

## The Identification of Key Factors Influencing University Teachers' Organizational Citizenship Behavior Based on the DEMATEL Method

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### Abstract

This study aims to identify and analyze key factors influencing university teachers' Organizational Citizenship Behavior (OCB), providing educational administrators with theoretical and practical insights to enhance school effectiveness. Using the Decision-Making Trial and Evaluation Laboratory (DEMATEL) method, this research systematically evaluates the causal relationships and interdependencies among factors affecting teachers' OCB. A sample of 14 experts from higher education institutions was selected, including senior academics and experienced professionals in educational management. Data were collected through a structured questionnaire and analyzed to construct a direct influence matrix among the identified factors. Results indicate that intrinsic motivation, job satisfaction, and occupational commitment at the individual level, along with organizational identification and resource support at the organizational level, significantly impact teachers' OCB. The findings suggest that enhancing these factors can effectively promote OCB, providing valuable guidance for educational administrators in improving organizational effectiveness and educational quality.

**Keywords** : *Organizational Citizenship Behavior (OCB); DEMATEL method; intrinsic motivation; organizational identification; job satisfaction.*

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### 1. Introduction

In modern society, organizational development is facing three major trends: an increasingly complex and changing environment, a growing networked organizational structure, and employees' strong pursuit of self-fulfillment (Gibson et al., 2012). These changes have gradually rendered traditional management models less effective. To cope with these complex and dynamic environmental characteristics, organizations need to establish flexible structures that enable timely and effective decision-making in unconventional situations. Additionally, organizations must create environments that

allow employees to fully realize their potential, thereby satisfying their needs for self-fulfillment

These trends are particularly evident in higher education institutions. With the advancement of globalization and information technology, university teachers are no longer merely transmitters of knowledge; they also undertake multiple roles, including research innovation and social service. In the face of an increasingly complex educational environment, teachers' role perception and flexibility have become particularly important. Teachers need to have a comprehensive understanding of their teaching and research positions within the broader context of the university and recognize the elasticity of their role boundaries to ensure they actively contribute to the institution's development and respond effectively to external changes

In summary, teachers' behaviors beyond their defined work roles and their willingness to extend their work roles play a crucial role in the overall effectiveness of higher education institutions (Organ, 1988). The concept of these "extra-role" behaviors was first proposed by (Katz & Kahn, 1978), describing the "proactive behaviors" in which teachers voluntarily make additional contributions to their schools, which are vital for the university's development. Later, Organ (1988) applied social exchange theory to define these spontaneous behaviors as "Organizational Citizenship Behavior" (OCB), referring to actions that, although not formally recognized by the reward system, significantly enhance the overall effectiveness of the organization

The introduction of the OCB concept has had a profound impact on higher education management theory and practice. On one hand, it provides a theoretical foundation for shaping and reinforcing teachers' extra-role behaviors; on the other hand, it offers a behavioral paradigm for cultivating exemplary teachers in the context of globalization. Especially in the context of educational reform, as key members of higher education organizations, teachers' OCB is of great significance to the overall effectiveness of universities and the development of students. Teachers' OCB not only enhances teaching quality and student satisfaction but also promotes the construction of school organizational culture and improves the quality of education

Therefore, studying university teachers' OCB is of significant theoretical and practical value in advancing educational reform and improving school management. This research not only helps to understand teachers' performance in extra-role behaviors and their contribution to school effectiveness but also provides policy-making and practical references for higher education administrators, thereby playing a positive role in improving teaching quality, promoting school development, and advancing educational reform

## 2. Research Objectives

This study aims to identify and analyze the key factors that significantly influence university teachers' Organizational Citizenship Behavior (OCB), providing theoretical support and practical guidance for educational administrators to optimize management strategies and enhance organizational effectiveness.

### **:The specific research objectives include**

2.1 Identify the impact of personal traits on OCB: Analyze how personal traits, such as occupational commitment, intrinsic motivation, and job satisfaction, influence teachers' OCB.

2.2 Evaluate the role of interaction factors: Explore the impact of interaction factors, such as colleague relationships, leadership support, and student feedback, on teachers' OCB.

2.3 Analyze the influence of organizational characteristics: Investigate how organizational characteristics, such as school fairness, resource support, and organizational identification, affect teachers' OCB.

2.4 Examine the impact of external environmental factors: Assess the influence of external factors, such as social expectations, education policy, and community involvement, on teachers' OCB.

## 3. Literature Review

### 3.1 Social Exchange Theory

Social Exchange Theory, founded by George Homans, posits that all social activities involve an exchange, encompassing both material and non-material aspects (Homans, 1958). (Blau, 1964) further expanded this concept, categorizing rewards into intrinsic rewards (emotional satisfaction) and extrinsic benefits (such as interpersonal relationships used as a means to other ends). Resources were also divided into subjective resources (personal skills, experience, character) and objective resources (material wealth, status, reputation).

Social Exchange Theory emphasizes that in interpersonal interactions, individuals gain or lose both material and non-material assets, including money, knowledge, satisfaction, and friendships, through social exchange. In this process, the realization of self-worth and the achievement of mental and psychological satisfaction are the primary benefits. When organizational members exhibit Organizational Citizenship Behavior (OCB), they view their relationship with the organization as a social relationship rather than a purely economic one (Organ, 1988). These behaviors go beyond the formal

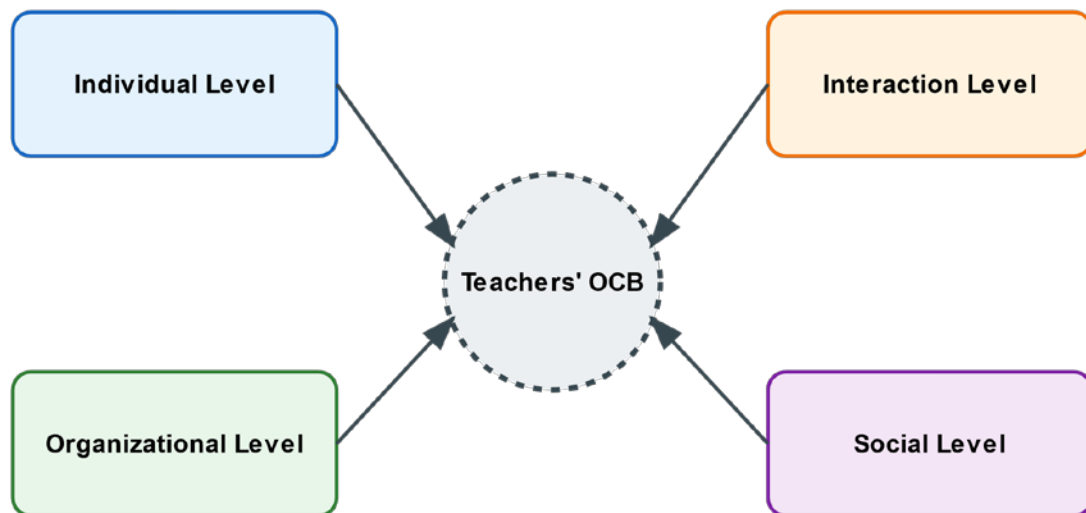
requirements of their work roles and are not covered by the organization's compensation system; members engage in these behaviors to reciprocate the organization

In the educational field, Social Exchange Theory is used to explain teachers' Organizational Citizenship Behavior (TOCB). Research indicates that when teachers feel supported and trusted by school leadership, they are more likely to exhibit behaviors that go beyond their duties, such as voluntarily helping colleagues and participating in school activities. This support includes providing professional development opportunities, recognizing teachers' efforts, and creating a supportive work environment. Teachers' OCB not only enhances the overall effectiveness of the school but also contributes to students' academic performance and behavior

Social exchange behavior is built on a foundation of trust and is voluntary, with the aim of obtaining rewards. However, due to the uncertainty of these rewards, trust becomes a necessary condition. In an organization, managers provide work support and monetary rewards, while organizational members reciprocate with dedication and labor (Cropanzano & Mitchell, 2005). From the perspective of Social Exchange Theory, teachers' OCB is a voluntary reciprocal behavior based on social exchange

### 3.2 Influencing Factors

Based on Social Exchange Theory, the study of teachers' Organizational Citizenship Behavior (OCB) can be reasonably divided into four main levels: individual level, interaction level, organizational level, and social level, as illustrated in Figure 1



(Source: Compiled by this study)

**Figure 1:** Model of Factors Influencing Teachers' Organizational Citizenship Behavior (OCB) Based on Social Exchange Theory

Specifically, the factors at the individual level primarily involve teachers' personal traits and psychological states. These factors include, but are not limited to:

**Occupational Commitment:** The degree of commitment a teacher has to their profession significantly impacts OCB. Teachers with high occupational commitment are more likely to exhibit positive OCB (Somech & Drach-Zahavy, 2000).

**Intrinsic Motivation:** Intrinsic drivers such as a sense of achievement, responsibility, and the need for self-fulfillment can motivate teachers to voluntarily engage in behaviors that go beyond their official duties (Deci & Ryan, 2000).

**Job Satisfaction:** The overall satisfaction a teacher has with their work environment, compensation, and career development, with higher satisfaction leading to a greater likelihood of displaying positive OCB (Bogler & Somech, 2004).

**Psychological Contract:** The unspoken expectations and commitments between teachers and the school. When teachers feel that their psychological contract is fulfilled, they are more likely to exhibit OCB (Robinson & Morrison, 1995).

The factors at the interaction level primarily involve teachers' relationships and interactions with others. These factors include:

**Colleague Relationships:** Good relationships with colleagues can promote OCB among teachers. Cooperation, support, and trust among colleagues are important factors influencing teachers' OCB (Van Dyne & LePine, 1998).

**Leadership Support:** Support and encouragement from school leaders significantly influence teachers' OCB. Leadership care and trust can stimulate positive behaviors in teachers (Podsakoff et al., 1990).

**Student Feedback:** Recognition and feedback from students can enhance teachers' OCB. Positive student feedback makes teachers feel their work is meaningful, thereby increasing OCB (Epstein & Sheldon, 2002).

**Team Atmosphere:** A good team atmosphere and high team cohesion can promote teachers' OCB. The better the team atmosphere, the more likely teachers are to display cooperative and helpful behaviors (Organ, 1988).

The factors at the organizational level primarily involve the organizational characteristics and management practices of the school. These factors include:

**Organizational Fairness:** The perceived fairness in distribution, procedures, and interactions within the organization. The stronger the sense of fairness, the more likely teachers are to exhibit OCB (Greenberg, 1990)

**Resource Support:** The provision of teaching resources, training opportunities, and technical support by the school significantly impacts teachers' OCB. The more adequate the resource support, the more likely teachers are to display OCB (Eisenberger et al., 1986).

**Organizational Identification:** The sense of identification and belonging that teachers feel towards the school influences their OCB. The stronger the identification, the more likely teachers are to engage in behaviors beneficial to the school (Ashforth & Mael, 1989).

**Reward Mechanism:** The school's reward system, including both material and non-material rewards, significantly influences teachers' OCB. The more comprehensive the reward mechanism, the more likely teachers are to exhibit OCB (Podsakoff et al., 2000).

The factors at the social level primarily involve external environments and social influences. These factors include:

**Social Expectations:** The level of expectation and respect that society holds for the teaching profession significantly impacts OCB. The higher the social expectations, the more likely teachers are to exhibit positive OCB (Blau, 1964).

**Education Policy:** National or regional education policies and reforms significantly impact teachers' OCB. The more favorable the policies, the more likely teachers are to exhibit OCB (Somech & Bogler, 2002)

**Community Involvement:** The support and participation of the community and parents in school activities significantly influence teachers' OCB. The more active the community involvement, the more likely teachers are to display OCB (Epstein & Sheldon, 2002).

**Professional Prestige:** The status and prestige of the teaching profession in society influence OCB. The higher the professional prestige, the more likely teachers are to exhibit OCB (Katz & Kahn, 1978).

## 4. Research Design

### 4.1 Factor Coding

Based on a systematic literature review and in-depth discussions with experts and scholars in the relevant field, this study identified and coded 16 key factors that significantly influence teachers' Organizational Citizenship Behavior (OCB). To more precisely analyze the interrelationships and the degree of influence among these factors, the DEMATEL method will be employed for systematic analysis. The coded key factors are presented in Table 1.

**Table 1:** Integrated Results of Potential Factors Influencing University Teachers' Organizational Citizenship Behavior.

Dimension	Code	Potential Factor	Factor Description	Source
<b>Individual Level</b>	F1	Occupational Commitment	The firm commitment and loyalty of teachers to their profession, reflecting a high level of recognition and engagement in their professional roles.	Somech & Drach-Zahavy, 2000
	F2	Intrinsic Motivation	Teachers' work motivation driven by internal factors, stemming from a sense of achievement, responsibility, and the need for self-fulfillment.	Deci & Ryan, 2000
	F3	Job Satisfaction	Teachers' overall satisfaction with aspects such as work environment, compensation, and career development.	Bogler & Somech, 2004
	F4	Psychological Contract	The unspoken expectations and commitments between teachers and the school, i.e., their mutual psychological recognition and agreement.	Robinson & Morrison, 1995
<b>Interaction Level</b>	F5	Colleague Relationship	The cooperative, supportive, and trusting relationships between teachers and their colleagues.	Van Dyne & LePine, 1998
	F6	Leadership Support	The care, trust, and motivation provided by school leadership to teachers.	Podsakoff et al., 1990
	F7	Student Feedback	The recognition and feedback from students regarding teachers' teaching and behavior.	Somech & Drach-Zahavy, 2000
	F8	Team Atmosphere	The cooperative atmosphere and cohesion within the team in which the teacher is a part.	Organ, 1988
	F9	Organizational Fairness	The perceived fairness in distribution, procedural justice, and interactional	Greenberg, 1990

Dimension	Code	Potential Factor	Factor Description	Source
<b>Organizational Level</b>			fairness within the organization as experienced by teachers.	
	F10	Resource Support	The teaching resources, training opportunities, and technical support provided by the school to teachers.	Eisenberger et al., 1986
	F11	Organizational Identification	Teachers' sense of identification and belonging to the school.	Ashforth & Mael, 1989
	F12	Reward Mechanism	The school's reward system, including both material and non-material rewards.	Podsakoff et al., 2000
<b>Social Level</b>	F13	Social Expectations	The level of expectation and respect that society holds for the teaching profession.	Blau, 1964
	F14	Education Policy	National or regional education policies and reforms.	Somech & Bogler, 2002
	F15	Community Involvement	The degree of support and involvement from the community and parents in school activities.	Epstein & Sheldon, 2002
	F16	Professional Prestige	The status and prestige of the teaching profession in society.	Katz & Kahn, 1978

#### 4.2 DEMATEL Method

The DEMATEL method (Decision Making Trial and Evaluation Laboratory) is a systematic analysis approach used to identify and analyze the causal relationships and interdependencies among factors within complex systems. This method was initially developed by scientists at Hitachi to address and understand complex social, economic, and environmental issues (Gabus & Fontela, 1973). DEMATEL constructs a direct relation matrix based on expert opinions to evaluate the direct influence among factors. Through normalization and matrix operations, it calculates a total relation matrix that reveals the degree of influence and dependency for each factor within the system, helping decision-makers identify key factors and their interactions (Tzeng et al., 2007). Finally, by generating a causal diagram, the DEMATEL method visually presents the causal chains and influence paths among factors, providing a scientific basis for optimizing systems and formulating effective strategies (Wu & Lee, 2007).

#### 4.3 Questionnaire Design

In the analysis of complex systems, the rationality and simplification of questionnaire design are crucial. When studying the factors influencing teachers' Organizational Citizenship Behavior (OCB), constructing a comprehensive 16×16 matrix covering all 16 indicators and their interrelationships could provide detailed data but would also impose a significant burden on experts completing the questionnaire. This could lead to fatigue and, consequently, affect the accuracy and reliability of the data. Therefore, based



on expert consultation, this study retained the most representative and significant key factors within each level. These factors have been proven to be important influencers of teachers' OCB in existing literature and through expert recommendations, such as occupational commitment, intrinsic motivation, and job satisfaction.

To this end, the study designed a simplified questionnaire incorporating the 16 key indicator variables discussed earlier, focusing on the direct influence relationships among key factors. The questionnaire comprises 15 items, using a rating scale similar to the Likert scale, where respondents rate the direct influence between each pair of factors on a scale of 0 to 4, with 0 indicating no influence and 4 indicating a very strong influence. This rating method effectively quantifies the direct influence between factors, providing foundational data for subsequent DEMATEL analysis.

#### **4.4 Reliability and Validity Explanation**

Given the specific nature of this study's questionnaire and the high reliability of the selected expert sample, traditional methods of assessing reliability and validity (such as calculating Cronbach's Alpha through a pilot survey and conducting factor analysis) may not be scientifically or statistically meaningful with such a small sample size. Therefore, the study adopted the following measures to ensure the reliability and validity of the questionnaire: First, multiple experts in the field reviewed the questionnaire to ensure that the items covered all key factors, and revisions were made based on expert feedback to ensure content validity. Second, independent scoring by multiple experts was used to check for consistency and face validity, verifying whether the questionnaire effectively measures what it is intended to measure. Additionally, the questionnaire design was based on key factors and interrelationships validated in existing literature, ensuring that the items have a solid theoretical foundation and scientific basis. Finally, the DEMATEL method itself focuses on the interdependencies and causal relationships among factors, making it suitable for studies with smaller sample sizes. Through these measures, the study ensures the scientific reliability of the questionnaire, providing a solid data foundation for subsequent DEMATEL analysis.

#### **4.5 Sample Selection Explanation**

When using the DEMATEL method to analyze the factors influencing teachers' Organizational Citizenship Behavior (OCB), determining the number and quality of experts participating in the evaluation is crucial to ensuring the scientific validity of the results. To ensure diversity and representativeness in the evaluation results, this study invited 14 experts from the higher education system to participate in the evaluation. These experts represent various professional backgrounds and perspectives within the relevant field. Among them, 11 hold senior academic positions (associate professor or above) or have Ph.D. degrees in education or management disciplines. The remaining 3 are assistant professors with extensive experience in educational management. This selection of experts

enables a comprehensive evaluation of OCB factors from both theoretical and practical perspectives.

Although the sample size of 14 experts is relatively small, several measures were taken to mitigate the impact of this limitation and ensure the reliability and validity of the results. First, by selecting highly experienced and knowledgeable experts, the study improved the accuracy and consistency of the evaluations. Second, multiple checks and consistency calibrations were performed on the rating data to reduce potential errors caused by the small sample size, thereby enhancing data precision. Additionally, the DEMATEL method is well-suited for small-sample studies, as it can reveal the interdependencies and influence paths among factors through causal analysis, thus maintaining a high level of scientific rigor even with a smaller sample.

## **5. Research Results**

In the DEMATEL method, data is first collected through a questionnaire to construct a direct influence matrix among various factors. Next, this matrix needs to be normalized to eliminate the effects of different dimensions among the indicators. After normalization, further analysis can be conducted to determine the direct relationships, indirect relationships, and causal relationships among the factors.

In the  $16 \times 16$  direct relation matrix generated from the simplified questionnaire, each cell represents the degree of direct influence that one factor has on another. Since the questionnaire design includes only relationships between selected key factors rather than covering all possible factor pairs, some cells in the final matrix may be empty or not addressed. For these unaddressed factor pairs, a value of 0 is used to indicate no influence.

### **5.1 Direct Relation Matrix**

The collected rating data was first organized into a direct relation matrix  $D$ , where  $D_{ij}$  represents the direct influence of factor  $j$  on factor  $i$ . To minimize the impact of subjective factors from individual experts, the mean method was used to aggregate the rating data from all experts, calculating the average value to three decimal places to form the final direct relation matrix  $D$ . This matrix represents the interactions among the influencing factors. As shown in Table 2,  $D_{F2,F1}=2.786$  indicates that factor  $F1$  (Occupational Commitment) has a direct influence of 2.786 on factor  $F2$  (Intrinsic Motivation), implying that occupational commitment has a strong direct influence on teachers' intrinsic motivation.

**Table 2:** Direct impact matrix

	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	F14	F15	F16
F1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
F2	2.786	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
F3	2.786	2.929	0	0	0	0	0	0	0	0	0	0	0	0	0	0
F4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
F5	2.214	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
F6	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0
F7	0	2.786	0	0	0	0	0	0	0	0	0	0	0	0	0	0
F8	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0
F9	0	0	0	0	0	3.5	0	0	0	0	0	0	0	0	0	0
F10	0	0	0	0	0	3.143	0	0	0	0	0	0	0	0	0	0
F11	0	0	0	0	0	0	3.429	0	3	0	0	0	0	0	0	0
F12	0	0	0	0	0	0	0	3.214	0	0	0	0	0	0	0	0
F13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
F14	0	0	0	0	0	0	0	0	0	0	0	2.857	0	2.643	0	0
F15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
F16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

From Table 2, it can be observed that the individual-level factors "Occupational Commitment" (F1), "Intrinsic Motivation" (F2), and "Job Satisfaction" (F3) have significant direct impacts on several factors at both the interaction and organizational levels. For example, F2 "Intrinsic Motivation" not only directly influences F3 "Job Satisfaction" but also has a strong effect on F7 "Student Feedback." At the organizational level, "Organizational Identification" (F11) may indirectly influence teachers' utilization of resources, supporting a broader commitment to the institution. Meanwhile, "Organizational Fairness" (F9) and "Resource Support" (F10) independently play important roles in promoting teachers' Organizational Citizenship Behavior (OCB). At the social level, "Social Expectations" (F13) has a direct impact on "Professional Prestige" (F16), which in turn motivates teachers' engagement in OCB. Conversely, "Community Involvement" (F15) has a limited direct impact within the matrix, indicating that it likely functions as a resultant factor rather than a primary driver. Overall, intrinsic motivation at the individual level and organizational identification at the organizational level are the key driving factors influencing teachers' OCB. These factors not only directly impact teachers' behaviors but also indirectly promote the occurrence of OCB through interactions with other factors.

### 5.2 Normalized Direct Relation Matrix

The normalized matrix is derived from the original direct relation matrix by eliminating the effects of dimensional differences, resulting in a standardized matrix. The primary purpose is to scale the direct influence values among all factors to a comparable

range (typically between 0 and 1) to facilitate clearer analysis and comparison of the influence degree among the various factors.

In the normalization process used in this study, we first sum all the elements in each row of the direct relation matrix to obtain the total influence that a particular factor exerts on all other factors. Then, we identify the maximum value among these row sums, representing the highest total influence that a particular factor has on all other factors within the direct relation matrix.

Finally, each element in the matrix is divided by this maximum row sum value to obtain the corresponding normalized value. Through this process, all values in the matrix are standardized, allowing for a more accurate reflection of the relative influence among the factors.

The normalization formula used is:

$$N_{ij} = \frac{D_{ij}}{\max(\sum_{j=1}^n D_{ij})}$$

where  $\max(\sum_{j=1}^n D_{ij})$  represents the maximum row sum in matrix D. This step scales the values in matrix D to the range of 0 to 1, making the influence degree among different factors easier to compare. As shown in Table 3,  $N_{F2,F1}=0.433$  indicates that the normalized influence of factor F1 (Occupational Commitment) on factor F2(Intrinsic Motivation) is 0.433, implying that occupational commitment has a moderately high influence on teachers' intrinsic motivation.

**Table 3:** Normalized Direct Relationship Matrix

	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	F14	F15	F16
F1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
F2	0.433	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
F3	0.433	0.456	0	0	0	0	0	0	0	0	0	0	0	0	0	0
F4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
F5	0.344	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
F6	0	0	0.467	0	0	0	0	0	0	0	0	0	0	0	0	0
F7	0	0.433	0	0	0	0	0	0	0	0	0	0	0	0	0	0
F8	0	0	0.467	0	0	0	0	0	0	0	0	0	0	0	0	0
F9	0	0	0	0	0	0.544	0	0	0	0	0	0	0	0	0	0
F10	0	0	0	0	0	0.489	0	0	0	0	0	0	0	0	0	0
F11	0	0	0	0	0	0	0	0.533	0	0.467	0	0	0	0	0	0
F12	0	0	0	0	0	0	0	0	0.5	0	0	0	0	0	0	0
F13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.467

	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	F14	F15	F16
F14	0	0	0	0	0	0	0	0	0	0	0	0	0.444	0	0.411	0
F15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
F16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

From Table 3, it can be seen that individual-level factors, particularly F2 "Intrinsic Motivation" and F3 "Job Satisfaction," complement each other in driving positive teacher behaviors, indicating a high degree of interdependence between the two. Additionally, at the organizational level, F11 "Organizational Identification" and F10 "Resource Support" demonstrate significant bidirectional influence, confirming the critical role of teachers' organizational identification in resource utilization, with F9 "Organizational Fairness" further strengthening this effect. At the social level, the direct influence of F13 "Social Expectations" on F16 "Professional Prestige" highlights the significant contribution of social-level factors to teachers' OCB. Overall, the synergy between individual motivation and the organizational environment plays a crucial role in promoting teachers' OCB.

### 5.3 Total Relationship Matrix

The Total Relationship Matrix T is derived from the normalized direct relationship matrix through further matrix operations, reflecting the overall influence relationships among factors. This matrix not only includes the direct influences among factors but also considers the indirect influences between them.

In this study, the total relationship matrix T is calculated based on the normalized direct relationship matrix N using the following formula:

$$T = N \times (I - N)^{-1}$$

where I is the identity matrix, and N is the normalized direct relationship matrix. In this step,  $(I-N)^{-1}$  represents the inverse of the matrix, and the matrix operation yields the total relationship matrix T, as shown in Table 4.

**Table 4:** Total Relationship Matrix

	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	F14	F15	F16
F1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
F2	0.433	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
F3	0.631	0.456	0	0	0	0	0	0	0	0	0	0	0	0	0	0
F4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
F5	0.344	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
F6	0.294	0.213	0.467	0	0	0	0	0	0	0	0	0	0	0	0	0
F7	0.188	0.433	0	0	0	0	0	0	0	0	0	0	0	0	0	0
F8	0.294	0.213	0.467	0	0	0	0	0	0	0	0	0	0	0	0	0

<b>F9</b>	0.16	0.116	0.254	0	0	0.544	0	0	0	0	0	0	0	0	0	0
<b>F10</b>	0.144	0.104	0.228	0	0	0.489	0	0	0	0	0	0	0	0	0	0
<b>F11</b>	0.224	0.162	0.355	0	0	0.228	0	0.533	0	0.467	0	0	0	0	0	0
<b>F12</b>	0.08	0.058	0.127	0	0	0.272	0	0	0.5	0	0	0	0	0	0	0
<b>F13</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.467
<b>F14</b>	0	0	0	0	0	0	0	0	0	0	0	0	0.444	0	0.411	0.207
<b>F15</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>F16</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

In Table 4,  $T_{F3,F1}=0.631$  indicates that the total influence of Occupational Commitment (F1) on Job Satisfaction (F3) is 0.631, reflecting the significant impact of occupational commitment on teachers' job satisfaction, including both direct and indirect effects. The total relationship matrix reveals the complex roles of various factors in influencing teachers' Organizational Citizenship Behavior (OCB).

First, Intrinsic Motivation (F2) continues to demonstrate its critical influence within the system, directly affecting Job Satisfaction (F3) and indirectly impacting several other factors through Leadership Support (F6) and Student Feedback (F7). This positions F2 as a core driver of positive teacher behaviors. Second, Organizational Identification (F11) significantly influences Resource Support (F10) and Team Atmosphere (F8), indicating that enhancing teachers' organizational identification can improve the work environment and strengthen OCB. Additionally, Organizational Fairness (F9) plays an important role in enhancing Resource Support and influences other factors through Leadership Support. At the social level, Social Expectations (F13) indirectly enhance Professional Prestige (F16) through interactions with other factors, thereby motivating teachers to exhibit more Organizational Citizenship Behavior.

### 5.4 Comprehensive Factor Analysis

After determining the total relationship matrix influencing teachers' Organizational Citizenship Behavior (OCB), we can calculate the influence of each factor. The influence degree  $D$  represents the total impact a factor has on other factors, while the dependency degree  $C$  reflects the total influence a factor receives from other factors. The centrality  $D+C$  ( $M$ ) represents the combined influence and dependency, indicating the overall importance of the factor within the system. The prominence  $D-C$  ( $R$ ) is the difference between the influence degree and the dependency degree, used to determine whether a factor primarily acts as a "cause" or an "effect." These calculations are based on the total relationship matrix and are derived from an analysis of the direct and indirect relationships among all factors. The final results are presented as the comprehensive influence index values for each factor (Table 5) and the cause-effect distribution map (Figure 2).

**Table 5:** Comprehensive Influence Index Values of Factors

Factor	Influence Degree (D)	Influence Received Degree (C)	Centrality (D+C) (M) (M)	Prominence (D-C) (R)	Weight
F1	0	2.793	2.793	-2.793	0.127
F2	0.433	1.754	2.187	-1.32	0.099
F3	1.086	1.898	2.984	-0.811	0.136
F4	0	0	0	0	0
F5	0.344	0	0.344	0.344	0.016
F6	0.974	1.534	2.507	-0.56	0.114
F7	0.621	0	0.621	0.621	0.028
F8	0.974	0.533	1.507	0.44	0.068
F9	1.074	0.5	1.574	0.575	0.072
F10	0.965	0.467	1.431	0.498	0.065
F11	1.969	0	1.969	1.969	0.089
F12	1.037	0	1.037	1.037	0.047
F13	0.467	0.444	0.911	0.022	0.041
F14	1.063	0	1.063	1.063	0.048
F15	0	0.411	0.411	-0.411	0.019
F16	0	0.674	0.674	-0.674	0.031

In Table 5, the analysis of each factor's centrality and prominence reveals the key influencing factors of teachers' Organizational Citizenship Behavior (OCB) and their roles within the system.

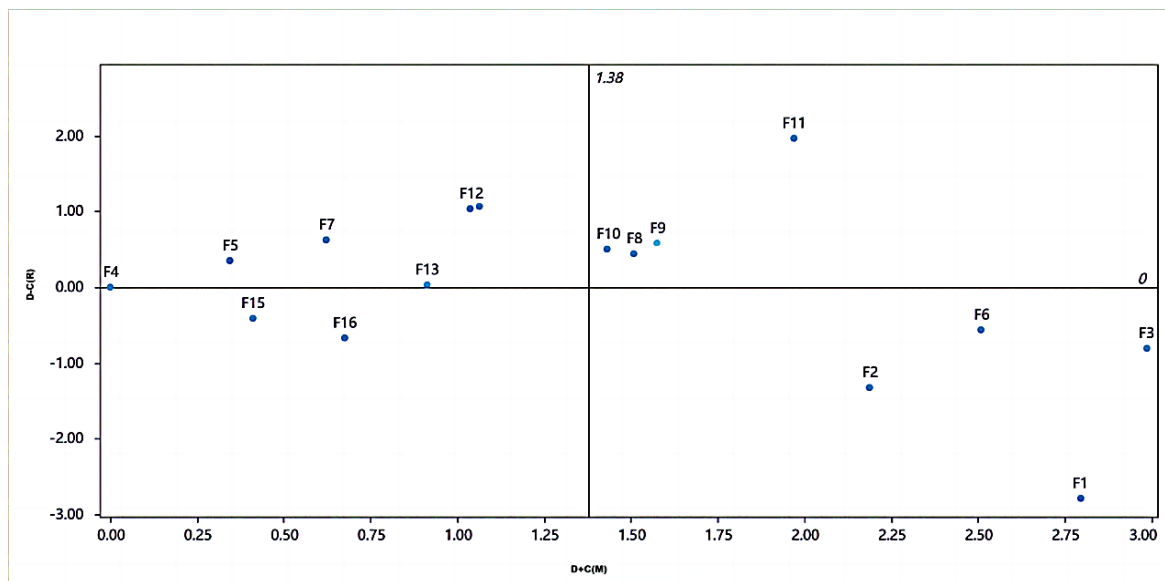
First, Job Satisfaction (F3) has the highest centrality D+C value of 2.984, indicating that it is both a significant influencing factor and is influenced by multiple other factors within the system. Its central position highlights the critical role of job satisfaction in teachers' OCB, exerting a substantial influence on other factors. In contrast, Organizational Identification (F11) has the highest prominence D-C value of 1.969, suggesting that it is a strong causal factor that significantly drives the development of other factors. Leadership Support (F6) also exhibits a high centrality D+C=2.507 and a prominence D-C=-0.56, indicating that while it is an important influencing factor, it is also susceptible to influence from other factors.

Second, the analysis identifies several key positive driving factors. Colleague Relationships (F5), Student Feedback (F7), Organizational Fairness (F9), Resource Support (F10), Organizational Identification (F11), and Reward Mechanisms (F12) all show positive prominence (positive D-C values), indicating that these factors play a positive role in promoting teachers' OCB. For example, Organizational Fairness (F9) has a prominence value of 0.575, indicating that it is a positive driving factor that directly enhances teachers' resource support and job satisfaction, thereby strengthening their OCB.

However, there are also some negative outcome factors. Occupational Commitment (F1), Intrinsic Motivation (F2), and Job Satisfaction (F3) all have negative prominence

values, suggesting that they tend to function more as outcome factors. Particularly, Occupational Commitment (F1) has a prominence value of -2.793, showing that it is primarily influenced by other factors rather than directly driving changes in other factors.

In the weight analysis, Job Satisfaction (F3) (0.136), Occupational Commitment (F1) (0.127), and Leadership Support (F6) (0.114) have the highest weights, indicating that these factors have a significant influence on teachers' OCB. Enhancing these factors may positively impact overall educational management practices, helping to improve teachers' OCB and increase the overall effectiveness of schools.



(Source: Compiled by this study)

**Figure 2:** Cause-Effect Distribution Map

In the DEMATEL analysis shown in Figure 2, the horizontal axis represents the "Centrality D+C (M)," which indicates the overall influence of each factor on the system. The vertical axis represents the "Prominence D-C (R)," indicating whether a factor tends to act as a cause or an effect.

Factors in the first quadrant (upper right), such as F11, show both positive D+C and D-C values, indicating that these factors are not only important influences within the system (having high centrality) but also tend to act as cause factors. Factors in the second quadrant (upper left), such as F4, F5, F7, F12, and F13, have positive D+C values but negative D-C values, meaning that they have a significant impact on the system but function more as outcome factors. Factors in the third quadrant (lower left), such as F15 and F16, have both negative D+C and D-C values, indicating that they are neither very important nor primarily act as cause factors. Factors in the fourth quadrant (lower right), such as F1, F2, F3, and F6, have positive D+C values and negative D-C values, suggesting



that while these factors have a significant influence on the system, they are more likely to act as cause factors.

## 6. Discussion

The data analysis and research findings of this study indicate that the key driving factors of teachers' Organizational Citizenship Behavior (OCB) are primarily concentrated at the individual and organizational levels, with significant interactions among these factors. The following key factors were identified as having a significant impact on teachers' OCB:

**Organizational Identification (F11) :** This is identified as the core driving factor in promoting teachers' OCB. The analysis shows that organizational identification exhibits high centrality and prominence within the system, indicating that teachers' sense of identification and belonging to the school largely determines whether they will engage in behaviors that go beyond their formal job responsibilities. Enhancing teachers' organizational identification can not only inspire a positive work attitude but also encourage them to more actively participate in the school's development and improvement processes, thereby increasing overall organizational effectiveness.

**Job Satisfaction (F3):** Job satisfaction is another critical factor that demonstrates its importance within the system. Job satisfaction is influenced by multiple factors (such as leadership support, organizational fairness) and exerts a significant positive impact on other factors (such as occupational commitment, intrinsic motivation). Teachers' job satisfaction is directly linked to their occupational loyalty and intrinsic motivation, which in turn significantly influences their OCB. Improving teachers' job satisfaction can effectively enhance their overall contribution to the school.

**Leadership Support (F6):** Leadership support plays a crucial role in promoting teachers' OCB. The study found that leadership support not only directly enhances teachers' job satisfaction but also indirectly drives the manifestation of OCB by boosting teachers' intrinsic motivation and organizational identification. Effective leadership support, such as individualized care, provision of professional development opportunities, and positive feedback, can increase teachers' self-efficacy and strengthen their sense of belonging and loyalty to the school.

**Intrinsic Motivation (F2):** Intrinsic motivation, primarily influenced by organizational factors, serves as a key driver for teachers' voluntary engagement in OCB. It directly impacts job satisfaction and occupational commitment, determining teachers' willingness to perform OCB. Schools can further stimulate intrinsic motivation through appropriate incentives and a supportive environment.

Organizational Fairness (F9) and Resource Support (F10) : These two factors show strong interactivity at the organizational level. Perceived organizational fairness and sufficient resource support not only directly enhance teachers' job satisfaction but also promote OCB by strengthening their organizational identification. Fair resource allocation and reasonable policy implementation can increase teachers' trust and sense of belonging to the organization, thereby encouraging them to more actively participate in organizational activities and contribute additional effort.

## **7. Conclusion and Recommendations**

Using the DEMATEL method and data from questionnaires completed by 14 higher education experts, this study analyzed key factors influencing teachers' Organizational Citizenship Behavior (OCB). The results show that OCB is driven by a combination of individual and organizational factors, with significant interactions between them. Key factors such as Organizational Identification, Job Satisfaction, Leadership Support, Intrinsic Motivation, Organizational Fairness, and Resource Support play central roles in encouraging teachers to go beyond their formal responsibilities. These factors not only impact teachers' attitudes and satisfaction but also cultivate a supportive organizational culture that motivates additional contributions. By understanding and leveraging these factors, educational administrators can foster a school environment that enhances teachers' OCB, supporting the school's development and effectiveness.

Based on these findings, this study offers recommendations to effectively promote teachers' OCB and enhance overall school effectiveness. Grounded in recent research, these recommendations provide educational administrators with scientific support and theoretical guidance.

### **7.1 Enhance Organizational Identification**

First and foremost, enhancing teachers' organizational identification is crucial for promoting OCB. Schools should focus on strengthening cultural development and creating a positive organizational atmosphere, fostering a sense of belonging and mission among teachers. This goes beyond material incentives and includes emotional identification and psychological support (Ashforth & Mael, 1989). For instance, by fostering shared values and a sense of mission, teachers can align with the school's goals and vision, leading to greater commitment and loyalty in their work. Additionally, involving teachers in the decision-making process is an effective way to enhance organizational identification. When teachers feel that they have a substantive impact on school management and development, they are more likely to engage in behaviors that go beyond their formal job responsibilities. This not only contributes to the long-term development of the school but also stimulates teachers' enthusiasm and creativity (Eisenbeiss et al., 2015).

## **7.2 Strengthen Leadership Support**

Leadership support is equally critical in promoting teachers' OCB. School administrators should develop transformational leadership skills, focusing on individualized care and motivation for teachers, and boosting their enthusiasm and intrinsic motivation through continuous support and encouragement (Bass & Riggio, 2006). Specifically, school leaders should communicate with teachers with care and respect, promptly understanding their needs and challenges, and providing the necessary assistance and guidance. In addition to emotional support, offering professional development opportunities is also an effective way to enhance teachers' organizational identification. By regularly organizing training sessions, workshops, and career development planning, schools can help teachers improve their professional skills and teaching effectiveness, thereby increasing their confidence and identification with the school (Day et al., 2016). When teachers feel supported by leadership and perceive the professional development opportunities provided by the school, they are more likely to exhibit positive OCB in their work.

## **7.3 Improve Job Satisfaction**

Improving job satisfaction is another key aspect of promoting teachers' OCB. Schools should optimize the work environment for teachers, including reasonable workload distribution, work-life balance, and providing career development opportunities, to enhance overall job satisfaction (Bakker & Demerouti, 2017). Furthermore, establishing effective communication mechanisms is crucial. Schools should ensure that teachers' opinions and feedback are promptly conveyed to the management and are fully considered in the decision-making process. Such communication mechanisms not only enhance teachers' job satisfaction but also strengthen their trust and sense of belonging to the school. When teachers feel that their voices are heard and valued, they are more likely to voluntarily engage in behaviors that go beyond their formal duties, thereby improving the overall effectiveness of the school.

## **7.4 Ensure Organizational Fairness and Resource Support**

Finally, ensuring organizational fairness and adequate resource support is essential for enhancing teachers' OCB. In the process of resource allocation and policy formulation, school administrators should ensure transparency and fairness, avoiding perceptions of unfairness among teachers, which can significantly affect their job satisfaction and OCB (Colquitt et al., 2013). A fair work environment can strengthen teachers' sense of belonging and loyalty, thereby encouraging positive behaviors. Additionally, providing sufficient teaching resources and support systems, enabling teachers to effectively carry out their teaching duties and feel supported by the school, is an effective way to enhance job satisfaction and organizational identification (Skaalvik & Skaalvik, 2018). When teachers

feel that the organization supports their work, they are more willing to contribute extra effort to the school, which helps improve the overall effectiveness and quality of education.

## 8. Limitations of the Study

This study has achieved certain results in identifying and analyzing the key factors influencing teachers' Organizational Citizenship Behavior (OCB), but there are still some limitations that warrant further exploration in future research. First, due to the specific nature of the questionnaire design in this study, although 14 experts were invited to participate in the evaluation, the subjectivity of the ratings and the limited sample size may affect the generalizability of the research findings. Additionally, the study's focus was primarily on university teachers, so the conclusions drawn may not be directly applicable to other educational stages (such as primary and secondary schools) or different types of educational institutions. Future research should consider expanding the sample to include a wider range of educational institutions and teachers from diverse professional backgrounds to enhance the external validity and generalizability of the findings. Furthermore, future studies should explore more potential factors influencing teachers' OCB, especially in the context of different cultural backgrounds and educational systems, to further refine and expand the theoretical framework of this study.

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