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Impact of Entrepreneurial Leadership on Teacher Creativity: The Mediating Role of School Culture in Indonesian Public Senior Secondary Schools

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Abstract

Purpose – This study explores the relationship between entrepreneurial leadership, school culture, and teachers' creativity within public senior secondary schools in Yogyakarta, Indonesia. The research aims to determine whether entrepreneurial leadership directly influences teacher creativity or whether its impact is mediated through the school culture.

Methods/Design/Approach – A quantitative survey methodology was employed, collecting data from 136 teachers across multiple schools in Yogyakarta. Structural Equation Modelling Partial Least Squares (SEM-PLS) was used to analyze the relationships between the variables, including entrepreneurial leadership, school culture, and teachers' creativity.

Findings – The results reveal that entrepreneurial leadership does not directly enhance teachers' creativity within the studied context. However, entrepreneurial leadership significantly contributes to a conducive school culture, which in turn positively impacts teachers' creativity. The study identifies school culture as a critical mediator, suggesting that the influence of entrepreneurial leadership on creativity is indirect and operates primarily through the development of a supportive environment.

Research implications – The findings highlight the need for educational leaders to focus on fostering a positive school culture to promote creativity among teachers. Policymakers should consider a holistic approach that integrates entrepreneurial leadership with the cultivation of a dynamic and supportive school culture.

Originality/Value – This study provides new insights into the applicability of entrepreneurial leadership in educational settings, particularly in Indonesia. It challenges the assumption that entrepreneurial leadership directly fosters creativity and underscores the importance of school culture as a mediator.

Keywords Entrepreneurial leadership, school culture, teacher creativity, educational leadership, Indonesian schools.

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1. Introduction

An entrepreneurial leadership has been a growing concern in the management studies in the sphere (Latif et al., 2020; Leitch & Volery, 2017). In general, entrepreneurial leadership refers to the ability of a leader to organize a group of people working in the organization to achieve common goals (Harrison et al., 2018). This leadership model involves an approach to optimize risk, innovate to take advantage of opportunities, take personal responsibility and manage changes in a dynamic organizational environment (Bagheri & Akbari, 2018). Some scholars believe that entrepreneurial leadership provides many advantages for the organization such as creating an opportune culture, enhancing management innovation, promoting creative work behavior, and supporting organizational success (Al Mamun et al., 2018; Bagheri et al., 2020; Renko et al., 2015).

Since the important role of entrepreneurial leadership for the organizational success, the study of entrepreneurial leadership is also on the rise in the educational sector and it has gained attention among scholars and educational policy researchers. Some scholars found that entrepreneurial leadership can be used to handle the complexity and challenges of the school organization such as demands to improve the quality of education in schools, rapid changes and developments in the environment, lack of resources and funds (El-Kafafi, 2020; Lope Pihie, 2014; Wahab & Tyasari, 2020). Further studies remarked that entrepreneurial leadership can encourage dynamic, innovative and empowering organizations through learning that occurs from the individual, group to organizational stages that support the success of education (Newman et al., 2018).

Despite the growing interest in how entrepreneurial leadership influences organizational success, the interconnectedness of entrepreneurial leadership, teacher creativity, and school culture has been largely overlooked by scholars. Specifically, the Indonesian government has promoted the development of entrepreneurship education with the expectation of fostering new entrepreneurs. In fact, teaching entrepreneurship is closely linked to teacher creativity and innovation. This is because the core competencies of entrepreneurs include the ability to identify business opportunities, create innovative products, and overcome obstacles.

In addition to entrepreneurial leadership, school cultures have an acquaintance with teachers' creativity (Kalkan et al., 2020). School culture has a mediating effect on leadership style and organizational image (Kalkan et al., 2020). Leadership embodied by the principal has a positive influence on organizational members and contributes to a strong message of school culture, besides that leadership and school culture make a positive contribution to the image of educational institutions (Karadag, 2020). Increased teacher perceptions of school culture have an impact on improving student academic achievement (Karadag, 2020). To achieve academic success, students need effective communication, common values, visionary management, organizational differentiation, and a trustworthy environment (Prestiadi et al., 2019).

This study provides three primary contributions. First, this study contributes to the literature on entrepreneurial leadership, which has been underrepresented in prior studies (Bagheri & Akbari, 2018). Existing studies have primarily focused on the management of companies or organizations in general (Bagheri, 2017). For instance, Bagheri and Akbari (2018) examined the impact of entrepreneurial leadership on nurse creativity (Bagheri, 2017). Additionally, Bagheri (2017) explored the relationship between entrepreneurial leadership, innovation work behavior, and opportunity recognition in high-technology SMEs (Bagheri & Akbari, 2018). Second, this study provides new insights into the relationship between teachers' creativity behavior and the mediating role of school culture, particularly in Indonesia. Third, this study offers recommendations to policymakers on how entrepreneurial leadership correlates with teacher creativity as an effort to foster future

entrepreneurs, supporting the Indonesian government's initiative to enhance the quality of education.

2. Literature Review

2.1 Entrepreneurial Leadership

The literature on entrepreneurial leadership has highlighted several definitions. For instance, Pihie and Bagheri (2013) defined entrepreneurship leadership into three main approaches. First, it focuses on the nature and character of the inherent and distinguish the leader of entrepreneurship with other leaders. Second, entrepreneurial leadership examines the environmental factors and contexts in which the organization's leaders are adept at applying the principles and strategies of entrepreneurship in carrying out its role and duties. Third, it observes the social process in which entrepreneurial leaders influence others to carry out their vision. In the context of education, entrepreneurial leadership has defined goals and expectations that are integrated into the school's vision, mission, goals and strategic plan in a realistic manner, by the abilities, conditions and supporting factors of the school (Dardiri et al., 2018; Lubis, 2017).

Entrepreneurial leadership is not only as a leader but also manager of the school to provide a creative and innovative attitude from teachers and employees (Pihie et al., 2014). Furthermore, Ghasmi (2011) added that the entrepreneurial leadership has several characteristics, namely: skilled, has a high work ethic, courageous, has negotiation skills, has good business intuition, and has an entrepreneurial background. The skilled principals an expert in the field of duties includes operational (engineering), social and conceptual skills. Technical skills include knowledge of methods, procedures, and techniques for carrying out specific activities, as well as the ability to use tools and equipment relevant to the activity. Social skills include knowledge of human behavior and interpersonal processes; understand the feelings, attitudes, motives of others from what he/she does and say (empathy, social sensitivity); ability to communicate clearly and effectively (articulate, persuasive); ability to effectively strengthen and cooperate relationships (tactical, diplomacy, listening skills, and knowledge of acceptable social behavior).

Conceptual skills consist of general analytical skills, logical thinking, experts in formulating and conceptualizing complex relationships; creative in solving problems and ideas, able to analyze events and feel the trends, anticipate changes, and recognize potential opportunities and problems (Bagheri & Pihie, 2011). Principals need to implement the characteristics of entrepreneurial leadership to improve the effectiveness of their schools and to facilitate school innovation processes (Najim et al., 2013). In the context of organizational innovation, entrepreneurial leadership of principals can develop and implement new ideas that lead to critical change and improvement in schools (Ruskovaara et al., 2011). Innovation in schools has three main components including the ability to explore new opportunities and educational opportunities, the tendency to take action and take advantage of opportunities, and changes that are implemented through innovation make school success (Eyal & Kark, 2004).

2.2 School Culture

Culture plays an important role in determining appropriate managerial behavior (Hofstede, 2011). To the extent that cultural values lead to an acceptance of uncertainty and risk-taking, they are expected to be supportive of creativity and innovation (Özgenel & Koç, 2020). School culture is a combination of ideals, values, assumptions, beliefs, and attitudes that unite the school community (Özgenel & Koç, 2020). There is a significant relationship

between teacher job commitment and school culture (Özgenel & Koç, 2020). School culture has a mediating effect on leadership style and organizational image (Kalkan et al., 2020). Leadership embodied by the principal has a positive influence on organizational members and contributes to the formation of a strong school culture, besides that leadership and school culture make a positive contribution to the image of educational institutions (Kalkan et al., 2020).

Increasing teacher perceptions of school culture had an impact on increasing student academic achievement (Karadag, 2020). To achieve academic success, students need effective communication, common values, visionary management, organizational differentiation, and a trustworthy environment; all of these elements are essential features of a strong school culture (Karadag, 2020). Creativity is based on flexibility, originality, fluency, and elaboration (Alavinia & Pashazadeh, 2018). Additionally, there is a significant positive relationship between teacher motivation and self-efficacy with creativity, and a negative relationship between teacher fatigue and creativity (Alavinia & Pashazadeh, 2018).

2.3 Teacher Creativity

Teacher's creativity, for some researchers, is still a difficult concept to define (Serdyukov, 2017; Zhou & Luo, 2012). Andriansen emphasized the importance of creative teachers because of their positive impact on student creativity (Adriansen, 2010). Hemaloshinee emphasizes the importance of creative development for teachers (Hemaloshinee Vasudevan, 2013). The teacher as a learning facilitator must have creative skills that can be transferred and kept in mind of the students, so they can be more critical in evaluating or solving problems. Furthermore, there are also some researchers who have identified several factors that influence teacher creativity in the classroom (Beghetto & Kaufman, 2014; Hemaloshinee Vasudevan, 2013). These factors are like learning standards; curriculum standards; standard of judgment and undiscovered creative ability.

Plucker and Hartley found that the success of the learning process in the classroom is determined by the creativity of teachers (Plucker et al., 2011). Similarly, Nozari found that teachers' creativity can create a fun, meaningful learning environment and encourage students to be skilled at solving problems (Nozari & Siamian, 2014). The results also recommend that teachers continue to cultivate their creativity by frequently following professional training activities, further studies, diligent reading of relevant research, and continuously discussing with other teachers related to the improvement of learning (Lope Pihie & Bagheri, 2013).

In this research the teacher's creativity refers to the use of techniques, tools, creative material of teachers, learning methods that develop student creativity, using methods that make students think actively and creatively; assigning tasks to students that enable them to use different ways of solving problems, such as brainstorming, reflection, analysis, and causality; providing activities that train students' creative and imaginative thinking; giving students a situation where they can explore resources and ideas innovatively; provides the task of allowing students to make alternatives and achieve new styles and giving of props and materials to provoke students' learning curiosities and be imaginative (Jeffrey & Craft, 2004). Based on previous explanations, it is appropriate that the entrepreneurial leadership be applied in the school organizations, to increase their success in providing an effective and conducive learning environment.

H1: Entrepreneurial leadership has a positive impact on teachers' creativity
H2: Entrepreneurial leadership has a positive impact on school culture
H3: School culture has a positive impact on teachers' creativity
H4: School culture mediates the influence of entrepreneurial leadership and teachers' creativity

3. Methods

3.1 Data Collection and Sample

This study used a quantitative research method employing a survey model. The benefit of adopting this approach gains a detailed understanding of how entrepreneurial leadership and school culture influences teachers' creativity (see Figure 1). The dependent variable used in this study is teachers' creativity (TC), while entrepreneurial leadership (EL) and school culture (SC) predicated as the independent variable. The project employed a convenience sample of 150 teachers from State Senior High School in Yogyakarta of Indonesia. The reason for choosing teachers from the Yogyakarta area due to this area is known for its quality and quality of education which is higher when compared to other regions in Indonesia. A convenience sample was applied in this research that frequently adopted in the entrepreneurship study. The survey was conducted from August to October 2020, using online forms. After removing approximately 9.33 percent of missing data, approximately 136 responses from participants can be used for further data analysis. The demographic of respondents is provided in table 1. The respondents in this work were voluntary and informed for their anonymity. Ethical approval was published by the Institutional Research Committee of Universitas Islam Negeri Sunan Kalijaga Yogyakarta for all dimension of this research.

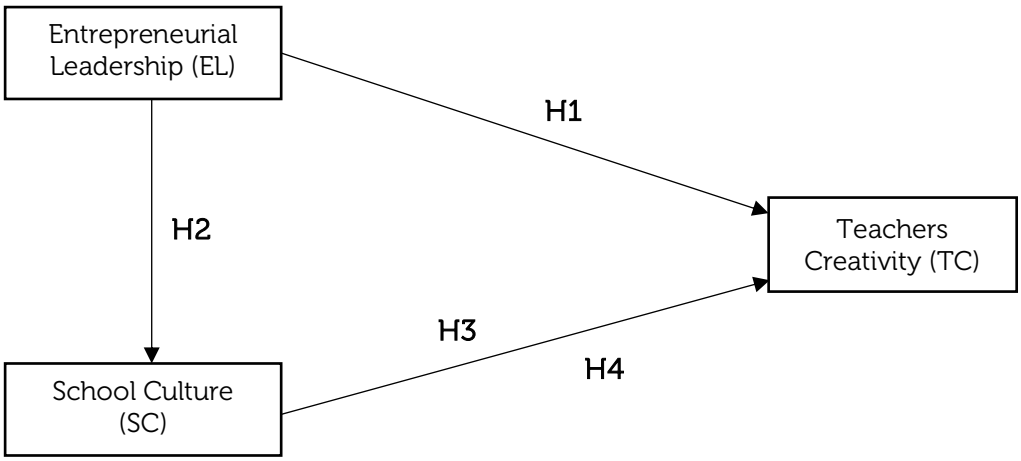

Figure 1. The research framework

3.2 Instrumentation

To estimate respondent reactions to entrepreneurial leadership (EL), we adopted ten indicators (Renko et al., 2015), while school culture (SC) was proxied by twenty indicators (DeVaney et al., 2012). Lastly, to measure teachers' creativity (TC), we engaged eight indicators (Ayob et al., 2013; Dobbins et al., 2009).

3.3 Data Analysis

Each construct was measured using the five-point Likert Scale from "strongly disagree" (1) to "strongly agree" (5). Lastly, we regressed using Structural Equation Modelling Partial Least Squares (SEM-PLS) undergoing SmartPLS (version 3.0) to estimate the relationship between variables.

4. Results

The demographic profile of respondents in this study are provided in Table 1. Overall, the respondents in this study were dominated by female teachers at 72.05 percent, while male teachers only 27.95 percent. Furthermore, if viewed from the length of teaching, this study was dominated by teachers who had taught for ten years (46.32 percent), while those who were more than ten years old were approximately 16.92 percent.

Table 1. The demographic data for participants

S/No.	Characteristic	Frequency	Percentage
1.	Gender		
	Female	98	72.05
	Male	38	27.95
2.	Teaching experience		
	5 Years	50	36.76
	10 Years	63	46.32
	>10 Years	23	16.92

4.1 The Outer and Inner Assessment Model

We carried out two steps to estimate this model: the outer assessment model and the inner assessment model. We also evaluated four criteria for the outer assessment model, including convergent validity, discriminant validity, composite reliability, and construct reliability (see Table 2). In general, it is known that the indicators of entrepreneurial leadership (EL), school culture (SC), and teachers' creativity (TC) have a loading factor between 0.707-0.892. This implies that those variables have met the convergent validity test because the loading factor is greater than 0.70 (Adriansen, 2010; Hair et al., 2013). Likewise, according to Table 2, the AVE values of the EL, SC, and TC variables are each greater than 0.5, which means that each variable satisfied the criteria for discriminant validity (Adriansen, 2010; Hair et al., 2013). Additionally, it can be provided that the EL, SC, and TC variables each have CR values of 0.888, 0.946, and 0.945, respectively (> 0.70), so it means that these variables meet the criteria for the composite reliability test (Adriansen, 2010; Chin, 1998; Hair et al., 2013). The Cronbach Alpha (α) values of the EL, SC, and TC variables are 0.850, 0.938, and 0.932, respectively (> 0.70), which means that it has satisfied the composite reliability criteria (see Table 2).

Table 2. Results of Measurement (Outer) Model

Variable	Indicator	Loading	α	CR	AVE
Entrepreneurial Leadership (EL)	EL1	0.784	0.850	0.888	0.570
	EL10	0.813			
	EL2	0.760			
	EL3	0.738			
	EL8	0.721			
	EL9	0.707			
School Culture (SC)	SC11	0.744	0.938	0.946	0.576
	SC14	0.807			
	SC15	0.763			
	SC16	0.743			
	SC17	0.852			
	SC18	0.717			
	SC19	0.706			

	SC20	0.739		
	SC4	0.740		
	SC5	0.738		
	SC6	0.759		
	SC8	0.787		
	SC9	0.763		
	TC1	0.747		
	TC2	0.816		
	TC3	0.828		
	TC4	0.790		
Teachers Creativity (TC)	TC5	0.813	0.932	0.945	0.681
	TC6	0.891		
	TC7	0.814		
	TC8	0.892		

The next phase is that we calculated the discriminant validity of each variable by referring to the opinion of Fornell-Larscher's (1988) model and cross-loading (Adriansen, 2010) that the cross-loading value of each variable EL, SC, and TC should be greater than 0.70. Based on Table 3, it is known that the cross-loading value of the EL, SC, and TC variables is more significant than 0.70, which indicates that the variables had satisfied the convergent validity criteria (Adriansen, 2010; FORNELL & YI, 1992).

Table 3. Discriminant Validity

	Entrepreneurial Leadership	Teachers Creativity
Entrepreneurial Leadership (EL)	0.755	
School Culture (SC)	0.820	
Teachers Creativity (TC)	0.775	0.825

To support the discriminant validity from Fornell-Larscher (1988) model and cross-loading (Adriansen, 2010), we also involved a heterotrait-monotrait ratio procedure (HTMT) test developed by Henseler et al. (2014). Based on Table 4, it is known that the HTMT test results for the EL, SC, and TC variables are each less than 0.90, which implies that the variables have satisfied the discriminant validity (Henseler et al., 2014).

Table 4. Heterotrait-Monotrait Ratio

	Entrepreneurial Leadership	Teachers Creativity
Entrepreneurial Leadership (EL)		
School Culture (SC)	0.895	
Teachers Creativity (TC)	0.847	

4.2 The Collinearity

The collinearity test is intended to understand the presence of collinearity in the model. Based on our test results, it is known that the cross-loading VIF value of the EL, SC, and TC variables is less than 5.00, meaning that there is no collinearity.

4.3 The R-squared (R^2) and Size Effect (f2) Test

In the next stage, we conducted an R-squared test is intended to indicate the strength of correction from predictions with the categories 0.67 (substantial), 0.33 (moderate), and 0.19 (Weak) (Chin, 1998). Based on the results of our calculations, it is known that the R-square test value of the SC variable is 0.672, which means that 67.2 percent of the SC variant is explained substantially by the EL variable. In addition, the value of the R-square test value for the TC variable was 0.849, which means that 84.9 percent of the TC variance was explained substantially by the EL and SC variables. We also conducted the Size Effect (f2) test to determine the influence of the latent predictor variable (exogenous latent variable) on the structural model (Hair et al., 2013). In this study, the size effect (f2) is divided into three categories: small (0.02), medium (0.15), and large effect (0.35). The test results show that the f2 values of EL against TC are 0.09, which implies that it provides a small effect size. Furthermore, the f2 values of EL against SC are 1.648, which showed a large effect size.

4.4 Predictive Relevant Test (Q^2)

The predictive test (Q^2) aims to measure how the observed value produced by the model and also its parameter estimates. For the Q-square predictive relevant test (Q^2), we followed the criteria from Hair et al. (2013) and Chin (1998), which the value of $Q^2 > 0$ shows that the model is having predictive relevance value and vice versa. Based on the model testing results, it is known that the Q^2 value of each variable is greater than 0, thus showing that the model has a predictive relevance value.

4.5 The Coefficient Path Analysis

The path analysis is aimed to evaluate the constructed model of this study. For the SEM-PLS, the bootstrapping procedure has come to estimate the value of t-statistic and t-value. Table 5 illustrates the value of the path coefficient (p-value) from the relationship between four variables is significant with the value of 0.000. However, we found a variable correlation with p-value of 0.293 > 0.05, which implies that this relation is not confirmed.

Table 5. The summary of testing results

Hypothesis	Relationship	Beta	T-value	P-values	Decision
H_1	EL→ TC	0.052	1.052	0.293	Rejected
H_2	EL → SC	0.710	37.017	0.000	Accepted
H_3	SC → TC	0.862	16.005	0.000	Accepted
H_4	EL → SC → TC	0.713	14.336	0.000	Accepted

Source*:* Authors (2020)

Note: EL = entrepreneurial leadership; TC = teachers' creativity; SC= school culture

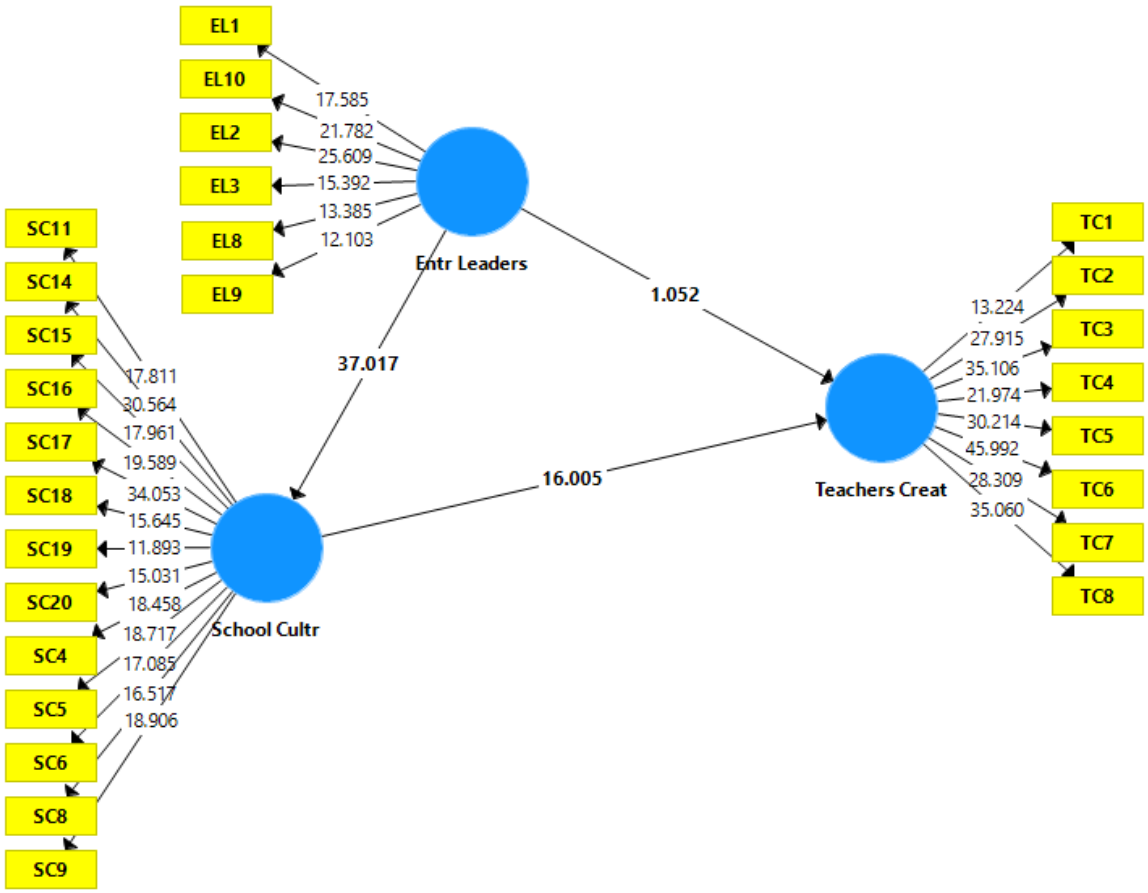

Figure 2. The Structural Equation Research Output
Source: Data Processed (2020)

5. Discussion

The results of this study address four hypotheses proposed. The first finding is that the entrepreneurial leadership failed in influencing teachers' creativity. This study contradicts the majority of employee findings on similar themes (Bagheri & Akbari, 2018; Cai et al., 2019). In the educational context, the teachers who were respondents to this study perceived that entrepreneurial leadership was not enough to support their creativity. They perceived that leaders did not have ideas to make dramatical improvements to their programs. Existing programs, no one who dares to take risks for the sake of school progress, is not creative, does not have high enthusiasm for work, is impatient and not visionary. Instead of becoming entrepreneurial leaders, they have to follow various policies from the central and regional governments that sometimes do not match the conditions of their schools.

Despite entrepreneurial leadership failed to influence the teacher creativity, however, it creates a conducive and effective culture that causes teacher creativity to increase. The results of this study found this condition. The respondents believe that their principal is capable of creating a conducive school culture, and supports creativity. The results of our study reinforce the majority of the findings (Coyle, 2014; Esmer & Faruk, 2017; Hughes et al., 2018) that entrepreneurial leadership affects culture in various contexts. The teachers should follow the rules of the game from the head of the department and the regional head, in relations with teachers the principal is able to play an important role in triggering a conducive and positive culture. The principal, with his/her capacity and role model, is able to inspire and become a role model for the school community, thus giving birth to a culture that strengthens teacher creativity and innovation.

The results of our study also support the findings of the majority of scholars (Kwan et al., 2018) that a conducive school culture affects the birth of teacher creativity and innovation. School culture is not only an important variable for quality improvement and teacher creativity and innovation, but is dominant. A conducive culture in our research is able to be presented by the principal of entrepreneurship. Our findings are valuable input for schools everywhere that a conducive culture can encourage the creativity and innovation of teachers, which in turn improve the quality and quality of schools.

Finally, this study reinforces the broader understanding that school culture mediates the influence of entrepreneurial leadership on teacher creativity. While entrepreneurial leadership may not directly affect teacher creativity, it contributes positively by shaping a school culture that is conducive to creativity and innovation. The significant role of entrepreneurial leadership in creating such a culture is closely tied to the principal's willingness to take risks, their visionary approach, and their ability to drive positive change within the school. These findings offer valuable insights for public senior secondary school management, emphasizing that teacher creativity is more likely to flourish when the principal embodies entrepreneurial leadership qualities. This study contributes to the body of knowledge by highlighting the indirect yet crucial impact of entrepreneurial leadership on fostering an environment where teacher creativity can thrive. Future research should explore these dynamics further, particularly in different educational contexts, to deepen our understanding of how leadership styles influence school culture and teacher outcomes.

6. Conclusion

This study sheds light on the complex dynamics between entrepreneurial leadership, school culture, and teachers' creativity within the context of public senior secondary schools in Yogyakarta, Indonesia. The findings offer several key insights and practical implications for educational leadership and policy-making.

First, contrary to much of the existing literature, entrepreneurial leadership did not directly enhance teachers' creativity. This suggests that in the educational context, especially within the Indonesian school system, the traditional entrepreneurial attributes of risk-taking and innovation may not be sufficient to inspire teacher creativity. Instead, teachers in this study perceived their leaders as constrained by rigid policies, lacking the flexibility and vision necessary to foster creative teaching practices. This highlights a critical gap in the application of entrepreneurial leadership in schools, where the existing leadership models might need to be adapted to better align with educational environments.

Second, the study underscores the pivotal role of school culture in bridging this gap. While entrepreneurial leadership on its own did not enhance creativity, it significantly contributed to the development of a conducive and supportive school culture, which in turn positively impacted teachers' creativity. This finding aligns with broader educational research that emphasizes the importance of a strong, positive school culture in promoting innovation and creativity among teachers. It suggests that the influence of leadership on creativity is indirect, operating primarily through the cultivation of an environment that encourages and sustains creative behaviors.

Third, the study confirms that school culture serves as a crucial mediator in the relationship between entrepreneurial leadership and teacher creativity. Even though entrepreneurial leadership alone did not directly foster creativity, its role in shaping a positive school culture cannot be underestimated. This implies that educational leaders with an entrepreneurial mindset should focus on building and nurturing a school culture that values creativity, collaboration, and innovation, thereby creating the conditions necessary for teachers to thrive creatively.

The implications for educational policy and practice are significant. Policymakers should recognize that fostering teacher creativity requires more than simply encouraging

entrepreneurial leadership; it necessitates a holistic approach that includes cultivating a supportive and dynamic school culture. For school leaders, this study highlights the importance of balancing entrepreneurial qualities with an understanding of the unique cultural and operational contexts of educational institutions.

In conclusion, while entrepreneurial leadership may not directly inspire teacher creativity in the way it might in business settings, its value lies in its ability to shape a school culture that supports and nurtures creative teaching practices. Future research could explore how different elements of entrepreneurial leadership can be adapted or integrated with other leadership models to better serve the educational sector, particularly in diverse cultural contexts like Indonesia. Additionally, studies could examine how school leaders can effectively balance policy constraints with the need to foster innovation and creativity within their schools.

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Declarations

Author contribution statement

Imam Machali: Conceptualization, Methodology, Investigation, Writing - Original Draft, Writing - Review & Editing, Project Administration. **Ali Murfi:** Writing - Original Draft, Writing - Review & Editing, Supervision, Funding Acquisition. **Zhou Yani:** Formal Analysis, Resources, Data Curation, Writing - Review & Editing, Visualization.

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Data availability statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

Declaration of interest statement

No potential conflict of interest was reported by the authors.

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References

Adriansen, H. K. (2010). How criticality affects students' creativity. *Teaching Creativity–Creativity in Teaching*, 65–84.

Al Mamun, A., Ibrahim, M. D., Yusoff, M. N. H. B., & Fazal, S. A. (2018). Entrepreneurial leadership, performance, and sustainability of micro-enterprises in Malaysia. *Sustainability*, *10*(5), 1591.

Alavinia, P., & Pashazadeh, F. (2018). Probing teacher creativity in the light of motivation, self-efficacy and burnout. *International Journal of English Language & Translation Studies*, *6*(4), 58–68.

Ayob, A., Hussain, A., & A. R. (2013). A Review of Research on Creative Teachers in Higher Education. *International Education Studies*, *6*(6), 61–65. https://doi.org/10.5539/ies.v6n6p8

Bagheri, A. (2017). The impact of entrepreneurial leadership on innovation work behavior and opportunity recognition in high-technology SMEs. *The Journal of High Technology Management Research*, *28*(2), 159–166.

Bagheri, A., & Akbari, M. (2018). The impact of entrepreneurial leadership on nurses' innovation behavior. *Journal of Nursing Scholarship*, *50*(1), 28–35.

Bagheri, A., Akbari, M., & Artang, A. (2020). How does entrepreneurial leadership affect innovation work behavior? The mediating role of individual and team creativity self-efficacy. *European Journal of Innovation Management*. https://doi.org/10.1108/EJIM-07-2020-0281

Bagheri, A., & Pihie, Z. (2011). Competencies enabling university students to successfully lead entrepreneurial projects and activities. *Ipedr.Com*, *5*, 454–458.

Beghetto, R. A., & Kaufman, J. C. (2014). Classroom contexts for creativity. *High Ability Studies*, *25*(1), 53–69. https://doi.org/10.1080/13598139.2014.905247

Cai, W., Lysova, E. I., Khapova, S. N., & Bossink, B. A. (2019). Does entrepreneurial leadership foster creativity among employees and teams? The mediating role of creative efficacy beliefs. *Journal of Business and Psychology*, *34*(2), 203–217.

Chin, W. W. (1998). The partial least squares approach to structural equation modeling. *Modern Methods for Business Research/Lawrence Erlbaum Associates*. https://www.google.com/books?hl=en&lr=&id=2eV4AgAAQBAJ&oi=fnd&pg=PT313&dq=Chin,+1998&ots=t1Wi67W1sT&sig=w5xFby3szKaqiL7B6RTgWkhORoM

Coyle, P. (2014). How entrepreneurial leadership can engage university staff in the development of an entrepreneurial culture. *Industry and Higher Education*, *28*(4), 263–269.

Dardiri, A., Alfianto, I., Kuncoro, T., Suswanto, H., & Elmunsyah, H. (2018). Entrepreneurial leadership for excellent technical and vocational education institutions. *World Transactions on Engineering and Technology Education*, *16*(4), 441.

DeVaney, T. A., Adams, N., Hill-Winstead, F., & Trahan, M. P. (2012). The Revised School Culture Elements Questionnaire: Gender and Grade Level Invariant? *Research in the Schools*, *19*, 30–44.

Dobbins, M., Robeson, P., Ciliska, D., Hanna, S., Cameron, R., O'Mara, L., & Mercer, S. (2009). A description of a knowledge broker role implemented as part of a randomized controlled trial evaluating three knowledge translation strategies. *Implementation Science*, *4*(1), 23. https://doi.org/10.1186/1748-5908-4-23

El-Kafafi, S. (2020). The Role of Entrepreneurial Leadership in Higher Education in Recovering from COVID19. In *5. International EMI Entrepreneurship and Social Sciences Congress PROCEEDINGS E-BOOK* (p. 33).

Esmer, Y., & Faruk, D. A. Y. I. (2017). Entrepreneurial leadership: A theoretical framework. *Mehmet Akif Ersoy Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi*, *4*(2), 112–124.

Eyal, O., & Kark, R. (2004). How do Transformational Leaders Transform Organizations? A Study of the Relationship between Leadership and Entrepreneurship. *Leadership and Policy in Schools*, *3*(3), 211–235. https://doi.org/10.1080/15700760490503715

FORNELL, C., & YI, Y. (1992). Assumptions of the Two-Step Approach to Latent Variable Modeling. *Sociological Methods & Research*, *20*(3), 291–320. https://doi.org/10.1177/0049124192020003001

Hair, J. F., Ringle, C. M., & Sarstedt, M. (2013). Partial least squares structural equation modeling: Rigorous applications, better results and higher acceptance. *Long Range Planning*, *46*(1–2), 1–12.

Harrison, C., Burnard, K., & Paul, S. (2018). Entrepreneurial leadership in a developing economy: A skill-based analysis. *Journal of Small Business and Enterprise Development*.

Hemaloshinee Vasudevan. (2013). The Influence of Teachers' Creativity, Attitude and Commitment on Students' Proficiency of the English Language. *IOSR Journal of Research & Method in Education (IOSR-JRME)*, *1*(2), 12–19.

Henseler, J., Ringle, C. M., & Sarstedt, M. (2014). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science*, *43*(1), 115–135. https://doi.org/10.1007/s11747-014-0403-8

Hofstede, G. (2011). Dimensionalizing Cultures: The Hofstede Model in Context. *Online Readings in Psychology and Culture*, *2*(1). https://doi.org/10.9707/2307-0919.1014

Hughes, D. J., Lee, A., Tian, A. W., Newman, A., & Legood, A. (2018). Leadership, creativity, and innovation: A critical review and practical recommendations. *The Leadership Quarterly*, *29*(5), 549–569.

Jeffrey, B., & Craft, A. (2004). Teaching creatively and teaching for creativity: Distinctions and relationships. *Educational Studies*, *30*(1), 77–87. https://doi.org/10.1080/0305569032000159750

Kalkan, Ü., Altınay Aksal, F., Altınay Gazi, Z., Atasoy, R., & Dağlı, G. (2020). The Relationship Between School Administrators' Leadership Styles, School Culture, and Organizational Image. *Sage Open*, *10*(1), 2158244020902081. https://doi.org/10.1177/2158244020902081

Karadag, E. (2020). The effect of educational leadership on students' achievement: A cross-cultural meta-analysis research on studies between 2008 and 2018. *Asia Pacific Education Review*, *21*(1), 49–64. https://doi.org/10.1007/s12564-019-09612-1

Kwan, L. Y.-Y., Leung, A. K. -y., & Liou, S. (2018). Culture, Creativity, and Innovation. *Journal of Cross-Cultural Psychology*, *49*(2), 165–170. https://doi.org/10.1177/0022022117753306

Latif, K. F., Nazeer, A., Shahzad, F., Ullah, M., Imranullah, M., & Sahibzada, U. F. (2020). Impact of entrepreneurial leadership on project success: Mediating role of knowledge management processes. *Leadership & Organization Development Journal*, *41*(2), 237–256. https://doi.org/10.1108/LODJ-07-2019-0323

Leitch, C. M., & Volery, T. (2017). Entrepreneurial leadership: Insights and directions. *International Small Business Journal*, *35*(2), 147–166.

Lope Pihie, Z. A. (2014). Entrepreneurial leadership practices and school innovativeness. *South African Journal of Education*, *34*(1), 1–11. https://doi.org/10.15700/201412120955

Lope Pihie, Z. A., & Bagheri, A. (2013). The impact of principals' entrepreneurial leadership behaviour on school organizational innovativeness. *Life Science Journal*, *10*(2), 1033–1041. https://doi.org/10.1017/CBO9781107415324.004

Lubis, R. L. (2017). Assessing entrepreneurial leadership and the law: Why are these important for graduate students in Indonesia. *International Journal of Arts & Sciences*, *10*, 41–76.

Najim, N., El-refae, G., & Alnaji, L. (2013). The Impact of the Key Dimensions of Entrepreneurship on Opportunities for the Success of New Ventures in the Greater Amman Municipality. *European Journal of Business and Management*, *5*(4), 159–173.

Newman, A., Neesham, C., Manville, G., & Tse, H. H. (2018). Examining the influence of servant and entrepreneurial leadership on the work outcomes of employees in social enterprises. *The International Journal of Human Resource Management*, *29*(20), 2905–2926.

Nozari, A., & Siamian, H. (2014). The Effects of Problem-Solving Teaching on Creative Thinking among District 2 High School Students in Sari City. *Materia Socio Medica*, *26*(6), 360. https://doi.org/10.5455/msm.2014.26.360-363

Özgenel, M., & Koç, M. H. (2020). *An investigation on the relationship between teachers' occupational commitment and school effectiveness*. https://doi.org/10.35826/ijoecc.77

Pihie, Z. A. L., Bagheri, A., & Asimiran, S. (2014). Entrepreneurial leadership behaviour among school principals: Perspectives from Malaysian secondary school teachers. *Pertanika Journal of Social Science and Humanities*, *22*(3), 825–843.

Plucker, J. A., Waitman, G. R., & Hartley, K. A. (2011). Education and Creativity. In *Encyclopedia of Creativity* (pp. 435–440). https://doi.org/10.1016/B978-0-12-375038-9.00086-8

Prestiadi, D., Zulkarnain, W., & Sumarsono, R. B. (2019). *Visionary leadership in total quality management: Efforts to improve the quality of education in the industrial revolution 4.0*. 202–206.

Renko, M., El Tarabishy, A., Carsrud, A. L., & Brannback, M. (2015). Understanding and measuring entrepreneurial leadership style. *Journal of Small Business Management*, *53*(1), 54–74.

Ruskovaara, E., Pihkala, T., Rytkölä, T., & Seikkula-Leino, J. (2011). *Entrepreneurship in Entrepreneurship Education – Practices in Finnish Basic and Secondary Education Level*. ICSB Conference.

Serdyukov, P. (2017). Innovation in education: What works, what doesn't, and what to do about it? *Journal of Research in Innovative Teaching & Learning*, *10*(1), 4–33.

Wahab, A., & Tyasari, I. (2020). Entrepreneurial leadership for university leaders: A futuristic approach for Pakistani HEIs. *Asia Pacific Management Review*, *25*(1), 54–63.

Zhou, C., & Luo, L. (2012). Group Creativity in Learning Context: Understanding in a Social-Cultural Framework and Methodology. *Creative Education*, *3*(4), 392–399. https://doi.org/10.4236/ce.2012.34062