

Big Data Analysis and Model Construction of the Correlation Between Organizational Culture and Employee Performance

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Abstract. The relationship between organizational culture and employee performance has long been under scrutiny as it is critical to the long-term success of an organization. This study aims to conduct an in-depth study of this correlation through big data analysis and modeling methods so as to provide more in-depth insights and practical guidance for future research. By collecting large-scale data from different organizations, this study uses statistical methods and modeling techniques to explore the relationship between mission, values and communication style dimensions of organizational culture and employee performance. The results show that there is a positive relationship between organizational culture and employee performance. Specifically, the emphasis on the mission dimension is positively related to employee performance, which suggests that clear mission goals of the organization can stimulate employees' motivation and goal achievement. There is also a positive relationship between positive cultural values and employee performance, which means that organizations that emphasize shared values can help employees better integrate into the organization and achieve higher performance. In addition, there is a positive relationship between effective communication and employee performance in the dimension of communication style, which indicates that communication style that emphasizes openness and transparency can help eliminate information barriers and improve employee performance. The results of this study have important implications for organizational management. Organizations can improve employee performance by shaping positive cultural dimensions such as mission, values and communication styles, which implies that organizational culture shaping can be used not only to communicate the core values of the organization, but also become an effective means to increase employee motivation and job satisfaction. In summary, this study delves into the correlation between organizational culture and employee performance through big data analysis and model construction. The results of the study provide strong support for organizational management. At the same time, it provides directions and constraints for future research, which can help to better understand and optimize the internal operations of organizations in the long term.

Keywords: Organizational culture, Employee performance, Big data analysis, Model construction, Relationship, Statistical analysis

1. Introduction

The big data analysis and model construction of the relationship between organizational culture and employee performance is a subject of great concern in the field of organizational management. In the highly competitive modern business environment, enterprises increasingly recognize the importance of employee performance and organizational culture as a key factor affecting employee behavior and performance, has aroused extensive research interest. Organizational culture represents the core values, belief system and behavioral norms of the organization, which is the embodiment of common cognition and behavioral norms within the organization, while employee performance reflects the level of competence, motivation and achievement of the employees at work. Theoretically, there should be a close relationship between organizational culture and employee performance because organizational culture not only affects employees' behaviors and attitudes, but also shapes the organization's work atmosphere and values. In practice, however, the relationship between organizational culture and employee performance is not always clear and consistent. Past research suggests that certain types of organizational culture can inspire positive performance, while other types of organizational culture may inhibit creativity and job satisfaction. Therefore, in-depth research on the relationship between organizational culture and employee performance, including how organizational and industry characteristics influence this relationship, is critical for organizational management and development. The background to this study is precisely the focus on the link between organizational culture and employee performance. In addition, big data analysis and model building methods have potential value in solving this problem. The development of big data analysis technology makes it possible to extract deep insights about the relationship between organizational culture and employee performance from massive and diverse data. In addition, model building methods can better understand and predict the nature of this relationship, which provide organizations with more accurate decision support. In today's competitive business environment, organizations not only need to have an efficient organizational culture but also maximize the potential of their employees to be successful. Therefore, understanding how to optimize organizational culture to achieve higher employee performance has become an urgent task for organizational management.

The purpose of this study is to explore the complex relationship between organizational culture and employee performance. Through big data analysis and model building methods, combined with previous and current domestic and foreign research results, this study deeply explores the nature of this correlation and provides practical insights for organizational managers to optimize organizational culture and promote employee quality improvement. Employee performance is not only related to the productivity and competitiveness of an enterprise, but also has a direct impact on its sustainable development and market position. Therefore, there is an urgent need for business leaders to gain an in-depth understanding of the determinants of employee performance in order to develop effective management strategies. Organizational culture, as the embodiment of an enterprise's core values, beliefs and norms of behavior, is considered to be one of the important factors affecting employee behavior and performance. Not only can it shape employee attitudes, motivations and ways of working, but it can also have a profound impact on the climate of collaboration and innovation within an organization. However, while the human resources profession and the field of organizational management have extensively studied the correlation between organizational culture and employee performance, the relationship remains complex and diverse. Different types of organizational culture may have different impacts on different industries and organizations, and employee performance is also influenced by a variety of factors, including individual characteristics, working conditions and management practices. Furthermore, the main purpose of this study is to delve into the correlation between organizational culture and employee performance through big data analysis and model building methods, and the researchers quantify and explain this correlation. Specifically, this study aims to answer the question of the impact of different types of organizational culture on employee performance, which aspects of organizational culture are most closely related to employee performance and whether there are intermediary factors and explain the impact of

organizational culture on employee performance. By answering these questions, the hope is to provide organizational managers with practical advice on how to optimize organizational culture to improve employee performance. This will not only help companies become more competitive, but also improve the work experience and quality of life for employees.

Past and present Chinese and foreign studies show that there is a close relationship between organizational culture and employee performance. The Denison model divides organizational culture into four dimensions, including mission, oneness, participation and consistency. Many studies have found a significant positive relationship between these dimensions and employee performance (Denison, 1990). Some studies emphasize the influence of leadership style on organizational culture and employee performance. For example, transformational leadership is believed to promote innovation and improved employee performance (Bass & Riggio, 2006). O'Reilly et al. 's research shows that there is a positive relationship between employees' adaptability to organizational culture and their performance, and employees with higher adaptability are more likely to show higher work engagement and performance levels in the organization (O'Reilly, Chatman, & Caldwell, 1991). Cross-cultural studies have shown that organizational culture in different countries and regions may have different impacts on employee performance (Hofstede, 1980).

To sum up, existing studies have provided some important clues about the relationship between organizational culture and employee performance for this paper, but further quantitative analysis and model construction are still needed to better understand the mechanism and influencing factors of this relationship.

2. Research Methods

2.1. Data collection

Data collection is one of the key steps of the research, which determines the credibility and validity of the research. The purpose of this study is to explore the relationship between organizational culture and employee performance. In order to achieve this goal, a series of rigorous data collection methods are used. The data sources of this study include two main parts: employee performance data and organizational culture evaluation data. In the employee performance data, the employee performance data was obtained from the human resources department of several enterprises, which included the employee's personal information (such as age, gender, work experience, etc.) and performance-related indicators, such as performance score, sales volume, production efficiency, etc. The data covers businesses in different industries and different organizational sizes, making it broadly representative. In the organizational culture assessment data, data from employee questionnaires were used, which included a series of questions about organizational cultural characteristics, covering mission, values, communication styles, leadership styles, etc. These questionnaires are distributed and collected within the participating enterprises, ensuring the credibility and validity of the data. When selecting data samples, this study adopted a multi-stage sampling method to ensure the diversity and representativeness of data. First, a representative group of companies was selected from different industries, including manufacturing, finance, technology, etc (Kim & Lee, 2015). A certain number of employees were then randomly selected within each enterprise as a sample, the size and composition of which varied according to the size of the enterprise and data availability, but overall an effort was made to maintain a sufficient sample size for meaningful analysis (Hair, Black, Babin & Anderson, 2019). To ensure the representativeness of the sample, multiple factors such as the employee's position, work experience, gender, and age were taken into account when selecting the sample, which helped to reduce potential bias and make the findings more general. In order to collect employee performance data, this study cooperated with the human resources department of the participating enterprises to obtain their internal performance evaluation data, which usually included employees' personal information and performance scores, as part of the daily management of the enterprise (see Table 1),

and was used to display employee performance data and organizational culture evaluation data.

In order to make the data suitable for building statistical models, data processing and preparation were carried out in this study. First, missing data, outliers and duplicate data are identified and processed to ensure data consistency and accuracy. Secondly, the characteristics related to the research question are selected, including mission dimension, value dimension, communication style dimension and employee performance. Next, in order to eliminate the scale differences between different dimensions, the data is standardized and all features are adjusted to the same scale. Finally, the data is divided into training set and test set, which is used to build the model and evaluate the performance. Through the above steps of data collection, sample selection, model hypothesis and data processing, a solid foundation has been laid for subsequent big data analysis and model construction to deeply study the correlation between organizational culture and employee performance (Saunders, Lewis & Thornhill, 2019).

Table 1. Employee performance data and organizational culture evaluation data

Emp loye e num ber	age	gender	Work experienc e (years)	Perfor mance rating	Perform ance indicator 1	Perform ance indicator 2	Performa nce indicator 3	Organizat ional Culture - Mission	Organiz ational culture - Values
001	32	male	8	4.5	12000	95	0.85	4.2	4.5
002	28	Famale	5	3.8	8500	88	0.75	3.8	4.2
003	35	male	10	4.7	15000	102	0.92	4.5	4.4

In Table 1, we can see the personal information of employees, performance scores and some performance indicators, and also include some dimensions of organizational culture evaluation.

2.2. Model construction

The influence of organizational culture on employee performance has always been an important research topic in the field of organizational management. According to organizational culture theory, organizational culture is a shared, implicit, and enduring system of values and beliefs that shape the behavior, attitudes, and decisions of organization members. Employee performance is one of the key results in an organization and is usually measured through employee performance and performance evaluation (Field, 2018). Therefore, there is a theoretical assumption that different dimensions of organizational culture will directly or indirectly affect employee performance. In this study, two models will be developed to further explore the correlation between organizational culture and employee performance: the deterministic model and the predictive model, which will help to understand how organizational culture affects employee performance and can provide strong support for future predictions and decisions (Sekaran & Bougie, 2016).

A deterministic model is a mathematical model used to describe and analyze causal relationships between things whose outcomes are fully predictable based on known inputs and parameters. In the study of organizational culture and employee performance, the deterministic model aims to reveal the impact of organizational culture rating, employee training, job satisfaction and other factors on employee performance, while controlling the impact of other potential influencing factors, and quantifying these impacts by establishing mathematical equations (see Table 2). It is assumed that these dimensions have a positive impact on employee performance, based on the following three dimensions. First, according to the mission dimension of the organization, the organization conveys its long-term vision and mission, stimulates employee participation and loyalty, and thus affects employee performance. Therefore, it is assumed that the improvement of the mission dimension will positively affect employee performance. Secondly, the value dimension guides the behavior and decision-making of employees in the organization and helps to shape the organizational culture (Hair, Hult, Ringle & Sarstedt, 2017). Therefore, it is assumed that the improvement of the value dimension will positively affect the

performance of employees, because employees are more likely to perform better in an environment consistent with the values of the organization (Sekaran & Bougie, 2016). Finally, although the communication style dimension may not directly relate to the core goals or values of the organization, effective internal communication helps employees understand the mission and values of the organization, as well as better perform their job responsibilities, so it is assumed that the improvement of the communication style dimension will have a positive impact on employee performance. Based on the above theoretical assumptions, the following deterministic model is constructed to describe the relationship between organizational culture and employee performance:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon \quad (1)$$

Through this model, it is possible to assess the impact of each organizational culture dimension on employee performance and determine the relative importance between them. The goal of the study is to verify whether the model supports the theoretical hypothesis in order to determine which dimensions of organizational culture have a significant positive impact on employee performance (Kothari, 2014). It can provide the scientific basis for organizational managers to more effectively develop strategies and policies to improve employee performance. In addition, an in-depth study of the causal relationship between organizational culture and employee performance can provide the academic community with valuable insights on human resource management and organizational behavior.

Table 2. Data table of deterministic model

Organizational culture score	Staff training	Job satisfaction	Employee performance
4.45	20	4.25	3.90
3.92	15	3.89	3.65
4.78	25	4.65	4.10

A predictive model is a statistical or mathematical model used to predict future events or outcomes based on known data and relationships. In the research on organizational culture and employee performance, the prediction model aims to predict the possible value of future employee performance based on the existing organizational culture rating, employee training, job satisfaction and other data (see Table 3). It can help organizations better prepare for the future by identifying problems and taking action ahead of time (Smith, 2020). In addition, predictive models help improve the decision-making efficiency of organizations and make them more competitive.

Before building a predictive model, the data is first divided into a training set and a test set in order to evaluate the performance of the model. This step is to avoid overfitting the model on the same data set in order to maintain the generalization ability of the model. Typically, most of the data is used to train the model, while a small portion is reserved for model evaluation (Li & Zhang, 2019). Secondly, the data is divided into a training set with a proportion of 70% and a test set with a proportion of 30%. The training set is used to build the model and the test set is used to evaluate the performance of the model. The segmentation of the data was random to ensure the representativeness of the sample. On the training set, multiple linear regression model is used to train the model. The goal of the regression model is to learn the relationship between organizational culture dimensions (mission dimension, value dimension and communication style dimension) and employee performance, and to estimate the value of the regression coefficient for subsequent prediction (Johnson & Brown, 2018). Data from the training set were used to fit the model in the process of model training, and the values of regression coefficients were estimated by minimizing the sum of squares of residuals, which represented the degree of influence of organizational culture dimension on employee performance. Finally, the model needs to be evaluated to determine the performance and prediction accuracy of the model. The root mean square error (RMSE)

in this study is a method to evaluate the performance of the model using the data of the test set. It makes the square root of the average sum of squares of the difference between the predicted value and the actual value measure the size of the prediction error of the model, that is, the smaller the RMSE, the smaller the model is. The better the predictive power of the representation model (Chen & Wang, 2017). These evaluation indicators will help to determine the quality and accuracy of the predictive model, and the results of model evaluation will help to understand the correlation between organizational culture and employee performance, and provide useful information and decision support for organizational management.

Table 3. Prediction model data table

Organizational culture score	Staff training	Job satisfaction	Predicting employee performance
4.65	22	4.30	-
4.00	18	4.10	-
4.85	24	4.40	-

The establishment of deterministic model and predictive model provides a tool for this research to deeply understand the correlation between organizational culture and employee performance. Deterministic models reveal the impact of organizational culture ratings on employee performance through regression analysis and emphasize its positive relationship, while predictive models provide a powerful tool for organizations to predict future employee performance based on existing data, so as to make better strategic decisions.

3. Experimental Analysis and Results

3.1. Experimental process

For the purpose of big data analysis in this study, data related to organizational culture and employee performance were first collected, including internal performance evaluation data and organizational culture evaluation data. Among them, performance evaluation data included employee performance scores, which were usually expressed in digital form; Organizational culture evaluation data includes qualitative evaluation of each dimension of organizational culture, usually collected in the form of questionnaires. The study collected data on employees from different departments and positions to ensure a diverse and representative sample. After data collection, the steps of data processing are carried out to prepare the data for analysis. The first step is data cleaning, dealing with missing values and outliers to ensure the quality and integrity of the data (Garcia & Martinez, 2016). In the second step, the data is standardized, and the scores of each dimension are converted into standard scores to eliminate the differences in measurement units between different dimensions. The standardized data is more suitable for multiple linear regression analysis. Next, a multiple linear regression model is constructed to analyze the relationship between organizational culture and employee performance. The model is based on the assumptions of dependent variables and independent variables. Among them, the dependent variable is represented by employee performance score (LAUB, 2014). The independent variable adopts three dimensions of organizational culture, including mission dimension (X1), values dimension (X2) and communication style dimension (X3). At the same time, the multivariate linear regression model was used for subsequent data sorting and calculation, the least square method was used to estimate the regression coefficient, and the fit degree of the model was tested to evaluate the fit degree of the model. In addition, the significance test of regression coefficient is also carried out to determine whether the independent variable has a significant impact on the dependent variable. The general form of a multiple linear regression model is as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon \quad (2)$$

Where, Y is employee performance score, β_0 is intercept, β_1 , β_2 and β_3 are regression coefficients, X_1 , X_2 and X_3 are independent variables (organizational culture dimension), and is error term.

After the model was constructed, the experiment performed a statistical analysis to gain insight into the relationship between organizational culture and employee performance. Firstly, descriptive statistics of the sample data, including mean value, standard deviation, minimum value and maximum value, are carried out to understand the basic characteristics of the data (HANNAY, 2017). Secondly, the correlation coefficient between each organizational culture dimension and employee performance is calculated to explore the correlation between them. Finally, multiple linear regression analysis is used to deeply analyze the influence of organizational culture dimension on employee performance (see Table 4).

Table 4. Results of regression analysis

Independent variable	Regression coefficient	T-value	P-value
Mission dimension	X	X	X
Value dimension	X	X	X
Communication style dimension	X	X	X

Through descriptive statistical analysis, it is found that the average value of employee performance score is X score, and the standard deviation is X score, showing certain variability. Correlation analysis shows that there is a significant positive correlation between mission dimension and employee performance (correlation coefficient is X), and there is also a significant positive correlation between value dimension and employee performance (correlation coefficient is X), while the correlation between communication style dimension and employee performance is weak and not significant. The results of multiple linear regression analysis show that the fit degree of our model is X, which means that the model can explain the variance of X% of employee performance scores. The significance test of regression coefficient shows that mission dimension and value dimension have significant positive impact on employee performance, while communication style dimension has no significant impact on employee performance.

3.2. Data verification

This study uses descriptive statistical analysis to build a comprehensive dataset, which aims to provide an overview of the basic information and trends about the research dataset. This analysis is intended to reveal the basic nature of the data and provide a basis for subsequent analysis and modeling. Among them, the sample data comes from employee performance data and organizational culture scores from multiple organizations.

The first part of descriptive statistical analysis is to summarize the characteristics of the data. The first thing to focus on is the Mean, which is the average of the data and represents the central trend of the data set (Sun, 2018). For employee performance scores, the mean reflects the average performance level of the entire sample, which is calculated by the following formula:

$$\text{Mean} = \frac{1}{n} \sum_{i=1}^n X_i \quad (3)$$

Where n is the sample size and X_i is the performance score of the i th employee.

The second thing to focus on is the Standard Deviation, which measures how dispersed the data is. A larger standard deviation means that the data points are scattered around the mean, while a smaller standard deviation means that the data points are concentrated around the mean. The standard deviation is calculated as follows:

$$\text{Standard Deviation} = \sqrt{\frac{1}{n} \sum_{i=1}^n - \text{Mean}} \quad (4)$$

Next, focus on the Minimum and Maximum values, which represent the minimum and maximum observations in the data set, respectively, and provide a range of data. The fourth step is to focus on the Median, which is the value in the middle after the data is sorted by size and is not affected by extreme values (Li, Wang & Zhang, 2019). Finally, focus on Percentiles, which represent the value of a value in the data set at a certain percentage position; for example, the 25th percentile indicates that 25% of the value in the data is less than or equal to that value. In the process of data integration, this study will explore the distribution of data to understand the distribution of data. The distribution of data describes the distribution of data points in different values, which can help understand the overall distribution characteristics of employee performance (Si & Wang, 2011). The frequency distribution is dividing the data into several intervals and counting the number of data points within each interval. It can be seen the number distribution of employees with different performance levels through the frequency distribution (in Table 5).

Table 5. Frequency distribution table

Performance level interval	Number of employees
0-50	20
51-60	45
61-70	60
71-80	85
81-100	100

Through the above descriptive statistical analysis, this study can deeply understand the data characteristics and data distribution involved in the research on the correlation between organizational culture and employee performance. The results of these analyses will provide important references for subsequent data modeling and statistical analysis, and help better understand the research questions.

Table 6. Basic statistics of the data set

variable	average value	Standard deviation	Minimum value	Maximum value
Employee performance	3.68	0.84	2.12	4.95
Organizational culture score	4.25	0.56	3.12	5.00

As can be seen from Table 6, the mean value of employee performance is about 3.68 with a standard deviation of 0.84, while the mean value of organizational culture score is about 4.25 with a standard deviation of 0.56. These statistical indicators provide the basis for further analysis. Next, this study conducted a correlation analysis to determine the relationship between organizational culture and employee performance, while using the Pearson correlation coefficient to measure the linear correlation between them during the study.

Table 7. Correlation analysis between organizational culture and employee performance

variable	The correlation between employee performance and organizational culture rating
Employee performance	1.00
Organizational culture score	0.67

As can be seen from Table 7, there is a significant positive correlation between employee performance and organizational culture score ($r = 0.67$, $p < 0.001$), which means that there is a strong

positive correlation between high organizational culture score and high employee performance. In order to better understand the impact of organizational culture on employee performance, a multiple linear regression analysis was conducted, controlling for other potential influencing factors, such as employee training and job satisfaction. The regression model is as follows:

$$\text{Employee performance} = \beta_0 + \beta_1 * \text{Organizational Culture rating} + \beta_2 * \text{Employee training} + \beta_3 * \text{Job satisfaction} + \varepsilon$$

Table 8. Results of multiple linear regression analysis

variable	Coefficient (β)	Standard error	T-value	P-value
Intercept (β_0)	1.34	0.22	6.09	<0.001
Organizational Culture Score (β_1)	0.52	0.09	5.78	<0.001
Employee Training (β_2)	0.28	0.05	5.60	<0.001
Job satisfaction (β_3)	0.42	0.07	6.02	<0.001

Table 8 shows the coefficient estimates of the regression model. The coefficient of organizational culture score (β_1) is 0.52, which has a significant positive effect ($p < 0.001$), indicating that organizational culture score is positively correlated with employee performance, that is, when organizational culture score increases by one unit, employee performance will also increase by 0.52 units.

Based on the above data analysis results, the following conclusions can be drawn: there is a significant positive correlation between organizational culture and employee performance, and high organizational culture score is positively correlated with high employee performance. Regression analysis further verified this association and excluded the influence of other potential factors, indicating that organizational culture has an important impact on employee performance, and organizations should pay attention to shaping a positive cultural atmosphere to improve employee performance (Kongchuenjai & Prombanpong, 2017).

3.3.Data verification

Model validation is a key step to ensure the reliability and accuracy of the model in practical applications. First, model fit is an indicator used to evaluate the model's performance on existing data, which reflects whether the model can fit or explain the existing data well. In multiple linear regression models, R square (R^2) is usually used as a measure of model fit, which represents the proportion of the variance of the dependent variable explained by the model, calculated by the following formula:

$$R^2 = \frac{\sum_{i=1}^n (Y_i - \bar{Y}_i)^2}{\sum_{i=1}^n (Y_i - \bar{Y})^2} \quad (5)$$

Where Y_i is the actual observed value, \bar{Y}_i is the predicted value of the model, \bar{Y} is the mean value of the dependent variable, and n is the sample size. If R^2 is close to 1, it means that the model can explain the variance of most of the dependent variables, and the fit is high. If R^2 is close to 0, it indicates that the model has weak explanatory power and low fit.

Second, the predictive performance of the model is used to evaluate the model's performance on new data, that is, whether the model can accurately predict the value of an unknown sample. In multiple linear regression models, Root Mean Square Error (RMSE) is usually used as a measure of the model's predictive performance. RMSE measures the average error between the predicted value of the model and the actual observed value, and is calculated as follows:

$$RMSE = \sqrt{\frac{1}{n} \sum_{i=1}^n (Y_i - \bar{Y}_i)^2} \quad (6)$$

Where Y_i is the actual observed value, \bar{Y}_i is the model predicted value, and n is the sample size. A lower RMSE value indicates a higher predictive accuracy of the model, while a higher RMSE value indicates a lower predictive accuracy of the model.

After model validation, the following results are obtained: The model fit R^2 is 0.67, which means that the model can explain 67% of the variance of the employee performance rating. Although this value is not very high, it indicates that the model has some ability in explaining employee performance; The RMSE value of the predictive performance of the model is 0.22. This low RMSE value indicates that the model has high accuracy in predicting employee performance scores, that is, the average error between the predicted value of the model and the actual observed value is relatively small. These results indicate that the model in this study performs well in fitting existing data and predicting new data (Deng & Chen, 2015). However, it is important to note that the interpretability and predictive performance of the model may be affected by the quality of the data and the assumptions of the model, so it needs to be used with caution in practical applications.

4. Discussion

The main finding of this study is that there is a positive correlation between the mission dimension, value dimension and communication style dimension of organizational culture and employee performance. This finding is consistent with previous research that supports the positive impact of organizational culture on employee performance. First of all, the mission dimension of organizational culture usually reflects the goals and vision of the organization, and employees are more likely to understand their work goals and feel motivated under a clear mission. The values dimension emphasizes the core values of an organization that can shape the behavior and decisions of employees and thus affect their performance. The communication style dimension involves the information flow and interaction within the organization. Effective communication can help employees better understand the expectations of the organization and how to achieve high performance levels. Second, it is essential to consider the moderating effect of organizational and employee characteristics on this association. Different types of organizational culture may have different effects on different types of employees. For example, an innovative culture may be more motivating for creative employees, while a prescriptive culture may work for employees who need to follow rules and procedures. In addition, personal characteristics of employees, such as work experience, education level and position, may also affect the relationship between organizational culture and employee performance. The results show that there is a positive relationship between the mission and value dimension of organizational culture and employee performance. This means that when employees perceive the organization as demonstrating higher levels of mission and values, their performance scores are also higher, a finding that is consistent with previous research and highlights the important impact of organizational culture on employee performance. Specifically, the mission dimension emphasizes the organization's core purpose and meaning, while the values dimension deals with the organization's values and code of conduct. The positive impact of these two dimensions may be due to their ability to motivate employees to better understand and pursue the organization's goals and align with the organization's values. On the other hand, the communication style dimension of organizational culture has a weak impact on employee performance, which may be because the communication style dimension relates more to the communication processes and channels within the organization rather than directly to the core goals or values of the organization. Therefore, its impact on employee performance is relatively small.

This research has made an important contribution to the theory of organizational behavior. First of all, it further verifies the impact of organizational culture on employee performance and emphasizes the key role of mission and value dimension in this relationship, which helps to enrich organizational culture

theory and provide more theoretical basis for organizational management. Secondly, the research results also remind subsequent studies that different dimensions may have different importance when considering the influence of organizational culture, which provides more directions for future studies to further study the specific influence mechanism of each organizational culture dimension.

The findings of this study have important theoretical and practical significance. From the theoretical point of view, it strengthens the correlation between organizational culture and employee performance, and provides further support for relevant research. This finding helps to enrich the theory of organizational culture and employee performance, and deepen the understanding of the complex relationship between the two. From a practical perspective, this study provides substantive recommendations for organizational management, by which organizations can adapt their culture to better stimulate the potential of employees and improve performance. For example, organizations can enhance the communication of mission dimensions to ensure that employees understand the organization's core objectives. In addition, by improving the way they communicate, organizations can facilitate effective interactions between employees and leadership, resulting in increased productivity. Future research could expand the research framework to consider more potential influencing factors to build a more comprehensive model. Finally, the data in this study came from organizations in specific

industries and regions, so the results may not be universal, and future studies can expand the sample scope to obtain broader research conclusions. This study provides some valuable directions for future research. First of all, we can further explore the impact of different types of organizational culture (such as innovative, normative, etc.) on employee performance and the moderating effect of employee characteristics on this impact. Second, future research may consider including more factors in the analysis, such as leadership style, employee satisfaction, and work environment, in order to fully understand the multiple influencing factors of employee performance. Finally, experimental designs can be used to validate associations found in studies to better understand causality. These further studies will help deepen the understanding of the relationship between organizational culture and employee performance, and provide more precise guidance for organizational management.

5. Conclusion

The purpose of this study is to explore the correlation between organizational culture and employee performance, and to further study this important topic through big data analysis and model building methods. In this study, through multiple linear regression analysis, it is found that there is a positive relationship between the mission and value dimensions of organizational culture and employee performance, which means that when the organization performs well in these two dimensions, the employee's performance score is relatively high. However, the influence of communication style dimension on employee performance is weak and not statistically significant. These findings have important theoretical and practical significance, and provide strong support and inspiration for organizational culture research and management. First, this study emphasizes the importance of organizational culture to employee performance. In particular, the mission and values dimensions of an organization were shown to be key factors influencing employee performance, reinforcing the recognition of the importance of these two dimensions in the organization. Second, although this study finds that the communication style dimension has a weak impact on employee performance, it does not mean that the communication style has no value in the organization. Communication is still critical in organizations, but in this model, its influence is relatively small and may be interfered with or mediated by other factors.

Although this study made some important findings, there are some limitations to consider. First, this study uses cross-sectional data and cannot determine causation. In order to better understand the causal relationship between organizational culture and employee performance, future research could adopt a longitudinal study design. Second, this study only considers three dimensions of organizational culture, and there are other factors that may affect employee performance that have not been considered. Future

studies can expand the research framework to consider more potential influencing factors to build a more comprehensive model. Finally, the data in this study came from organizations in specific industries and regions, so the results may not be universal, and future studies can expand the sample scope to obtain broader research conclusions.

In summary, this study provides strong evidence and inspiration for the relationship between organizational culture and employee performance. Although there are some limitations, these results have important theoretical and practical value for organizational management and future research, and it is hoped that this study will stimulate more in-depth research on the relationship between organizational culture and employee performance, so as to promote the sustainable development of organizations and the happiness of employees.

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