PRINCIPAL MANAGERIAL CREATIVITY TO INCREASE TEACHER PERFORMANCE AND STUDENT OUTCOME

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Abstract

This paper aims to discuss the influence of critical thinking, collaboration, school vision, emotional intelligence, and school environment on principals' managerial creativity variables, then their effect on teacher performance and student learning outcomes. This paper is the result of a study of 112 school principals at the public and private elementary school, junior high school, and high school levels. Data collection was carried out by distributing e-questionnaires as one of the Google Docs applications. The research analysis uses the SEM 8.70 program technique, especially to see the effect between variables and the contribution of indicators to each variable. This study found that the variables of critical thinking, collaboration, vision, emotional intelligence, and the school environment had a significant positive effect on the managerial creativity of school principals. Efforts to build the managerial creativity of school principals need to pay attention to the variables that influence these, and the indicators that have the strongest contribution to each of the variables described in this study.

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Introduction

The challenges of 21st century education direct the importance of creativity as an aspect in developing human resources. The development of life which is becoming increasingly globalized and closer between nations has resulted in a situation of increasingly fierce competition, and requires nations to have quality human resources. Only a nation that has quality resources and is highly competitive can take advantage of the competitive situation for its welfare. Conversely, a nation with weak human resource ownership will be destroyed and less able to compete for limited resources.

Education is one of the strategies to develop quality and superior human resources. For this reason, education must be able to grow students who are creative, think critically, collaboratively, and be able to communicate their ideas and thoughts both orally and in writing (Pearlman, 2009; ISTI, 2002; Agung, 2017). Implicitly, one of the demands is how education is able to produce students who are creative, in the sense of being independent, taking initiative, and seeking and finding solutions to problems encountered by using new thoughts and ideas. The word new does not only refer to something that is completely new, but also (perhaps) has been understood for a long time, never used, then tries to operationalize it in an effort to solve a problem (Agung, 2021).

Creativity is a competency that must be possessed by students, but also other relevant stakeholders, one of which is the Principal (to be discussed further here). In realizing leadership attitudes, a school principal is also required to creatively manage his educational institutions. Leadership that tends to be monotonous, top-down hierarchy, instructional, and less creative in adapting to developments and changes in the environment, will only result in stagnant and unsatisfactory educational results. Just look at it, the results of the PISA study show that the level of science, literacy, and mathematics abilities of elementary school students in Indonesia does not fluctuate from year to year. One of them is allegedly due to the leadership of the principal who is less creative and has the courage to make changes (OECD, 2013, 2018).

The creativity of the principal's leadership includes at least school institution management, administration management, intracurricular management, extracurricular management, and community involvement. However, creativity is thought to be influenced by various factors, including: critical thinking, collaboration, vision, emotional intelligence, and the school environment. These factors are thought to be exogenous latent variables that influence the

endogenous latent variables of principal leadership creativity. Critical thinking is the basis for finding problems, analyzing and evaluating logically so as to generate creative power to build new knowledge (Lai, 2011; Hitchcock, 2011; Heard et al, 2020). Collaboration is the ability to build a work group or team to achieve certain goals (Camarihna-Matos & Afsarmanesh, 2008; Ramdani, 2018; Kaplan, 2022; Dakabesi & Wicaksono, 2022). Vision is the goals and future directions to be achieved (Levin, 2000; Nanus, 2004; Kantabutra, 2008; Groeschel, 2010). Emotional intelligence is the ability to recognize one's own feelings and the feelings of others, the ability to motivate oneself, and the ability to manage emotions well in oneself and in relation to others (Goleman, 2002; Srivastava, 2013; Henry & Hope, 2013; Kareem & Kin, 2019). The school environment can be interpreted as everything that lives and dies in the formal education environment which has a role and function to support learning activities in schools (Hamalik, 2003; Yusuf, 2006).

Reality often shows that the creativity of school principals is still low, especially in anticipating, responding to, and adapting to environmental developments and changes. The low creativity is thought to be influenced by internal factors that come from within and externally from the school principal. Low creativity is also thought to have an impact on the acquisition of low student learning outcomes.

On that basis, the study here will discuss these factors which are thought to influence the creativity of the principal's leadership, which in turn is thought to influence teacher performance and student learning outcomes. This study intends to provide an explanation of the influence of these factors on the Managerial Creativity Principles. This research also wants to know which indicators have the strongest and weakest contributions from each variable, as a basis for analysis to draw conclusions and make the necessary recommendations. The novelty of this research is an attempt to build a framework of thinking about the factors that are thought to influence the creativity of school principals, and their impact on teacher performance and student learning outcomes.

Literature Review

The rapid development of digital technology has resulted in the distance between nations getting closer to the competitive situation getting tighter over limited resources. Only a nation that has qualified and highly competitive human resources will be able to take advantage of this situation for its welfare. Education is a strategic instrument for developing human resources like that. Therefore the implementation of the education system must get out of school management which tends to be monotonous, passive, and brings

unsatisfactory student learning outcomes. Instead, they are required to be more creative, achievement-oriented, and able to develop and utilize digital technology to support all aspects of the school. Explicitly, school management challenges school principals to be more creative towards efforts to develop quality and highly competitive human resources.

The creativity of school principals includes at least five aspects/indicators, namely: school institution management, administrative management, intracurricular management, extracurricular management, and community participation. The creativity of school principals is thought to be influenced by various internal and external factors, including: critical thinking, collaboration, vision, emotional intelligence, and the school environment. These factors are exogenous latent variables that are thought to influence the endogenous variable of principal creativity.

Thinking is the use of the mind to consider and decide something, while being critical means not believing easily, always looking for problems, and being sharp in analyzing. In simple terms, critical thinking can be interpreted as the ability to think using understanding with certain reasons to solve a problem in a deep, systematic and directed manner (Ennis, 1995; Facione, et al, 2010; Patricia, 2010; Ryan, 2015; Changwong, Sukkamart, & Sisan, 2018; Lai, 2011; Hitchcock, 2011; Heard et al, 2020). A person who thinks critically, is able to formulate a problem carefully and correctly, find the facts needed, choose logical-relevant-accurate arguments, find the best ideas, and determine the consequences of the decisions taken (Ennis, 1995; Lai, 2011; Hitchcock, 2011; Cottrell, 2017; Heard et al, 2020) There are at least 4 (four) types of critical thinking, namely: Relevance, Novelty, Outside material, and Clarified Ambiquity (abankali & SU, 2021; Khanal & Ghimire, 2022; Linovhr, 2022).

Relevance in the sense that the thoughts or ideas that are developed have a close relationship with the subject matter being faced (Mohd & Hasan, 2011; Linovhr, 2022). Novelty relates to new thoughts or ideas, including new methodologies or observations that lead to the discovery of new knowledge (Cohen, 2017). Outside material relates to sources of thoughts or ideas that are owned to solve problems. Finally, clarified ambiquity relates to the thoughts or ideas put forward whether they can solve the problems encountered and solve deadlocks or not (Linovhr, 2022).

Creativity also requires the ability of school principals to encourage collaboration, as a process in which entities share information, resources and shared responsibility to plan, implement and evaluate program activities to achieve a goal. This concept as a process of co-creation of a group of entities by increasing the involvement of each other's capabilities, thus implying sharing of risks, resources,

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responsibilities, rewards, and a shared image of identity (Camarihna-Matos & Afsarmanesh, 2008; Keyton, 2017; Scoular, et al, 2020).

There are several types of collaboration that need to be fostered by school principals, namely: internal collaboration, external cooperation, reseach collaborative, and learning collaboration. Internal collaboration refers to the ability to develop cooperation between member statuses in schools, both between school principals, teaching staff (subject teachers, guidance and counseling teachers, sports teachers, etc.), administrative staff, and others to achieve common goals. External collaboration is the ability to build partnerships with parties outside the school by sharing information, resources, and responsibility for planning, implementing, and evaluating activity programs to achieve school goals (Amstrong, 2015; Hausburg, 2015). Research collaborative is a form of collaboration within a group to conduct research related to solving specific problems/needs in schools (Wilson, 2009; Brown & Flood, 2018). Collaborative learning refers to forms of cooperation between teachers and students, as well as students and students in small groups to realize the principle of students actively achieving learning goals (Smith & MacGregor, 1992; Gokhale, 1995; Queenie, Henry, & Joanne, 2017).

Another factor that is thought to influence the creativity of the school principal is the school's vision, namely; Value orientation includes views about the future of school organizations that are realistic, believable, attractive, conditions that are better than current conditions (Nanus, 2004; Nindyati, 2013; Mombourquett, 2017). There are at least 4 (four) aspects/indicators contained in the vision, namely: goals, change, human resource development, and innovation.

Goals are the elaboration of the vision as the result to be achieved by the organization (read: school) in the future (Rothstein & Jacobsen, 2006; Pont, Nusche, Moorman, 2008). Through goals, changes usually occur, namely the desire to carry out the transition process from certain conditions to other conditions. Change is an approach by making assumptions about a condition and the desire to produce other conditions through mechanisms to guide planning, implementation, and evaluation (Rogers, 2003; Reinholz & Andrews, 2020). Future achievements usually also include efforts to develop human resource competencies, in order to master a set of knowledge and skills, carry out tasks according to the needs and goals to be achieved. Competence is knowledge, skills, values and attitudes that are reflected in the habits of thinking and acting in carrying out their duties/work professionally (Robbins, 2017; Salim, 2017; Wibowo, 2018). Vision contains innovation in the form of new ideas and the use of new methods and techniques to achieve shared goals (Rogers, 2003; Ziemnowicz, 2013; Robbins, 2017).

The emotional intelligence factor is also thought to influence the emergence of the principal's leadership creativity. Emotional intelligence is a person's ability to manage his emotional life; maintaining harmony and emotional expression through self-awareness, self-control, self-motivation, empathy and social skills (Goleman, 2002; Srivastava, 2013; Henry & Hope, 2013; Kareem & Kin, 2019' see also: Salovey & Mayer, 2004).

Self-awareness is the ability to recognize one's own emotions to recognize feelings and thoughts so that the mood is not dissolved or overpowered by emotions. Emotional control is the ability to manage emotions so that a balance is achieved within oneself, controlled, entertained, not anxious, depressed, and avoided feelings of pressure. Empathy is the ability to recognize the emotions or concerns of others, accept other people's points of view, and be sensitive and willing to listen to others. Social relations are the ability to build self-relationships with other people in order to create familiarity, mutual understanding, cooperation, and so on.

Another factor that is thought to influence the managerial creativity of school principals is the environment inside and outside the school. The environment is related to all elements, but in this study it is limited to 5 (five) aspects/indicators, namely: learning facilities, school buildings, transportation, physical environment, and social environment. Learning facilities are used to support educational activities in schools, including textbooks, enrichment books, teaching aids, laboratories, and others including the availability of adequate digital technology and the internet. The school building is a place for education which consists of office rooms, classrooms, library rooms, laboratory and practicum rooms, and others. Transport infrastructure is the techniques and practices for creating systems that move people and goods from one place to another. In the context of the discussion here, transportation infrastructure is the technique and practice of getting to school, in the form of roads, bus stops, including public transportation. The physical environment is the situation and conditions inside and outside the school, such as: availability of adequate school buildings, office space, classrooms, health rooms, etc., availability of sports and playing fields, school canteens, parking lots, and so on. Lastly is the social environment, namely: the arena or place of interaction and communication between individuals, individuals and groups, as well as groups and groups within the school (principals, teachers, students, and others) as well as between individuals or groups within the school. and individuals or groups. outside of school that are aligned and sustainable to achieve educational goals.

The five factors above are exogenous latent variables that are thought to influence the managerial creativity of school principals as

endogenous latent variables. Managerial creativity is the mindset, attitude and leadership behavior of school principals in mobilizing and managing all physical and social aspects related to the implementation of education in their schools, including those related to workforce management, administration, intracurriculars, extracurriculars and community involvement. School management itself can be interpreted as a process of controlling an activity, starting from planning, organizing, implementing, monitoring, and evaluating to achieve certain goals and results (Everard, Morris, & Wilson, 2004; Wibowo, 2007; Robbins, 2017; Hysa, 2018). Through management, you can control activities, but also anticipate and respond to problems and obstacles early so that solutions can be found earlier to achieve the expected goals and results.

To achieve the vision and goals of a better school future, one important element is the management of education personnel, namely all components within the school institution, consisting of school principals, teachers, administrative staff, security officers, cleaners, and other functional staff. Manpower management is not only related to the division of labor and the responsibilities carried by each status of worker, but also efforts to increase competence and work professionalism. Teachers are one of them, it is very important to improve mastery and preparation of teaching materials, use time, use learning methods and approaches, conduct assessments and reflections, to develop and utilize digital technology for learning (Regulation of the Minister of National Education of the Republic of Indonesia No.14/2005; Agung, 2017).

Other management is related to the administration of existing resources in schools. School administrative management is the arrangement and utilization of all school resources effectively and efficiently in the implementation of education so that the goals of education in schools are optimally achieved. School administration includes: students, teachers and school staff, organizational structure, finance, infrastructure, school-community relations, special services (counseling guidance, student health units, school cooperatives, intra and extra-curricular activities (Usman, 2018). Developments in digital technology facilitating and accelerating school administration arrangements so that they can be used optimally for school progress.Several objectives of school administration arrangements are: providing direction in school administration, providing feedback for improving educational processes and results, improving the orderly quality of school administration, supporting the achievement of school programs effectively and efficient (Suadinmath, 2021).

Another type is intracurricular management related to the arrangement of learning tools in schools. This arrangement relates to the management of learning in schools and by teachers towards

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students, so that a minimum learning mastery standard is achieved. Some things that need to be considered in intracurricular management include: distribution and learning schedules, syllabus development, lesson plans, use of learning methods and approaches, use of learning facilities in schools and other places, supervision, assessment of learning outcomes, data absorption, and others (Suandinmath 2021; Gemnafle & Batlolona, 2021; Setyowati, 2021).

One of the managerial creativity of school principals is also related to extracurricular management in schools, as activities carried out outside class hours listed in the program structure according to the circumstances and needs of the school, and specifically designed according to the interests and talents of students (Decree of the Minister of Education and Culture No. 060/U/1993 and No. 080/U/1993; Riadi, 2019). The objectives of extracurricular management include: developing students' talents, interests and creativity, actualizing students' potential, fostering democratic attitudes and respecting human rights, and so on. Extracurricular activities can be carried out through basic training on leadership, youth red cross, scouting, scientific work, as well as sports and arts.
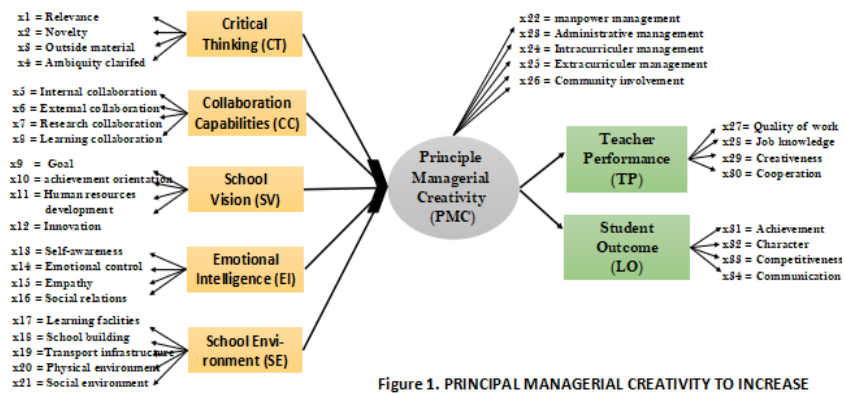
The managerial creativity of school principals is also related to efforts to involve the community (especially parents) to participate in supporting the implementation of education in schools. Community and parental participation are considered important, as mental and emotional involvement to support the achievement of educational goals (Davis, 2008; Huneryear & Hecman, 2009; Bianchini & Verhangen, 2016). Management of community participation by school principals wherever possible builds awareness, attitudes and behavior so that they are actively involved and contribute voluntarily in education delivery programs in schools starting from planning, implementing, monitoring to evaluating.

Participation is carried out through various forms of relationships and cooperation between schools and the community, including: school funding, learning facilities, academic assistance, cultural participation, and evaluation (Ahmad, 2013; Normina, 2016; Dove, Zorotovich, & Gregg, 2018). Funding participation is financial support by the community and parents for the needs of schools in organizing education. Participation in learning facilities is support for material needs, both materials needed to build schools, study rooms, and learning facilities (books, learning media, and so on). Academic participation is assistance related to academic activities, in the form of practical apprenticeships, training for students, provision of experts to improve teacher competence, and others. Cultural participation includes the involvement of the community and parents in cultural education (for example: dance, music, etc.), moral and character education of students. Evaluation participation is the involvement of

the community and parents of students to control and control the implementation of education, as well as provide feedback for improving and improving educational outcomes.

The manifestation of the principal's managerial creativity above is thought to have an impact on teacher performance and student learning outcomes. Teacher performance will mainly be seen in aspects/indicators: quality of work, work knowledge, creativity, and cooperation with work colleague. The impact on student learning outcomes will be seen in the aspects/indicators of achievement of learning outcomes, character development, formation of competitiveness, and communication in the form of the ability to convey thoughts and problem-solving ideas

The research theoretical framework is built as follows.

Figure 1. PRINCIPAL MANAGERIAL CREATIVITY TO INCREASE TEACHER PERFORMANCE AND STUDENT OUTCOME

Methodology

This paper is part of the school principal's managerial creativity research activities at the end of 2022. The research was conducted for one month by collecting data using an e-questionnaire aplication Google Docs. The research was aimed at school principals (respondent) at the public and private levels in elementary, junior high and senior high schools. Data collection is open, meaning it is not limited to certain areas. Anyone who has the status of a school principal at that level can be a sample in this study.

Before being implemented, the questionnaire was tested first to determine the level of validity and reliability using product moment Pearson and Alpha Cronbach, with a minimum criterion of validity test = 0.361 and reliability test ≥ 0.6 (Soegiyono, 2010). Only items that are declared valid and reliable will be used, otherwise they will be discarded.
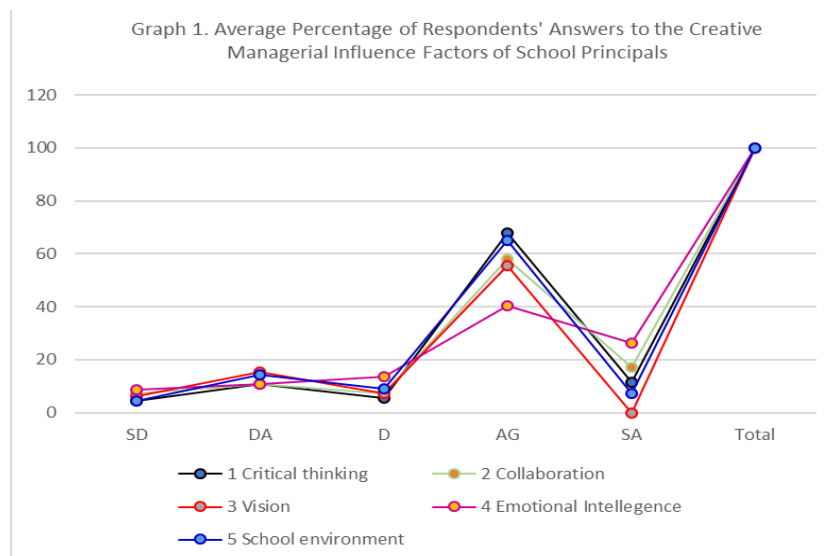
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Study analysis was carried out using the Structural Equation Model (SEM) 8.70 program. Before the structural relationship analysis is carried out, it is known that the requirements of the normality test, multicollinearity test, linearity test, and Goodness of Model (GOF) are fulfilled. Analysis of structural relationships to explain the influence between variables and the contribution of indicators to each variable (Hair et al, 2010, Yamin & Kurniawan, 2014; Haryono & Wardoyo, 2017; Sarjono & Yulainita, 2019).

Results

Characteristics of Respondents

Distribution via e-questionnaire resulted in answers from 112 principals of public and private schools. In theory, processing through SEM techniques can be done with a minimum research sample of 100 people (Kusnendi, 2009). The number of sample principals at the elementary level was 54 people, 32 people in junior high school, and 26 people in high school. In terms of region of origin, answers came from school principals in 34 districts/cities.

All samples of school principals agreed that dealing with the development of digital technology and changes in human life requires creativity in managing institutions. The challenge of education today is to produce quality human resources who are able to compete for existing opportunities. The world is open, competitive, and has the freedom to have a career anywhere, so it requires qualified and superior workers. The creativity of the principal in managing his educational institution greatly determines this achievement. However, creativity itself is thought to be influenced by various complex factors, including: critical thinking, collaboration, vision, emotional intelligence, and the school environment. The answers to the questions of the five factors are presented in the following graph 1.

Graph 1. Average Percentage of Respondents' Answers to the Creative Managerial Influence Factors of School Principals

* Source: Study principal managerial creativity to increase teacher performance and student outcome, 2022

Strongly disagree = SD   Don't agree = DA   Doubtful = D   Agree = AG   Strongly agree = SA

Graph 1 shows that the majority (79.47%) of sample school principals tend to support the current situation and conditions that really require critical thinking skills in managing school institutions. Critical thinking is related to the ability of the principal to express thoughts/ideas that are relevant to the needs and problems of the school. Critical thinking also means an attitude of openness to try and apply new methods, approaches, techniques, and explore various sources related to addressing needs and problems. Critical thinking leads to changes in school management, so that principals must be able to make decisions and take risks to achieve progress in all aspects of their educational institutions. However, there was a small proportion (15.17%) who stated that the managerial creativity of school principals was not always a determinant of school progress, because he was only an executor, while school goals had been set and regulated by superiors (government or foundations). It is very risky for school principals to think critically about making changes.

Most 75.01% also support that the creativity of school principals to build collaboration can be an entry point for developing quality and competitive educational outcomes. The principal must be able to build internal cooperation between school members to support school change and progress. In addition, school principals must also be able to build external cooperation, in the form of collaboration with parties outside the school, both with parents, community leaders, entrepreneurs, university experts, practitioners, and others.

Cooperation is also needed in learning activities, both between principals and teachers, teachers and students, students and students, and others. Schools also need to develop research habits as a strategy to overcome aspects of problems in schools. On the other hand, a small portion of the sample of school principals (17.85%) thought that the ability to cooperate does not determine educational attainment in schools, provided that everyone has competence, motivation, performance, discipline and hard work.

Most (67.86%) principals also stated that the school's vision determines the managerial creativity of principals, 21.43% answered disagree/strongly disagree, and the rest answered 7.14% were unsure. Those who tend to agree argue that school principals need to be creative in setting a vision to make changes. The vision contains future goals, achievement orientation, competence and professionalism of employees, as well as the courage to take risks to use new methods, approaches and techniques. But for those who tend to disagree, the vision of school change will not be effective if it is not accompanied by motivation and commitment, hard work and discipline.

The managerial creativity of school principals requires the support of possessing emotional intelligence. As many as 66.79% tend to say so, on the other hand 19.46% disagree, and 13.57% are unsure. For most principals, emotional intelligence is needed for the reason that it is difficult to come up with creative thoughts or ideas if someone has a low level of awareness, panic, annoyance, anger, and so on. Creative thinking requires self-awareness, calm, emotional control, empathy, and the ability to build social relations that are harmonious, intimate, friendly, mutually helpful, with fellow school members and with parties outside the school. On the other hand, those who disagree tend to think that school progress is fully rational and realistic, depending on the principal's creative and innovative thinking/ideas.

Another factor is related to the alleged influence of the school environment on the managerial creativity of the principal. Most (72.32%) of the sample of school principals answered that the school environment had an influence on the emergence of the principal's creativity, whereas 19.75% disagreed, and 8.93% expressed doubts. The school environment consists of the availability of learning facilities, school buildings, transportation to school, adequate physical environment and social environment. However, those who disagree have reasons that all of these things will not have a positive impact on educational achievement if they are not accompanied by their development and utilization (including digital technology support). In general, all of these things are already owned by schools, but are often not used optimally, so that the achievement of educational outcomes still seems low.

Structural Relationship Analysis

Before carrying out a structural relationship analysis, in the SEM technique it is necessary to know whether the data meets the requirements, including the assumptions of normality and linearity. The normality test is the assumption whether the data is in the form of a single metric variable resulting in a single distribution, with normal criteria if the p-value > 0.05 at level α = 0.05 and if the p-value < 0.05 is not normally distributed. The linearity test was carried out by finding the regression line equation for the independent variable x to the dependent variable y, by comparing the significance (Sig). if ≥0.05 with α=0.05 indicates linearity. Data processing shows that the x1-x34 indicators in this study show the lowest p-value is 0.0507 and the highest is 0.4540, meaning that the p-value is > 0.05 at the level α = 0.05. Explicit data show normal distribution. The linearity test also shows a significance value of ≥0.05 with α=0.05, so it is concluded to be linear (Table 1).

Table 1. Linearity Test

Linear Relation	F	Sig.	Conclusion
Critical Thinking * Principal Managerial Creativity	2.06623	0.27531	Linear
Collaboration Capabilities * Principal Managerial Creativity	2.68468	0.19993	Linear
School Vision * Principal Managerial Creativityl	2.77600	0.10958	Linear
Emotional Intelligence * Principal Managerial Creativity	2.42666	0.13199	Linear
Principal Managerial Creativity * Teacher Performance	2.45232	0.17599	Linear
Principal Managerial Creativityl * Learning Outcome	2.7432	0.15919	Linear
Teacher Performance * Learning Outcome	2.6762	0.19975	Linear

* Source: Study principal managerial creativity to increase teacher performance and student outcome, 2022

The requirements test above is the basis for knowing the Goodness of Fit Model Test (GOF Model) to see the suitability between the frequency of expectations and observations. The fit test model is important because the analysis of structural relationships in SEM is based on Goodness-of-Fit (GFI) statistics (Joreskog and Sorborn, 1993; Hair et al., 2010; Haryono & Wardoyo, 2017; Sarjono & Yulainita, 2019). In testing the GOF model, the required limit values are RMR, RMSEA, GFI, AGFI, CFI, NFI, NNFI, IFI, and RFI. If it meets the requirements of the cut-off value, then the model building can be said to be good (Joreskog and Sorborn, 1993; Hair et al., 2010; Haryono & Wardoyo, 2017; Sarjono & Yulainita, 2019). The LISREL 8.70 program technique in this study yielded the following results (table 2).

Table 2. SEM Model Suitability Criteria Results

Goodness-of-Fit	Cutt-off-Value	Results	Conclusion
RMR (Root Mean Square Residual)	0,05 atau 0,1	0.004	Good Fit
RMSEA (Root Mean square Error of Approximation)	0,08	0.0058	Good Fit
GFI (Goodness of Fit)	0,90	0.95	Good Fit
AGFI (Adjusted Goodness of Fit Index)	0,90	0.94	Good Fit
CFI (Comparative Fit Index)	0,90	0.96	Good Fit
Normed Fit Index (NFI)	0,90	0.95	Good Fit
Non-Normed Fit Index (NNFI)	0,90	0.96	Good Fit
Incremental Fit Index (IFI)	0,90	0.97	Good Fit
Relative Fit Index (RFI)	0,90	0.97	Good Fit

* Source: Study principal managerial creativity to increase teacher performance and student outcome, 2022

Aspects in the GOF Model constitute most of the requirements for the results of Lisrel 8.70 data processing, and it can be concluded that the model built is said to be good or fit. Furthermore, the research can be continued to the next stage to analyze the structure of the relationship between variables. Data processing produces an analysis of structural relationships, as shown in Figure 2.

Figure 2. Standardized Loading Factor
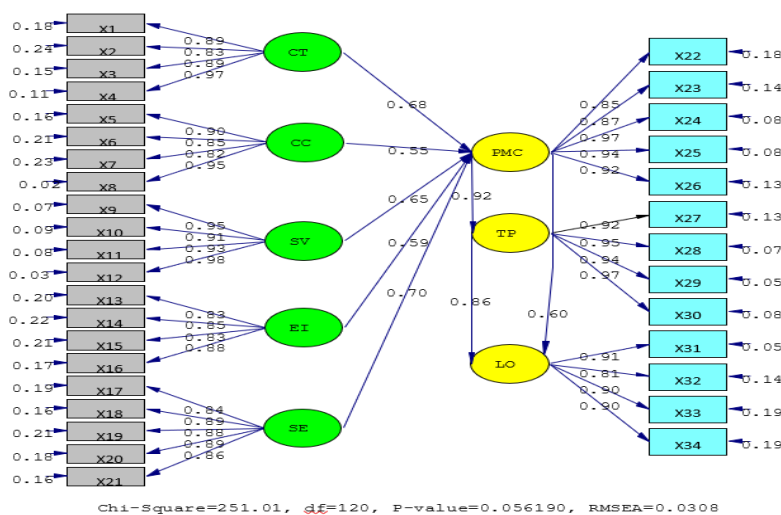
Chi-Square=251.01, df=120, P-value=0.056190, RMSEA=0.0308

* Source: Study principal managerial creativity to increase teacher performance and student outcome, 2022

Discussion

Figure 2 shows that exogenous latent variables have a significant positive effect on endogenous latent variables (table 3). The results of the hypothesis test show that the influence of school environment variables gives the greatest coefficient value to the managerial creativity of school principals of 0.70, followed by critical thinking (0.68), school vision (0.65), emotional intelligence (0.59), and collaboration (0.55). Figure 2 also shows, then the principal's managerial creativity variable has a significant positive effect on student learning outcomes (0.98) and teacher performance (0.92). Teacher performance itself has a significant positive effect on student learning outcomes (0.86). Below, we will discuss the contribution of the indicators from each research variable.

Figure 2 shows that the Critical Thinking (CT) variable in this study uses 4 (four) indicators, namely: relevance (x1), novelty (x2), external material (x3), and ambiquity clarified (x4). The ambiquity clarification indicator (x4) gives the highest contribution to the Critical Thinking (CT) variable with a value of 0.97, followed by the relevance indicator (x1) and external material (x3) of 0.89, and finally the novelty indicator (x2) of 0,83.

These results indicate that the principal's critical thinking is very necessary in solving existing doubts. Decisions must be made to resolve ambiguities through careful thought. (Khanal & Ghimire, 2022; Linovhr, 2022). The next indicator that is considered equally important is relevance and outside material to support critical thinking, in the sense that it is relevant and uses various sources as needed. The novelty indicator occupies the lowest position, because it is considered that critical thinking does not only have to be completely new, but can adopt old ideas or modify them, as long as they are appropriate and considered effective in answering the needs and problems faced. One example, digital technology devices are not new in schools and have been owned by schools for a relatively long time, but because of the demands of new needs they are developed, applied, and utilized to support learning (Lazear, 2002; Pearlman, 2006; Mukiman, 2014; Agung, 2017).

The next variable is Collaboration Capability (CC) using 4 (four) indicators, namely internal collaboration (x5), external collaboration (x6), research collaboration (x7, and learning collaboration (x8). The learning collaboration indicator gives the highest contribution to the Collaboration Capability variable (CC) with a value of 0.95, followed by an internal collaboration indicator (x5) of 0.90, an external collaboration indicator (x6) of 0.85, and a research collaboration indicator (x7) of 0.82.

These results indicate an emphasis on the ability of school principals for learning collaborative. This type of collaboration can also determine the achievement of educational outcomes, especially related to collaboration between teachers and students (Smith & MacGregor, 1992; Gokhale, 1995; Janssen & Wubbels, 2016; Queenie, Henry, & Joanne, 2017; Mora-Ruano, Heine, & Gebhardt, 2019). Creativity managerial principals is also emphasized on indicators of internal collaboration ability, especially the importance of structuring and managing data collection on all aspects of the school, starting from the inventory of school assets, the condition of school buildings, the number and condition of schools, the number and condition of learning facilities, the number and qualifications of employees, the number and condition of students, background of students' parents, study schedule, and so on.

The next position is external cooperation, there is a demand for the ability of the principal to develop cooperation with parties outside the school to support education. There are various forms of external cooperation, ranging from supporting the provision of learning facilities, school financing, school supervision, evaluation, to accompanying student learning outside of school. In learning one of them, success is often supported by emotional involvement and responsibility from society and parents (Rogers et al, 2009; Mutodi & Ngirande, 2014; Amstrong, 2015; Hausburg, 2015; Đurišić & Bunijevac, 2017). Finally, indicators of research collaboration have not been realized and show the ability of school principals, especially in overcoming educational problems. The educational climate in schools is still limited to a type of classroom action research by teachers to address learning problems. There are still very few schools that have a team of developers related to this research, even though it has the potential to address educational problems (Wilson, 2009; Brown & Flood, 2018).

Another variable is the School Vision (SV) with 4 (four) indicators used in this study, namely: goals (x9), achievement orientation (x10), human resource development (x11), and innovation (x12). Data processing shows that the innovation indicator (x12) makes the highest contribution to the School Vision (SV) variable with a value of 0.98, followed by the objective indicator (x9) of 0.96, the human resource development indicator (x11) of 0.93, and achievement orientation indicator (x10)) of 0.91. However, it appears that the magnitude of the size of the contribution between these indicators does not show a significant difference.

The emphasis on innovation indicators (x12) is understandable because most of the principals of the sample schools see the need for schools to make changes through new, fresh, and solutive thoughts and ideas, methods, approaches, techniques, especially to respond

and be adaptive to environmental developments (Rogers, 2003; Dahl, 2003; Ziemnowicz, 2013; Robbins, 2017). The rapid advances in digital technology, for example, inevitably demand the ability to develop and utilize all aspects of schooling, especially learning, if you want to achieve quality and competitive student learning outcomes. Change initiatives certainly require clear goals to be achieved in the future (Rothstein & Jacobsen, 2006; Pont, Nusche, Moorman, 2008), develop competencies and human resource capabilities that are in harmony with change, and are oriented towards school achievement (Rogers, 2003; Reinholz & Andrews, 2020; Robbins, 2017; Salim, 2017; Wibowo, 2018).

Emotional intelligence (EI) also has a positive influence on principals managerial creativity (PMC). In this study there were 4 (four) indicators to see their contribution to the emotional intelligence (EI) variable, namely: self-awareness (x13), emotional control (x14), empathy (x15), and social relations (x16). The social relations indicator (x16) gave the highest contribution to the emotional intelligence variable (EI) with a value of 0.88, followed by the emotional control indicator (x14) of 0.85, and the indicators of self-awareness and empathy of 0.83.

The four indicators above show that the amount of contribution is not much different, so it can be said that they are equally important to the variable emotional intelligence (EI). Explicitly, the four must run simultaneously in emotional intelligence to maintain harmony and expression of emotions through self-awareness, self-control, self-motivation, empathy and social skills (Goleman, 2002; Srivastava, 2013; Henry & Hope, 2013; Kareem & Kin, 2019). The emphasis on indicators of social relations (x16) is the view of the principal in developing a harmonious, intimate, familial, internal and external life of social relations, mutual understanding, cooperation, etc., which are filled with emotional control, self-awareness, and empathy.

The last variable of concern is the school environment (SE), which also has a positive effect on the managerial creativity of the school principal (PMC). There are 5 (five) indicators used in this study to see their contribution to the school environment variable (SE), namely: learning facilities (x17), school buildings (x18), transportation facilities (x19), physical environment (x20), and environment social (x21). In this study it was found that the school building indicators (x18) and the physical environment (x20) contributed the same value, namely 0.89. Then followed by indicators of transportation facilities (x17) of 0.88, social environment (x21) of 0.86, and learning facilities (x17) of 0.84.

The results above also do not show significantly different contribution sizes, so it is assumed that they need to run concurrently and are related to one another. However, the sample of school principals emphasizes the importance of physical aspects for creative school

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management to achieve progress, namely: adequate school buildings, office space, classrooms, library rooms, practicum rooms, and others; surrounding physical environment that supports student activities. such as: a school yard to channel their talents, a beautiful and clean school garden, a place to rest and play, and so on; and supported by the ease of public transportation infrastructure to go to school. Involvement of the social environment is also expected, especially in supporting the implementation of education inside and outside of school, such as: participation in the provision of learning facilities, funding, supervision, evaluation, and parents' attention to the child's learning process at home. The completeness and availability of all these aspects is believed to support the learning environment in schools and the achievement of school progress.

What about the managerial managerial creativity variable (PMC). What indicators contribute to this variable, both on school management (x22), administrative management (x23), intracurricular management (x24), extracurricular management (x25), and community participation (x26)? From the data processing it is known that the intracurricular management indicator (x24) gives the highest contribution to PMC with a value of 0.97, followed by the extracurricular management indicator (x25) of 0.94, the community involvement indicator (x26) of 0.97, the administration of management indicators (x23) of 0.85, and the school management indicator (x22) of 0.84.

From the PMC variable, it can be seen that school principals tend to emphasize the contribution of intracurricular management (x24), especially the implementation of teacher-student learning. The reason put forward is that intracurricular management is directly related to the achievement of student learning outcomes, so it needs serious attention. The managerial creativity of school principals must be directed at the pedagogic abilities of teachers, starting from planning, using methods, to evaluating and reflecting on learning outcomes (Suandinmath 2021; Gemnafle & Batlolona, 2021; Setyowati, 2021). Furthermore, indicators of extracurricular management occupy the second choice, because they are not only aimed at channeling talents and hobbies in a positive direction, but also fostering social relations, character building, leadership development, tolerance, solidarity, to student nationalism (Decree of the Minister of Education and Culture Number 060 /U/1993 and Number 080/U/1993; Riadi, 2019).

The next indicator contribution is community involvement (x26). According to a large sample of school principals, community involvement is important to support the implementation of education in schools, because it is directly or indirectly related to student learning and outcomes. Creativity is needed, not only to build relationships with parties outside the school, but internally it is

necessary to have a special organization and management to maintain and increase community participation, such as: forming work teams, communicating school needs and problems, achieving educational results, changing and advancing school programs , etc.

The next indicator is school administration which is assessed by all samples of school principals as needing to be managed properly. School administration can describe data and information regarding all aspects of the school, and become the basis for school principals and other school members to develop creativity towards change and progress. However, creativity can often only be realized to fill in and improve things that are considered lacking, and does not change the system standards and institutional structures that have been set by the government (public schools) or foundations (private schools). The school principal is not free to make changes. It is not surprising that school management is in the lowest position in contributing to PMC variables.

The influence of various factors/variables does not stop at the managerial creativity of the school principal (PMC), but the managerial creativity of the school principal itself has an impact on teacher performance (TP) and student learning outcomes (LO). Figure 2 shows that PMC has a significant positive effect on TP (0.92) and LO (0.60). Explicitly, the direct effect on TP is greater than on LO. And the TP itself also had a significant positive effect on the LO of 0.82. This means that the principal's managerial creativity has a positive effect on teacher performance, then teacher performance also influences student learning outcomes.(

There is no difference in the magnitude of the influence on teacher performance (LO), but it is seen that the effect of fostering cooperation (x30) occupies the highest position with a value of 0.97, followed by the influence on the development of work knowledge (x28) of 0.95, work creativity (x29) of 0.94, and work quality (x27) of 0.92. The influence on student learning outcomes (LO) can be seen in the effort to achieve achievement (x31) of 0.91, fostering competitiveness (x33) and the ability to communicate one's own thoughts and ideas (x34) of 0.90, and building student character (x32).) of 0.81. Particularly for character building, it still needs attention to be improved, especially through the implementation of extracurricular activities and examples from school principals, teachers and other related parties.

Conclusion

This study found that the managerial creativity of school principals is influenced by various variables, especially critical thinking, collaboration skills, school vision, emotional intelligence, and the

school environment. These five variables have a significant positive effect with the school environment giving the largest coefficient value, followed by critical thinking, school vision, emotional intelligence, and collaboration. Furthermore, the managerial creativity of the principal has a significant positive influence on teacher performance and student learning outcomes. Even the effect on teacher performance also has a positive impact on student learning outcomes.

In conclusion, the managerial creativity of school principals can be an entry point to improve student learning outcomes that are quality, competitive, and communicate solutive thoughts and ideas. Extra effort is needed from the parties involved to increase the creative power of the school principal to make changes and progress in the school, one of which is by paying attention to the various variables and the strongest indicators contained in each of the variables above. In addition, this effort also needs to be accompanied by providing openness and flexibility for school principals to be creative in managing their institutions, according to the conditions and situations at hand. All rules that are instructional, standard, and hinder the emergence of creativity must be removed to a minimum.

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