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Research Paper

Relationship Between School Climate and Teacher Job Satisfaction: A Meta-Analytic Study

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Abstract

It is said that a professional teacher is a teacher who performs well. One indicator of a teacher's good performance is that it can be seen from the high level of job satisfaction of the teacher. It is expected that teachers who have high job satisfaction can increase their professionalism in their work. Several previous studies said a relationship exists between school climate and teacher job satisfaction. Unlike previous research, this study aims to determine the strength of the relationship or the magnitude of the difference between school climate and job satisfaction through a meta-analysis method with ten highly reputable articles. The results show that school climate positively correlates with teacher job satisfaction. The advice is to obtain information about administration and management in developing a school climate. This is because the school climate can facilitate teacher job satisfaction by increasing teacher professionalism in performance to produce quality students following the goals of Indonesian education stated in the curriculum regarding educational goals.

Keywords *job satisfaction, school climate, meta-analysis, teachers*

INTRODUCTION

In this era of fast-paced globalization, everything is pushed to become very easy and change quickly. This is no exception in the field of technology and information. During the COVID-19 pandemic, technology was forced to enter the world of education, both in areas that are already technologically literate and in areas that are still difficult to reach by technology. As a result, the lifestyle of humans, including teachers and students, had to change because of this situation. At this time, it is obvious how professional teachers must be ready to face various uncertain things. Not only the human lifestyle but also the structure of regulations and characteristics of schools have changed from what is usually offline to online. When the structure of regulations and characteristics of schools change, it will create a new school climate with a different nuance than before (Treputtharat & Tayiam, 2014).

School climate can create teacher job satisfaction and will influence the effectiveness of the teacher's work (Dewitt, 2014; Malinen & Savolainen, 2016; Eldor & Shoshani, 2017; Zakariya, 2020; Akinnola & Oredein, 2021). Teachers working effectively is one indicator of increasing teacher performance and professionalism. Based on this, it is necessary to explore information and management to improve the school climate, which can predict teacher job satisfaction and play an essential role in improving the quality of education in Indonesia.

Many previous studies have examined the relationship between school climate and teacher job satisfaction. Most of them have shown that there is a positive relationship between school climate and teacher job satisfaction (Taylor & Tashakkori, 1995; Pan & Qin, 2007; Collie et al., 2012; Treputtharat & Tayiam, 2014; Akinnola & Oredein, 2021). In addition, the research discusses each dimension of school climate related to teacher job satisfaction (Pan & Qin, 2007; Collie et al., 2012).

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This further strengthens the evidence of a relationship between school climate and teacher job satisfaction and is the basis for choosing the relationship between school climate and teacher job satisfaction in this study. Based on the previous explanation, research on the relationship between school climate and teacher job satisfaction is very popular. However, there has been no research to determine the effect size of the relationship between the two variables from similar studies in 1990 - 2021. The meta-analysis method can estimate the effect size of the relationship between the two variables (Borenstein et al., 2009). This is the basis for the meta-analysis method in this study. Based on this, research is needed on the relationship between school climate and teacher job satisfaction through meta-analysis.

LITERATURE REVIEW

State School Climate is one of the most popular topics in social research in education. In this case, many terms refer to school climate, including culture, resources, atmosphere, and social network of a school (Loukas & Murphy, 2007). It can be translated that school climate is an atmosphere related to culture to social interaction networks in the school environment. School climate is a characteristic that is strongly related to students, teachers, parents of students, administrators, and other members of the school community (Dewitt, 2014). As for school climate, it can explain the quality and characteristics of a school (Cohen et al., 2009; Collie et al., 2012).

School Climate Components. School climate has four dimensions: quality of teaching and learning, physical and social-emotional safety, relationships and collaboration, and the structural environment (Cohen et al., 2009). Apart from Cohen et al. (2019), other studies use school climate dimensions: leadership administration, administrative climate, teaching climate, and study climate (Pan & Qin, 2007). Although there are differences in the dimensions of school climate used in various studies, it can be concluded that the dimensions always lead to the school environment, both in administration and in the relationship between stakeholders in the school. Based on this explanation, it is concluded that school climate is a characteristic or atmosphere of a school, both in the structural environment of the organization and the relationship between stakeholders in the school.

Research on the relationship between school climate and teacher job satisfaction. Previous studies have revealed that there is a positive relationship between school climate and teacher job satisfaction (Loukas & Murphy, 2007; Stevenson et al., 2014; Treputtharat & Tayiam, 2014; Ghavifekr & Pillai, 2016; Malinen & Savolainen, 2016).

RESEARCH METHOD

Data Collection Target. The data collection of this study follows the Preferred Reporting for Systematic Reviews and Meta-Analysis (PRISMA). PRISMA aims to help clarify and be transparent in reporting systematic reviews and meta-analyses. There are 27 checklist items related to reporting details, and a revision of the PRISMA flow diagram.

Several steps were taken to identify studies relevant to the research theme. The first step is to search for relevant literature from various journal sources using the keywords "school climate," "job satisfaction, and" teachers. " The sources of research articles used are Emerald and Google Scholar.

The inclusion criteria used began with the literature search process, which focused on screening abstracts of articles containing "school climate," "job satisfaction, and" teachers, "only using articles with quantitative methods, participants were school teachers, and articles published in the period 1990 - 2021. After the abstract screening process, the researcher screened only studies that provided correlation coefficient values between the two variable relationships. The following is an explanation of the search process for filtering research articles.

The flow chart explains that the results of the source search using the keywords "school climate," "job satisfaction," and "teachers" through Google Scholar and Emerald display 145 articles.

Exclusion criteria start from 145 articles, removing 56, resulting in 89 articles that enter the next stage. The next stage only selects research with quantitative methods, and 37 articles are obtained. In the last stage, 32 articles must be excluded from the study because the definition of the variables does not refer to a specific theory that has been determined, the measuring instrument does not refer to the appropriate theoretical basis, does not use a total value for each variable, and does not provide a correlation coefficient value, so that the total research articles involved in this study are ten articles.

Literature Search. The keywords that will be included in the search process include "school climate," "job satisfaction," and "teachers." The sources of research articles that will be used are Emerald and Google Scholar. The final data results are ten articles.

Meta-analysis Method. In general, there are two model approaches in meta-analysis research: the fixed-effect model and the random-effect model. In the fixed-effect model, researchers start with the assumption that there is one true effect size. This can be interpreted as the fact that in each study, there is only one effect size value (no diversity); the difference in effect size found in various studies occurs due to sampling error. While in the random-effect model, the true effect size value is assumed to vary in each study (Borenstein et al., 2009).

Effect Size Calculation. The effect size in this study refers to the correlation coefficient value. The correlation coefficient value of two variables can be used as an effect size index. In most meta-analysis studies, the synthesis process is not directly carried out on the correlation coefficient value. Generally, the correlation coefficient value will be transformed into the Fisher's Z scale, and all analyses will refer to the transformation results. The final results, such as summary effects and confidence intervals, can be returned in correlation values for presentation (Borenstein et al., 2009).

Borenstein et al. (2009) explain how calculations are carried out in meta-analysis based on correlation values. In this case, researchers calculate the variance and standard error of the correlation for each research article involved. Variance can be calculated using sample size data (n) and correlation coefficient value (r). Variance calculation is done, and the Standard Error (SE) value can be calculated after getting the variance value.

Correlation value transformation calculation (r-to-fisher's Z transformation) is done. After getting the transformation value, the variance and SE values can be calculated, and the summary effect size (M), Variance (Vm), and Standard error (SEm) can be calculated. Then, the 95% Confidence Interval (CI) calculations for the lower limit (LL) and upper limit (UL) values are used as references.

Heterogeneity. Various things, such as measurement differences, sample characteristics, and the number of samples, can influence the diversity of study results. In order to produce strong meta-analysis research results, heterogeneity studies need to be assessed and do not have a major influence on the effect size. In meta-analysis research, observations of study diversity in estimating effect size are true variance and random error. Heterogeneity study testing refers to the Q statistic, between-study variance (T2), between-study standard deviation (T), and the ratio of true heterogeneity to total observed variation (I2) (Borenstein et al., 2009).

Publication bias. One issue that needs to be considered in meta-analysis research is publication bias. This means there is a tendency for research results that show a large effect size to be published, while research results with a low effect size are not published. Publication bias can impact the conclusion of a meta-analysis study. If the missing studies are systematically different from those obtained in the search, it can indicate bias in the study samples involved in the meta-analysis research. Commonly used analysis approaches include Roshental's fail-safe N and Orwin's

fail-safe N (Borenstein et al., 2009). Other criteria include the Trim and Fill Number of Studies and the Begg and Mazumdar Rank Correlation (Lipsey & Wilson, 2001).

Data analysis. This was done using Jamovi software ver. 1.8.4.0. Jamovi is an open-source statistical analysis program (The Jamovi Project, 2021). Analysis for analytical research uses the installation of extra modules (additional), namely the "major" module, which was indeed created to conduct meta-analysis research data analysis.

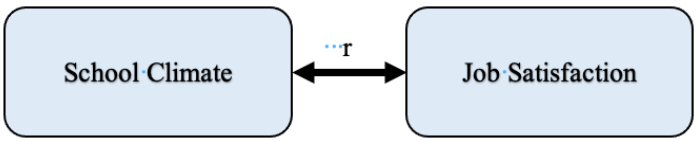

Figure 1. Hypothesis Model of the Relationship between School Climate and Job Satisfaction

FINDINGS AND DISCUSSION

Based on the sources contained in this study, the researcher recorded the articles with the author's name code, year, sample, direction of relationship, correlation coefficient (r), SE, Var, Fisher's Z transformation, and 95% Confidence Interval, SE Fisher's Z, and Var Fisher's Z.

The following are the results of the hypothesis test analysis in this study, which are summarized in the meta-analysis (Appendix).

The results of the study heterogeneity can be seen in Table 3. This study's heterogeneity refers to the I2 statistic value (99.94%), p <0.001. It means that the studies involved in this study are significantly heterogeneous. Another parameter that can be seen is the Q-Value value. The Q-value of this study is higher than the df value. This indicates that there is study heterogeneity.

Table 1. Heterogeneity Study

I^2	*Q-Value*	*df*	*p*
99.94%	**18207.129**	9.000	< .001

Forrest Plot. This study was conducted based on a random-effect model. This is done because, generally, in social research, participant characteristics vary, and it cannot be concluded that there is only one actual effect value. Based on the image in Figure 2, it can be seen that all study results do not touch the value 0 and are in the positive area. Overall, it can be seen that the Fisher's Z correlation value is 0.91, 95% CI [0.46, 1.37]. Significantly, the relationship between school climate and job satisfaction has a moderate positive effect size.

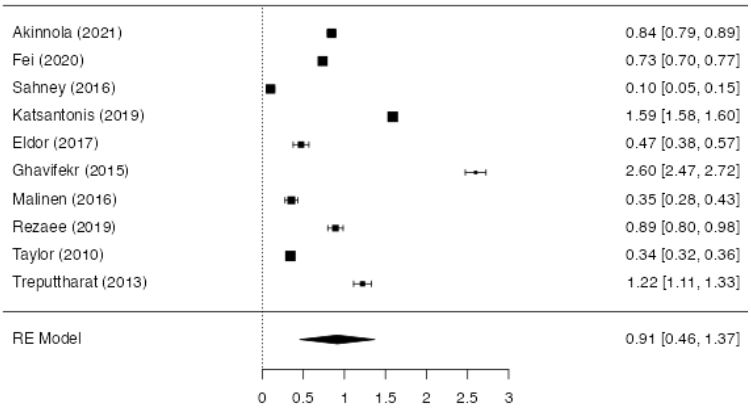

Figure 2. Forest Plot of Meta-Analysis Studies

The Fail-safe N value is a value that indicates whether there is publication bias in a meta-analysis study. This is because in this study, the fail-safe N value > p.

The Trim and Fill value is zero, which indicates that there is no publication bias. The less difference (closer to zero), the smaller the bias that occurs in meta-analysis research (Shi & Lin, 2019).

Begg and Mazumdar Rank Correlation shows a value greater than p, 0.467 > 0.073. This means no publication bias exists (Gjerdevik & Heuch, 2014).

Eagger's Regression Intercept shows an assessment bias based on precision to predict standardized effects. In this study, it is known that the value = 1.176, p > 0.05. This indicates a lack of evidence indicating publication bias.

Table 2. Publication Bias Studies

Test Name	value	*p*
Fail-Safe N	120328.000	< .001
Trim and Fill in the Number of Studies	0.000	.
Begg and Mazumdar Rank Correlation	0.467	0.073
Egger's Regression	1.176	0.239

The research discovered a large effect size on the relationship between school climate and teacher job satisfaction. Based on ten effect sizes, the average strength of the two variables is very large, almost approaching 1.0, which is 0.91. This indicates a relationship between school climate and teacher job satisfaction with a moderate positive effect size. There was no evidence of bias in the publication bias analysis, so it can be said that this meta-analysis study has accurate results. The results of this study are also supported by research that reveals that there is a positive relationship between school climate and teacher job satisfaction with a very significant (Sahney, 2016; Eldor & Shoshani, 2017; Lai et al., 2019; Katsantonis, 2020; Rezaee et al., 2020; Akinnola & Oredein, 2021).

A heterogeneity study was conducted. This can indicate the possibility of other variables that can influence the results of this study, such as mediators or intervening variables. One example of a suitable moderator or intervening variable between school climate and teacher job satisfaction is teachers' commitment (Lai et al., 2019).

However, there is no further study on this matter in this study. Therefore, the researcher hopes that there will be further research on this matter and that there will be a need to obtain information about administration and management in developing school climate. This can facilitate teacher job satisfaction, indicating increasing teacher performance and professionalism. The results of this study can be used as a basis that school climate can predict teacher job satisfaction, which plays an important role in improving the quality of education in Indonesia. Therefore, suggestions are aimed at school stakeholders and the Indonesian education office. In order to improve teacher job satisfaction, one of the indicators of teacher performance in the development of education levels in Indonesia, school climate variables need to be considered.

CONCLUSIONS

This meta-analysis study briefly overviews the effect size between school climate variables and teacher job satisfaction. The positive, moderate, and significant group analyzes the effect size between school climate and teacher job satisfaction. The results of this study also indicate the need to obtain information about administration and management in developing school climate. This can facilitate teacher job satisfaction in increasing teacher job satisfaction, which is one of the indicators of teacher performance in the development of education levels in Indonesia; the school climate variable needs to be considered.

LIMITATION & FURTHER RESEARCH

Even though such results were obtained, it does not rule out the possibility that there are still other variables that can influence the results of this study, either as mediators or intervening variables. One example of a variable suitable as a moderator or intervening between school climate and teacher job satisfaction is a teacher's commitment or motivation. These variables can be added to this study using other methods, such as path analysis or SEM (Structural Equation Modeling).

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