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## A Systematic Review of Measuring the Effectiveness of the Academic Performance of Elementary School Students

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### ABSTRACT

**Purpose:** This research was conducted with the aim of regularly reviewing the factors affecting the academic performance of elementary school students.

**Methods and Materials:** The present study was conducted by searching the databases of Taylor and Francis, Eric, Emerald, Sage, Science Direct in the period of 2000-2021. After selecting the databases of articles, using the keywords "academic performance", "effectiveness of academic performance", "primary students" and "factors related to academic performance", the number of 62 documents was retrieved, and again using the indicators of Prisma index, 30 documents for Study and analysis were selected. Data analysis was done using Olzaid method.

**Findings:** In order to select the articles, the inclusion and exclusion criteria were considered. In fact, the articles were selected. The conditions of entry and exit from their study were examined so that their data were eligible for discussion and analysis.

**Conclusion:** The results showed that 100 indicators, 30 criteria and 5 individual, school, family-social, peer and occupational factors related to the effectiveness of the academic performance of elementary students were identified. The results show that paying attention to the identified factors and criteria can provide a suitable platform for improving the quality of the teaching and learning process and the transformation of the educational system.

**Keywords:** Assessment, effectiveness, academic performance, elementary school students.

## 1. Introduction

Today, one of the most important concerns of parents and educators is the academic achievement of students. Whereas the academic performance of students, especially elementary students, plays an important role in social adjustments and their place in society; The performance and success of students in school is vital in any developed society where education is at the center of socio-economic growth (Tortella & Fumagalli, 2017). Academic performance affects students' precise choices, career goals, adjustment, and psychological development (Miller & Brickman, 1999). If the academic performance of students and related factors are not studied, this lack of attention will lead to a waste of heavy costs that are allocated to education to develop knowledge and technology and ultimately sustainable development of society in educational, Cultural, economic and political dimensions. Academic performance as a dependent variable is not affected by one factor, but by several factors such as academic aptitude, curriculum, teacher teaching style, homework, classroom environment, academic motivation, learners' ability, teacher training and learners' motivation (Kumari & Chamundeswari, 2015). Academic performance as a dependent variable is not affected by one factor, but by several factors such as academic aptitude, curriculum, teacher teaching style, homework, classroom environment, academic motivation, learners' ability and teacher training (Grolnick & Slowiaczek, 1994). The fact is that these factors are so intertwined that it is difficult to determine the role and performance of each. However, it is necessary to examine the factors that are effective and related to the academic achievement of elementary students. The family and school are among the basic institutions of society and are closely related. Each of these institutions, in turn, is responsible for educating individuals and nurturing their talents. Students' academic performance and the study of the factors affecting it is an important issue that has been a major part of research in educational sciences and psychology; So that success in education has an important role in gaining job opportunities and building the future life of students. In fact, effective education makes the connection between the past, the present and the future (Britzman, 2012). Researchers agree that in addition to education, many other factors, including school, family, and the social environment in which the child lives, as well as individual characteristics such as intelligence, personality, age, and motivation, play an important role in his or her academic performance.

Komaraju, Karau and Schmeck (2009), Busato et al. (2000) and Permuzic et al. (2018) found that academic performance is not solely influenced by intelligence and educational facilities in the environment; rather, psychological aspects, such as personality dimensions and learning styles, play a more important role (Busato et al., 2000; Komaraju et al., 2009). Successful education systems, at different levels of education, in addition to various methods of measuring the effectiveness of performance, by assessing the psychological and personality dimensions of students and taking the necessary measures, help to improve their academic performance. In principle, educational programs should be developed in such a way as to guide learners to use all their abilities in a state of psychological adjustment (Centra & Rock, 2000).

Educational assessment is one of the most important programs of any organization that gives us good information about the design and review of any system. Evaluating the effectiveness of students' academic performance, on the one hand, causes the managers and teachers of the education organization to get a clearer picture of the quality of educational activities, and on the other hand, equips the planners and educational staff to be aware of the positive and negative aspects of the program (Bandura, 1993). Academic performance means the ability of students to respond to issues related to the subject or specific topics predicted for a course (Phan & Ngu, 2014) and the effectiveness of students' academic performance is one of the important indicators in evaluating education. It is upbringing and its high levels can predict a bright future for the individual and society, and all the efforts and investments of any society are the realization of this goal. Accordingly, psychologists and educational specialists have paid attention to the factors related to the effectiveness of students' academic performance in various fields of study. Since the 1980s, most research on academic achievement has focused on psychological factors that affect student learning (Linnenbrink & Pintrich, 2002).

Russell (2013) classifies goals that generally motivate the effectiveness of academic performance as internal and external goals. In his view, internal goals include goals related to the task (e.g. trying to understand things) and goals related to oneself (e.g. acting better than others, proving intelligence and effort), and external goals include goals related to social cohesion (e.g. pleasing others and rewards). Individual differences in motivation to improve academic performance can predict academic success. Students who avoid achieving their goals are afraid of evaluation and see problems as a threatening factor. As a result, they give up

trying to reach their goals. In contrast, those who pursue their goals enjoy learning, accept problems as challenges, and insist on achieving their goals (Baldwin, 1949; Komarraju et al., 2009).

Given the importance of improving the academic performance of students, especially in the elementary school, this study seeks to answer the question with a systematic review that "What are the 'appropriate factors, criteria and indicators to assess the effectiveness of elementary school students' educational performance'?"

## 2. Methods and Materials

In this study, a systematic review method was used to identify and extract the factors, criteria and effective indicators on the effectiveness of academic performance of elementary students. Thus, databases such as Taylor and Francis, Eric, Emerald, Sage, Science Direct were searched. After selecting the databases, using the keywords Academic performance, Effectiveness of academic performance, elementary School students, Factors affecting academic performance, 62 studies were found for the initial review. Out of 62 articles found, 30 articles were finalized based on the inclusion criteria and 32 articles were excluded from the study due to their duplication and non-relevance to the research objectives. In fact, using PRISMA evaluation indicators, 30 documents in the period 2000 to 2021 were selected and analyzed using the Altheide method. To investigate and assess the factors related to the academic performance of elementary students, these factors were identified and provided to researchers and coded. Therefore, the factors were identified and then the criteria and indicators that were related to each of these factors were categorized. The results showed that 5 main factors affect the academic performance of elementary students and each of these factors has criteria and indicators. These criteria and indicators indicate how each of these factors affects students' academic performance.

## 3. Findings and Results

Criteria and indicators related to each of the factors affecting students' academic performance the results of this assessment showed that 5 factors: 1- Individual factors, 2- School factors, 3- Family-social factors, 4- Peer factors and 5- Occupational factors, affect the academic performance of elementary students. Each of these factors has criteria and

indicators that are among the criteria related to individual factors; Intrinsic characteristics of students and the interaction of external and student factors have an effective role on the academic performance of elementary students (Duckworth & Seligman, 2005; Lounsbury et al., 2005). The number of markers related to these two criteria of individual factors was 15. In relation to individual factors, it can be said that individual factors consist of intelligence, motivation, self-esteem, goal setting, study methods and the degree of accuracy and concentration and personality dimensions. Intelligence can be considered as one of the most important and determining factors related to academic performance. Each individual's intelligence can be divided into general and specific categories. General intelligence includes the ability that often reflects human nature. Specific intelligence is a special talent and ability that a person has in one or more specific areas. By looking closely at the different school subjects of the students, it is observed that there is a kind of relationship between them. In fact, it is not the case that the student is very strong in one subject and weak in another. In other words, there may be a slight difference; For example, in science, it is better than history. Specific intelligence, heredity and environment (learning opportunities) are important determinants of intelligence abilities. Inheritance determines scope, or maximum intelligence; while the environment determines where the person is on the domain. In contrast to intelligence, which is almost intrinsic, motivations are assumed to be an acquired phenomenon. In educational and learning psychology, the term motivation is used to refer to a factor that puts students, or the learner in general, in the effort to learn a lesson and shapes its activities. Motivation is influenced by various factors such as needs (physical and cognitive), desires, stimuli, desires, tendencies and environmental pressures. In the school environment, more emphasis is placed on intelligence than motivation, and it is believed that among students with normal intelligence, the most successful are those who have higher motivation. On the other hand, motivation can be internal or external. Those who are externally motivated are only trying to achieve something else; but those who have inner motivation do it only for themselves and their inner satisfaction. Intrinsic motivation is believed to have a much higher capacity to lead students to progress and success. Goal setting is one of the effective and important individual factors in academic performance. Students who set goals for their education will experience more success than those who do not pursue a specific goal. Having a goal makes students strive to achieve them. If these goals are commensurate with

their abilities and the effort they put in, they will succeed, and this success will increase their self-confidence and motivation to set further goals. But if they set goals beyond their ability, they will fail, and this failure, in turn, may overshadow their motivation, self-esteem, and academic performance. Students with high intrinsic motivation set goals to increase the range of their skills and competencies, and students with high extrinsic motivation choose goals with which to demonstrate their competence to others. The first group of students believe that more effort leads to higher academic performance. They learn from their failures and use them for future success; the second group, on the other hand, sees learning as a means of surpassing others, and when they reach this goal, they become frightened and feel that their existential value is in danger. As a result, the anxiety caused by these thoughts negatively affects memory and academic performance. Success in education plays an important role in creating future opportunities for students. With good and strong education, we can both look to the future and benefit from past experiences and findings. In fact, effective education makes the connection between the future, the present and the past. Everyone must learn well to influence others, and this requires strong training (Britzman, 2012). Researchers have found that success in education and advancement in this field is not only due to the intelligence and hardware capabilities of the environment; Rather, what plays an important role in this regard are the psychological and psychological aspects of individuals, such as personality dimensions and learning styles (Chamorro-Premuzic & Furnham, 2003; Slavin, 2019). Cattell, for example, argues that in the range of academic success, a person's personality plays a more important role than intelligence. According to Ackerman, PPKI theory claims that personality traits play an important role in the development of a person's knowledge and awareness, guidance, and how to deal with stimuli. This theory states that factors such as personality traits and learning styles are significantly associated with academic achievement.

Addressing the relationship between personality traits and academic achievement has both theoretical value and clinical benefit. From a clinical point of view, it can determine the relationship between personality traits and real-life achievements, especially academic performance. Theoretically, it can create an interview or a questionnaire to predict academic performance based on personality traits, which will lead to important results in the correct design of any educational system (Chamorro-Premuzic & Furnham, 2003). Over the past decade, there has been an increasing

emphasis on the importance and role of personality variables in academic achievement, and special personality variables have become important in the success of academic performance (Papanastasiou, 2002). Lance Berry, Sudargas, Gibson, and Leung (2005) argued that personality traits are related to students' academic ability, that is, academic achievement. On the other hand, these traits can be a predictor of dropout. The direct relationship between school success and personality traits has been extensively studied. Also, the use of the five-factor personality model has been proposed as a framework for organizing previous research (Conard, 2006; Laidra et al., 2007). Permusic and Fornham (2019) believe that given the extensive results on the relationship between personality traits and academic achievement, it can be said that the Neo questionnaire can play an important role in predicting academic success. Research shows that the five major personality factors can predict academic performance well (Chamorro-Premuzic & Furnham, 2003; Conard, 2006; Laidra et al., 2007). For example, the results of premusic research show that neurosis is inversely related to academic performance; If conscientiousness and adaptation bring high academic achievement. Costa and McCray (1992) stated that an important factor in a personality that can consistently predict academic achievement is openness, which refers to the acceptance of new ideas and the tendency to seek new scientific experiences. Blickel (1996) found that openness to experience was directly related to academic performance. Barbaranelli (2003) believed that there is a positive relationship between introversion and academic performance. He also found that neuroticism was negatively correlated with students' grades at all levels. Anxiety and worry seem to be the threat to success. Extroverts also prefer to have more social activities than academic activities. This can have a detrimental effect on people's education (Tortella & Fumagalli, 2017).

Hawan et al. (2002), in their research on personality traits, showed that there is a negative relationship between Nowruzism and academic achievement. Pawn and Ashton (2001) also showed that conscientiousness and openness are two important dimensions that are directly related to academic achievement. Hence, these characteristics are expected to be strongly correlated with other development-related factors; But in one study, Lawson found that openness was negatively related to performance and learning (Zweig & Webster, 2004). It should be noted that a person's history of academic success and achievement can affect personality, and on the other hand, parents usually reward



their children for their progress. Therefore, academic achievement and personality can provide mental health by mutually reinforcing each other. Indicators related to the criteria of individual factors can be divided into other ways:

A) Intelligence: Among the individual factors, one of the factors affecting the academic achievement of individuals is their intelligence and mental abilities. Duckworth and Seligman (2017) states that there are interesting discussions about the relationship and causal process of academic achievement and intelligence. Some researchers see intelligence and academic achievement as two similar structures. Others believe that the relationship between intelligence and academic achievement is reciprocal. Some researchers now believe in a causal relationship between academic achievement and intelligence (Duckworth & Seligman, 2005).

B) Motivation: Motivation, as an individual factor, plays an important role in academic achievement. In the past, it was believed that intelligence was the most important determinant of academic success. After years of research into learning and motivation, educators have found that students can become successful learners by using appropriate motivational, behavioral, and learning strategies. High motivation and participation in learning are associated with academic achievement and reduction of dropout rates (Anderson & Johnson, 1971). Kazidi and Lane (1991) examined the effect of family on motivation and academic achievement. In their study, they showed that motivation plays a role as a link between family and academic achievement. Gottfred (1990) in his research found a positive relationship between motivation and academic achievement. In particular, children and adolescents who showed higher intrinsic motivation to study had higher levels of achievement and intelligence. He also found that initial intrinsic motivation was related to motivation and subsequent academic achievement. Fortier et al. (1990) showed that perceived academic competence has a positive relationship with intrinsic motivation. It also seems that the sense of competence and self-determination in the school context creates a sense of autonomous motivation towards education, which in turn leads to higher academic achievement. Perceived academic competence and perceived academic self-determination have a positive effect on academic motivation, which in turn affects academic achievement and school attendance.

C) Self-concept and low sense of control: People who drop out have lower self-esteem than their peers and believe they have less control over their own destiny. Also, dropouts

have a low sense of efficiency or responsibility. We do not know if low self-esteem is the cause of poor school performance or poor school performance is the cause of low self-esteem. Research supports the more recent view (poor school performance is the cause of low self-esteem). These studies indicate that improving school performance may increase self-confidence (Paunonen & Ashton, 2001).

D) Alienation from school: dropouts do not have a strong sense of belonging to school and are not very interested in school. Students drop out, are less satisfied with their studies, and effort less at school than their peers; Participate less in extracurricular activities; Their attitude towards work is more positive than school and they do not show much desire for higher education (Muola, 2010).

E) Behavioral problems: Elementary students who are more aggressive are less likely to graduate from high school. By age 18-17, children who are hyperactive are more likely to have poor performance and attend special schools or drop out. Dropouts were those who had dropped out of school the most, had long absences and delays, and were often fined and disqualified during their studies. Social skills training in the early years of adolescence is an effective strategy to prevent smoking and premature sexual activity. Among the school factors, the criteria of adequacy of education and educational conditions and the interaction between principal, teacher and student have an effective role in students' academic performance (Slavin, 2019; Snowman & Robert, 2003). Criteria of individual factors included 11 indicators. In these indicators, the sub-criteria that affect academic performance are described. Items such as teachers' skills, educational conditions and desirable educational facilities, the number of students in the class and their composition, the appropriateness of the goals and content of the programs to the needs, talents and interests of students, the appropriateness of regulations, books, lessons and materials, school facilities and school expectations of students, school principal, teacher, goals and content of educational programs, methods and facilities can be among the factors that generally provide a set of expectations for students and can have a significant contribution to the success or failure of students' education (Ablard & Parker, 1997). In the meantime, the learning environment, which is sometimes referred to in various texts as the learning situation or learning context, is a general term and refers to various aspects of schooling. The classroom learning environment refers to the space or place where learners and teachers interact with each other and use various tools and information resources to pursue their learning activities.

(Paulson & Sputa, 1996). There are two general aspects to the classroom environment. One aspect includes desks and chairs, lighting, the way educational materials are arranged, etc., and the second aspect is the human aspect of the environment, which refers to the psychosocial atmosphere of the classroom (Nowell & Hedges, 1998). In the process of educational communication, many elements and variables such as instructor, learner, message and environmental factors are involved (Komarraju et al., 2009). Communication in the educational process takes place through the exchange of ideas and information in a two-way interaction between teacher and student (Berkowitz, 1997). With a brief look at the texts of educational psychology, today we can find chapters on various components of learning such as how to run a class, how to motivate students, teaching methods of teachers in the classroom, physical condition of classrooms and chairs and even the color used to paint classrooms (Slavin, 2019; Snowman & Robert, 2003). Communicating between student and teacher increases the student's self-confidence and motivation to learn (Busato et al., 2000). Teachers, especially school teachers, need to be familiar with the factors that affect communication to facilitate the teaching-learning process. In fact, effective teaching depends on the teacher's communication skills (Lounsbury et al., 2005). Among the criteria related to family-social factors, internal factors governing the family environment and external factors governing the family have a significant impact on students' academic performance. These criteria had 10 indicators which were divided between the two relevant criteria. It is clear that students, especially in the elementary school, learn many things through their daily experiences in interaction with the social and physical world. What is learned does not exist in genes and lacks any organized program. The learning process takes place within a community context according to a specific schedule. This is where parents play a role (McCoby, 1983). The effect of economic, social and psychological conditions of the family on the academic performance of students has been proven in several studies. The most important family factors affecting the promotion of academic performance are social and economic conditions, education and level of family culture, number of family members, employment of children, employment of mothers and the relationship between parents and educators (Woolsey, 2006). Several studies on socioeconomic status of the family (Phan & Ngu, 2014), parents' educational levels, educational resources at home (Muola, 2010), common language at home versus test language (Phan & Ngu, 2014)

as factors that can explain the variance of academic achievement have mentioned (Zweig & Webster, 2004). Coleman's report, Equal Opportunity for Education (1966), showed that school equipment and teacher quality did not have a decisive effect on student achievement. Instead, it is the family situation that has a decisive effect on students' academic performance (Lee et al., 2006). Cole (1990) considered the socio-economic status of the family as the most important predictor (Phan & Ngu, 2014). Milon (2002) showed that the socioeconomic status factor is a reliable predictor variable for school performance. Millon considered indicators such as students not consuming school meals or buying cheap food, and single-parent students and parents' annual income as a variable of socioeconomic status. The results of his research showed that the variable of students who do not eat school food or buy cheap food was the strongest predictor of students' academic achievement scores. The combination of the above variables increased the predictive power of the scores. In a study, Powers (2003), in addition to the socio-economic status variables, considered the variables of teachers' education and teachers' teaching experience to predict students' performance. The variables related to the socio-economic status he considered were similar to the variables tested by Millon. He also concluded that socioeconomic status explains about 57% of the variance in academic achievement. Akpala and Smith (2001) also showed that there is a negative and significant relationship between academic performance and socioeconomic status (Woolsey, 2006). Papanastasi (2002), in his research in Cyprus, found a negative relationship between low socioeconomic status and mathematical progress. He also noted that similar results have been reported in the United States and Japan. Some researchers have also researched the relationship between socioeconomic status and its effect on attitudes toward learning. Markollis, Hack, and Papanastasi (2005) showed that students with higher socioeconomic status had a more positive attitude toward learning mathematics. As noted, there are several factors that can affect student performance, so improving students' academic performance, or at least preventing them from falling behind, is a complex and difficult task. In fact, it is very difficult to control all the factors that affect performance. The variable of perfectionism, as one of the factors, has its own effect on academic performance. This variable itself can be affected by educational, family, school and social conditions. A perfectionist family, school, and community can create perfectionist students. These students have a special way of thinking; this thinking is based on the

fact that there is only one perfect solution to every problem, and if students fail to do so, they will become frustrated and anxious and stressed. Failure to meet the expectations of oneself and others, completely and without error, obsesses students. These students will feel guilty, blamed, and depressed if they fail to achieve their full goal. These factors, in turn, affect their performance.

According to the research findings, in relation to the peer factor, it can be said that the criterion of choosing a friend in school is very important and this criterion has two indicators. Each of these indicators, in turn, has a significant impact on the academic performance of elementary students. In this regard, it can be acknowledged that students who are popular among their friends are more likely to finish high school. Students who dropped out of school considered themselves unpopular. Drop-out students have a more negative attitude toward school and are less likely to plan to go to college (Saito, 1999). It has also been found that peers' attitudes, passions, criteria and expectations affect individual efforts and progress in school. Although peer influence is an important factor in progress; But parents have the greatest impact on a person's life compared to other factors (peers, teachers and society) (Saito, 1999).

Among the job factors, the criterion of working conditions has a great impact on students' academic performance. This criterion also has 2 indicators, each of which indicates the timely entry of elementary students into their work and the time and duration of their work. In this regard, working students may drop out or be less inclined to continue their education (Magdol, 1994; Nowell & Hedges, 1998). The researchers found that 0.27 of the boys who dropped out of school cited work as a reason for dropping out of school and 0.14 cited parental pressure to work as a reason for dropping out of school (Magdol, 1994). It has also been argued that part-time work has benefits for adolescents; But long-term work can cause problems for students. Long-term work can lead to excessive absenteeism, which can lead to students spending less time on homework, cheating on exams, lowering expectations of the teacher, and choosing easier classes (Magdol, 1994).

Also, school factors with a rate of 27.5% with the criteria of appropriateness of education and educational conditions and interaction between principal, teacher and student were in second place in terms of the number of indicators. Family-social factors with the criteria of internal factors governing the family environment and external factors governing the family accounted for 25% of the indicators related to factors affecting the academic performance of primary schools. Peer

factor and job factor, respectively, with the criterion of choosing a friend in school and working conditions, respectively, accounted for 5% of the markers.

#### 4. Discussion and Conclusion

Academic performance, mastery and learning of the individual are defined from the educational materials offered in a particular educational course (Berkowitz, 1997). Also, academic performance means the ability of students to answer questions related to the subject or specific topics envisaged for a course (Heaven et al., 2002). In addition, academic performance includes the recording of all cognitive activities of the educated person, which is measured by an agreed grading system, according to the different levels of emotional and educational activities and the timetable, and is considered as a process of academic achievement.

In this study, according to the background of research conducted in the field of study, 5 main factors on the academic performance of elementary students were assessed. These factors are: 1- Individual factors, 2- School factors, 3- Family-social factors, 4- Peer factors and 5- Occupational factors. Among the various factors that have been selected to measure their impact on the academic performance of elementary students, there are two important and main criteria that have been proposed in recent years and emphasize the processes related to academic performance. In the first approach, the effect of family environment processes on academic performance is discussed, and in the second approach, special student processes such as personal characteristics and personality dimensions are discussed. Also, among the criteria and indicators obtained from the factors related to the academic performance of elementary students, it was observed that the indicator related to the mental health of students and the mental dimension of the family environment is one of the most important criteria for assessing the academic performance of elementary students.

The present study plays an important role in understanding the factors related to students' academic performance and has important practical implications. The issue of improving academic performance is one of the most important issues in education in all parts of the world. If we want schools to educate successful and efficient students, it is necessary to know the factors related to academic success and careful planning in this regard. In any society, students are the builders of that society's future and those who must take on the responsibilities of that society. This is why

education has a special place today and people around the world are looking for ways to improve education (Linnenbrink & Pintrich, 2002). Every year, education and families spend a lot of money on students' health and successful education. Properly educating students psychologically and academically will enable the delivery of efficient graduates who have the necessary scientific strength and practical ability, and the capital and costs used will be optimally returned.

The family is a natural and social system to which individuals willingly or unwillingly depend and is the first center in which the individual feels safe and is accepted and supported. Certainly, the structure and atmosphere of the family play an important role in the performance and behavior of the individual. The quality of parent-child interaction, socioeconomic status of the family and parents' education have always been recognized as important determinants of students' academic performance (Anderson & Johnson, 1971; Kumari & Chamundeswari, 2015).

Teachers are the most important factor in determining the quality of education that students receive. Therefore, it is necessary to increase and improve their creativity. Given these favorable outcomes, educational organizations should choose strategies to improve the creativity of teachers.

Teachers are the most important factor in determining the quality of education that students receive. Therefore, it is necessary to increase and improve their creativity. Given these desirable outcomes, educational organizations should choose strategies to improve the creativity of teachers. Given the serious role of teachers in achieving educational goals, it is important to pave the way for improving their performance. Training courses, introduction of new teaching methods and expansion of the use of technology in education have all been done to help the teacher and improve his activities. In this process, it is necessary to promote the creativity and innovation of teachers to be able to adapt to changing conditions. Creativity of managers as one of the basic tools for growth and adaptability, innovation and creativity of teachers because one of the effective factors in the growth of innovation in the job is to provide their working conditions so that the role of managers is prominent (Dobbins, 2005).

#### Authors' Contributions

Authors equally contributed to this article.

#### Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

#### Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

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#### Declaration of Interest

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