creativity and task performance. The findings suggest that fostering curiosity can lead to improved environmental outcomes, emphasizing the importance of integrating innovative technologies with a creative approach in the fashion industry.

However, this research has certain limitations. The study primarily focuses on a specific geographical area, which may limit the generalizability of the findings to other regions or industries. Additionally, the reliance on self-reported data may introduce biases that could affect the accuracy of the results.

For future research, it is recommended to expand the scope of the study by including a more diverse sample from various regions and sectors within the creative industry. This would provide a broader understanding of how green technology perceptions and creativity interact across different contexts. Furthermore, longitudinal studies could be beneficial in examining the long-term effects of curiosity and green technology on performance and environmental impact. By addressing these gaps, future research can contribute to a more comprehensive understanding of the dynamics at play in promoting sustainability in the creative industry.

References

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