

# THE RELATIONSHIP OF TRANSFORMATIONAL LEADERSHIP, CORPORATE SOCIAL RESPONSIBILITY, WORK ENGAGEMENT AND TEACHER INNOVATION CAPABILITY IN COLLEGES OF HAINAN

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## Abstract

In today's information age, innovation has become the first power of social development, which is regarded as the basis of the overall competitiveness of a country or a region. As teachers play the key role in educational reform and development, teacher innovation capability is highly demanded. The aim of this research was to explore current situation and the relationship of transformational leadership (TL), corporate social responsibility (CSR), work engagement (WE) and teacher innovation capability (TIC) in colleges of Hainan so as to create a new model for improving teacher innovation capability. A quantitative research methodology was used in this study and the structural equation modeling technique was employed to analyze the data from 300 college teachers in Hainan. The findings indicated that transformational leadership and corporate social responsibility have a positive impact on teacher innovation capability both directly and indirectly through the mediating role of work engagement. The results of this study are of great significance to the research theories and practices on teacher management and development programs in higher education, as well as the local educational improvement and economic growth.

**Keywords:** Transformational Leadership, Corporate Social Responsibility, Work Engagement, Teacher Innovation Capability.

## 1. INTRODUCTION

### *Research Background*

Innovation is the first power for a national progress and an inexhaustible motive force for a national prosperity. With the greater demand for innovative talents, it is becoming an imminent task of future education to enhance students' innovative capability. Therefore, culturing and improving teacher innovation capability has become the core proposition in the field of teacher education. China has released many related policies in the last decade.

Early in the year of 2010, China's policies (China's Ministry of Education, 2010) specified that furthering teaching reform and enriching teaching methods are badly and constantly needed. Great attention must be given to the enhancement of teaching innovation, reform of talent cultivation modes, and the whole teaching procedures must be integrated with scientific spirit, innovative thinking and social responsibility (China's State Council, 2016).

It was in 2018 that building innovative teacher teams with high quality and professional level as a goal was put forward by Chinese government (State Council of China, 2018) to further emphasize that innovative talent cultivation lies in high quality educational system. On this basis, china proposed that it is a goal that there should be a significant improvement on teacher innovation capability in comprehensive quality and specialization by the year 2035. Training teachers with innovation capability is the key factor for future educational development (State Council of China, 2018). So far, teacher innovation capability has received unprecedented national attention.

On the other hand, Hainan is one of the special economic zones in China, which lies in the very south of China with the most favorable climate and tourism resource. In 2009, it was chosen to be a pilot zone for China's tourism reform and innovation identified as international tourism island (State Council of China, 2010). In 2018, the project of building Hainan free trade port was launched and supported by Chinese government (State Council of China, 2018). In order to accelerate the innovation in technology and financial reform, a guideline should be strictly followed that implementing the strategy of building a strong country with talented people is the most effective way to continuously improve the economical innovation and competition in Hainan (CPC Central Committee, State Council, 2020).

Therefore, as an international tourist island and free trade port in China, Hainan endeavors to speed up its economy development so as to fully fulfill its role on the world stage, which demands joint efforts from more innovative talents and college graduates for the sake of making contribution to its local construction. As a result, improving teacher innovation capability is considered the uppermost priority for the construction of teacher teams in higher education in Hainan for cultivating high quality international talents with innovation capability.

### ***Problem Statement***

With the rapid development of new scientific and technological revolution, scientific and technological progress and innovation have become a decisive factor in economic and social development, as well as the basis of a country and region's comprehensive competitiveness. Without innovation capability, it would be difficult for a person, an organization and a country to compete and survive in the future world. Although Hainan acts as a special economic zone, international tourism island and free trade port, its education and economic development are still backward.

Innovative teachers and talents are badly needed. There have been many scholars that have conducted a lot of research on studying employee innovation capability and its relationship with transformational leadership, corporate social responsibility and work engagement (Al-Husseini et al., 2021; Tan et al., 2021; Mohammed et al., 2022; Cai et al., 2023; Ismail et al., 2019; Aldabbas et al., 2023; Vladić et al., 2021; Ismael & Yesitas, 2020; Ahmad et al., 2022).

However, most of the research conducted mainly focus on context of companies, enterprises, hotels, banking, hospital, manufacture, tourism and in other fields. It is seldom investigated in the context of higher education and targeted at college teachers in China. And the studies

measuring the link of TL, CSR and TIC with WE as a mediator are rarely available. Practically, this model is not yet tested among college teachers in Hainan province of China.

### ***Research Questions***

The following questions are addressed in this research:

- What is the current situation of TL, CSR, WE and TIC in colleges of Hainan?
- What is the relationship between TL, CSR, WE and TIC in colleges of Hainan?
- What is the Model of TCWT (TL, CSR, WE and TIC) in colleges of Hainan?

### ***Research Objectives***

The research objectives are as follows:

- To explore the current situations of TL, CSR, WE and TIC in colleges of Hainan.
- To explain the relationship between TL, CSR, WE and TIC in colleges of Hainan.
- To create the Model of TCWT (TL, CSR, WE and TIC) in colleges of Hainan.

## **2. LITERATURE REVIEW**

### ***Teacher Innovation Capability (TIC)***

The famous American scholar of Communications Everett M. Rogers (2003) pointed out that innovation refers to new ideas, new practice and new things that are created by individuals or organizations. As for Teacher Innovation Capability, it is the creation and application of new ideas, innovative teaching methods, and novel designing for courses in teachers' professional work (Anderson et al., 2014; Lu, 2019).

College teacher innovation capability means college teachers' ability of application of original and unique opinions into teaching and scientific researching to discover effective teaching methods and achieve research results for the sake of promoting social development (Zhou & Fan, 2018; Xu, 2021).

In this research, the dimensions for Teacher Innovation Capability (TIC) will be teachers' innovation awareness (IAW), innovative thinking (ITH), innovation application (IAP) and innovation achievements (IAC).

Firstly, in the framework of theory of planned behavior (TPB) (Ajzen, 2002), awareness is an antecedent of attitudes and behavioral intentions. Teachers' innovation awareness means teachers' attitude, readiness or intentions for innovation.

Secondly, innovative thinking in science learning could help people to broaden their horizon and supply answers to science problems (Sumarni & Kadarwati, 2020). Innovative thinking in this research means teachers' ability to recognize problems and come up with new ideas or novel methods or effective strategies for solving problems and improving performance in their teaching and practice.

Thirdly, innovation application means teachers can use novel ideas and methods for creative teaching and problem solving. Innovation achievement means the transformation of their innovative teaching and researching results or performance into social service, such as publications or prizes they accomplish in their teaching and study.

### ***Transformational Leadership (TL)***

According to Burns' (1978) *Leadership*, transformational leadership (TL) means that leaders undertake and evoke employees' high level demands or expanding their needs or wishes through making them sense the significant meaning and responsibility of the commitment, and successfully direct them towards achieving better performance for group or organizational interest than those an individual expects.

Transformational leaders push their subordinates to move towards an expected future by performing individualized behavior and a common vision (Fan et al., 2017; Uddin et al., 2018). Balwant et al. (2020) emphasized that as a target orientated leader, he or she describes a vision in a positive way and empower his or her followers to pursuit shared goals and serves as a role model to deal with existing problems innovatively, taking into consideration followers' personal requirements, and rewarding them when realizing the share goals, which is considered a process that arouses stronger motivation and higher commitment in employees who try their utmost to outperform their work (Dwiparaniti & Netra, 2021).

According to Bass (1985), transformational leadership is made up of four essential elements i.e. idealized influence (II), inspirational motivation (IM), intellectual stimulation (IS) and individualized consideration (IC).

Firstly, Idealized influence mainly refers to behavior of leading subordinates to trust, worship and follow their leaders with his aura or modeling, which can be called as charisma (Herrmann & Felfe, 2012).

Secondly, inspirational motivation takes place when transformational leaders express to their subordinates about a desirable expectation on them and encourage them to join the team becoming part of shared goal. They are united in practice through applying teamwork and emotional appeal to achieve the shared goal, which results in better performance rather than fighting only for their individual interest (Bass, 1999).

Thirdly, intellectual stimulation takes place when transformational leaders inspire their subordinates' creativity to search for new ways to deal with existing problems (Bass, 1999) through challenging and altering practices (Jung, Chow, & Wu, 2003).

Last but not least, individualized consideration means transformational leaders care about every subordinate and show concern for their individual needs, skills requirements and desires as well as listening carefully to them so as to cultivate their subordinates respectively according to their different individual conditions, acting as instructors or advisor to provide help for their subordinates' development in the process of coping with their individual challenges (Bass, 1999).

### ***Corporate Social Responsibility***

In 1953, Bowen (1953) was the first to propose the concept of CSR from the perspective of a manager, defining CSR as businessmen's duty to seek for policies, make decisions or act in accordance with the rules, which are highly regarded as our desirable purpose and values in society. Afterwards, Carroll (1979) interpreted in his research scope of an organization's duties and gave his definition of CSR as the social responsibility of business covering the economic, lawful, ethical, and discretionary anticipation that society has on an organizations in a given period. According to Turker (2009), CSR refers to corporate behaviors that bring positive effects on stakeholders and benefits that go beyond its only interests. It indicates a corporate's behavior which aims at having a positive influence on the society through activities which produce the greater benefits for customers, environment, community, stakeholders and society (Galdeano et al., 2019). Generally speaking, most of the definitions of corporate social responsibility are given from the perspective of companies, businesses or corporations. Seldom did scholars use CSR in educational context. Therefore, in this study, corporate social responsibility is conceptualized as a range of school practices that aim to promote the social, economic and environmental development, reflect a school's correct value, establish a school's positive reputation of making contribution to society and increase teachers' pride and recognition of the school so as to create their better attitude and behavior toward their work.

Many scholars hold the belief that CSR is a concept with dimensions associated with different organizational stakeholders, including employees, communities, customers, and environment (El Akremi et al., 2018; Farooq et al., 2017). Employees' perceived CSR can be divided into internal CSR and external CSR (Jia et al., 2019; Werther & Chandler, 2010). External CSR is true of activities aiming at local government, natural resources, and customers (Ashrafi et al., 2020). Among them, community-related CSR refers to charity contributions to social welfare projects, economic development, and collaboration with non-government organizations (Ahmad et al., 2020). Environment-related CSR refers to activities in relation to environmental protection, such as emissions management, environmental preservation projects, and policies of sustainable development for future generations (Bosch-Badia et al., 2017). Customer-related CSR refers to the customers' requirements of high quality products or services, their satisfaction and preferences demands (Ahmad et al., 2020; Bosch-Badia et al., 2017). As this study is set in the colleges, thus customer mainly refers to students and CSR towards environment is not so closely related. Therefore, the other four CSR dimensions are chosen in this research: Employee-related CSR (EMC), Customer-related CSR (CUC), Community-related CSR (COC) and Government-related CSR (GOC).

### ***Work Engagement***

Schaufeli et al. (2002) defined work engagement as a work-related mind state that is positive and satisfying which has the features in term of vigor, dedication and absorption. In other words, work engagement is a psychological condition of employees at work combining three elements: emotion, cognitive, and vigor (Albrecht et al., 2018; Kwon & Kim, 2020). Seeing work engagement differently from recent study, it is considered to be a state that employees show high enthusiasm, passion and diligence at this work (Dwiparaniti et al., 2021). In this

study, work engagement in college context refers to the teachers' psychological recognition of their work and the work performance as reflection of individual value and a positive and fulfilling state of mind related to work with features of vigor, dedication and absorption. Three dimensions are included in this study: vigor, dedication and absorption. Vigor (VG) refers to teachers' powerful resilience and abundant energy at work showing their strong desire and persistence. Dedication (DD) refers to teachers' enthusiasm, inspiration, pride, recognition of work, significance and degree of involvement in their jobs. Absorption (AS) is related to the level of teachers' concentration or the depth of immersion in their jobs without being aware of time or energy they devote to their work.

### ***Transformational Leadership and Teacher Innovation Capability***

Some scholars have done research on the relationship between different leadership styles and employee innovation. According to the study of Shafi et al. (2020), the results indicates the following aspects of transformational leadership, namely inspirational motivation, idealized influence and intellectual stimulation affect employees' innovation positively. Basing on the significant relationship between TL and teacher innovation, teacher innovation capability can be increased through strengthening transformational leadership (Rais & Rubini, 2022). Previous research offer evidence that the individual and organizational innovation and prominent performance are positively affected by the transformational leadership style (Steele et al., 2018; Bin Saeed et al., 2019; Watts et al., 2020). According to the study conducted by Tan et al. (2021) on the relationship of TL and the innovation capability of Singaporean employees, who come from six private and public service organizations in Singapore, it manifests that TL significantly affects innovation capability. Therefore, the following hypothesis is proposed:

**H1:** Transformational Leadership has an effect on Teacher Innovation Capability.

### ***Corporate Social Responsibility and Teacher Innovation Capability***

CSR (Corporate social responsibility) is divided into internal and external corporate social responsibility by Werther and Chandler (2010). Organizations can distribute more resources to its members through fulfilling internal corporate social responsibility, so employees' enthusiasm for work can be aroused and their endeavor to innovation can be motivated because they can feel the care and concern from their organizations (Opoku-Dakwaet al., 2018), which naturally results in the improvement of their innovation capability. On the other hand, ICSR (Internal CSR) can bring an increase in employees' satisfaction with work (Paluri & Mehra, 2018) and improvement in employees' work behavior (Farid et al., 2019), which are the key factors to enhance personal innovation capability. It has positive impact on employee innovation in an enterprise (Li et al., 2021). The findings of a research performed by Mohammed et al. (2022) indicate that the corporate social responsibility dimensions related to community and society show direct and indirect impact on employee innovation during the pandemic of COVID-19. Therefore, the following hypothesis is proposed:

**H2:** Corporate Social Relationship has an effect on Teacher Innovation Capability.

### ***Transformational Leadership and Work Engagement***

Transformational leadership has been a popular research topic to many researchers and there is a common belief that leaders who follow transformational leadership style tend to be more open-minded and understand clearly how to guide, inspire and motivate employees to become more hardworking and competent for achieving better performance (Bass & Riggio, 2006; Sudha et al., 2016). Employees with high engagement are more likely to possess high levels of energy and enthusiasm and enjoy getting carried away while doing their work (Bakker & Leiter, 2017), so that is why every leader longs for enhancing work engagement in their employees. When transformational leaders provide resources, information, response and chances for personal development, their followers tend to be more vigorous, dedicated and immersed while working (Monje-Amo et al., 2020). Transformational leadership affects work engagement in a positive and significant way and companies prefer to recruit faithful and engaged staff because of their full devotion to work (Dwiparaniti, et al., 2021). Therefore, the following hypothesis is proposed:

**H3:** Transformational Leadership has an effect on Work Engagement.

### ***Corporate Social Responsibility and Work Engagement***

Chaudhary, R. (2019) found that in his research employees' work engagement can be positively predicted by corporate social responsibility, which suggests that employees' favorable attitude towards work can be achieved as a return of CSR. It stands for corporate sustainability and responsibility, and the CSR dimensions significantly affect the employees' work engagement can be specifically demonstrated in the study (Ismael & Yesiltas, 2020).

Researchers (Bapat & Upadhyay, 2021) collected data from HR officials, CSR officials and employees from 23 companies which belong to 10 principal industrial sectors among top 100 organizations in India and the research finding released that employee participation in CSR has a positive connection with employees' work engagement. Wei et al. (2021) proposed that employees become more inspired and fully dedicated if they work for a socially responsible organization. Therefore, the following hypothesis is proposed:

**H4:** Corporate Social Responsibility has an effect on Work Engagement.

### ***Work Engagement and Teacher Innovation Capability***

According to Kahn (1990), work engagement refers to harnessing an employee to his or her work duty, involving and expressing himself or herself physically and mentally while working. Work engagement is likely to improve individual working capability and work performance quality. Basing on JDR (job-demands and resource) and broad-and-build theory, Sharma & Nambudiri, (2020) examined the relationship of work engagement and innovative capability in a context of collectivism culture setting in the Indian information technology industry. It proved that work engagement has a positive impact on employee innovation capability and engaged employees tend to be more creative in coping with challenges at work. Bakker et al. (2020) claims that as long as employees become engaged in their work, they will be encouraged to be more open to new ideas. Rais & Rubini's (2022) research finding indicates that teachers'

work engagement has a significant impact on their innovation capability. Therefore, the following hypothesis is proposed:

**H5:** Work Engagement has an effect on Teacher Innovation Capability.

***Transformational leadership, Work Engagement and Teacher Innovation Capability***

Leadership, which is regarded as innovation antecedent, is one of the main characters in stimulating employees' innovation (Bagheri, 2017). Transformational leaders usually concern about employees' needs, transform their values and goals from individual interest to organizational benefit. What's more, they are inclined to directing their followers towards organizational goals with commitment and readiness even at the cost of individual interest for the better performance beyond original expectation (Lai et al., 2020).

Employees with work engagement are more likely to devote more contributions to their work, especially in coming up with ideas for better performance and generating initiatives which result in innovation. Ariyani & Hidayati, (2018) carried out a research in the banking industry in Indonesia and the results indicate that transformational leadership affects innovative behavior significantly and positively through the mediator of work engagement. Therefore, the following hypothesis is proposed:

**H6:** Transformational Leadership has an effect on Teacher Innovation Capability through Work Engagement.

***Corporate Social Responsibility, Work Engagement and Teacher Innovation Capability***

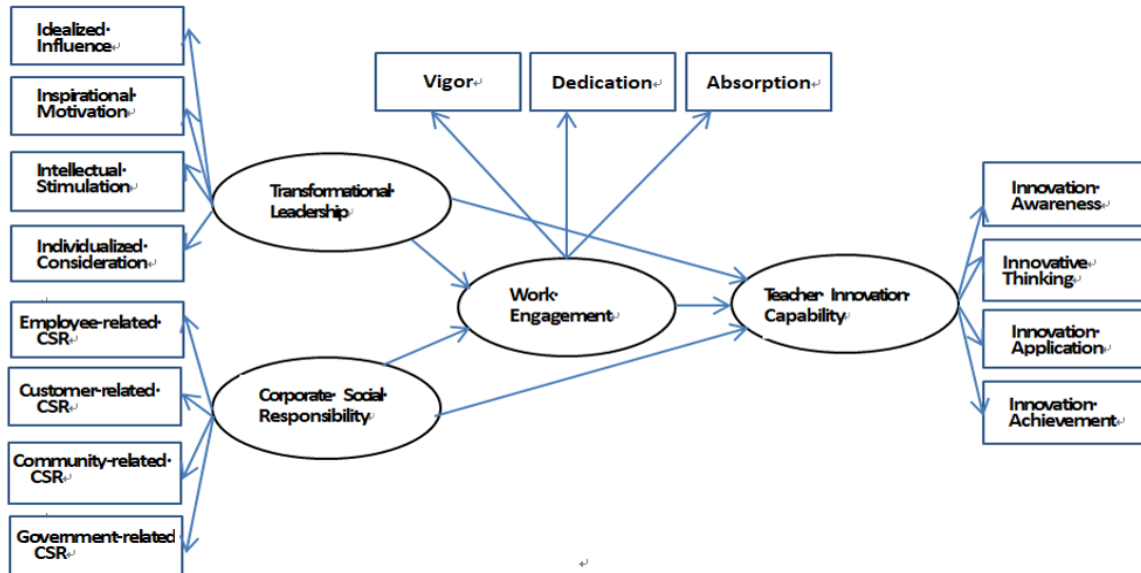
Organizations adopt various methods to facilitate employees' work engagement through corporate social responsibility based on social exchange theory (Mirvis, 2012). Employees with high level of work engagement dedicate their physical, cognitive, and emotional resources to their work which will bring about their innovation capability (Karatepe, 2013). The positive association between CSR and employees' innovative behavior has also been discovered by Abdelmotaleb et al. (2018) and they pointed out that CSR creates a positive impact on work which leads to high levels of work engagement in their roles contributing to employee innovation capability. The results of Ahamd et al.'s (2022) research confirmed that corporate social responsibility has significant influence on employees' innovation with a significant mediating effect of work engagement based on the data from the banking sector in Pakistan. Therefore, the following hypothesis is proposed:

**H7:** Corporate Social Responsibility has an effect on Teacher Innovation Capability through Work Engagement.



**Research Framework**

According to the above discussion, the research framework can be shown as follows:



**Figure 1: The Research Framework of Transformational Leadership, Corporate Social Responsibility, Work Engagement and Teacher Innovation Capability**

**3. RESEARCH METHODOLOGY**

**Research Design**

A quantitative research method was adopted in this study to explore the relationship of transformational leadership, corporate social responsibility, work engagement and teacher innovation capability in colleges of Hainan Province in China.

**Population of Quantitative Research**

In this research, population is the college teachers from 21 colleges in Hainan Province in China with total number of 13937.

**Sampling Technique of Quantitative Research**

In the process of quantitative research, a multistage sampling technique was used to select the samples for collecting data on transformational leadership, corporate social responsibility, work engagement and teacher innovation capability among college teachers in Hainan Province of China. The sample size is 300 in the quantitative research.

**Research Tool of Quantitative Research**

The questionnaire was used for collecting data which is made up of two parts. The first part includes characteristics of the sample such as gender, age, degree, professional title, years of teaching, school types (public or private). The second part includes items related to the

variables in this study, adopting Likert's 5-point scoring method. The questionnaire includes the items on transformational leadership, corporate social responsibility, work engagement and teacher innovation capability which was designed based on the literature review and research purpose. The items was adapted from the existing validated scales and closely linked to the variable dimensions.

### ***Validity and Reliability Analysis of Quantitative Research***

With the help of statistical software SMART-PLS, the validity was checked by convergent validity and discriminant validity approach. Reliability of the scale was checked by Cronbach's alpha and composite reliability. Generally speaking, the alpha coefficient is greater than 0.7, this scale is considered to demonstrate a satisfactory internal consistency reliability (Hair et al, 2011).

### ***Research Analysis of Quantitative Research***

After the quantitative data was collected, Descriptive Statistic Analysis and PLS – SEM Statistic Analysis techniques were used to analyze it. Descriptive Statistical Analysis was used to describe the characteristics of the samples and the characteristics of the population they represent. For inferential analysis, Structural Equation Modeling (SEM) analysis technique was used for understanding the relationship between variables. In the fitting process of the model, goodness-of-fit metrics were assessed and significant and effective relationships were tested.

## **4. RESULTS**

The sample group was 300 college teachers from 21 colleges in Hainan, China as shown in Table 1.

**Table 1: Number and Percentage of Demographic Information (n = 300)**

<b>Demographic Information</b>	<b>Number</b>	<b>Percentage</b>
<b>Gender</b>		
Male	136	45.33
Female	164	54.67
<b>Age</b>		
Less than 31	65	21.67
31-40	162	54.00
41-50	54	18.00
Greater than 50	19	6.33
<b>Degree</b>		
Under bachelor's degree	56	18.67
Bachelor's degree	170	56.67
Master's degree	69	23.00
Ph. D. or higher	5	1.67
<b>Professional Title</b>		
Assistant	39	13.00
Lecturer	214	71.33
Associate Professor	27	9.00
<b>Years of Working</b>		
Less than 5 years	194	64.67

6-10 years	57	19.00
11-20 years	28	9.33
20 years and above	21	7.00
<b>School Types</b>		
Public	157	52.33
Private	143	47.67

Table 1 revealed that most of the sample group was female (164, 54.67%) and male (136, 45.33%); aged 31-40 years old (162, 54.00%), less than 31 years old (65, 21.67%), 41-50 years old (54, 18.00%), and greater than 50 years old (19, 6.33%); obtained a Bachelor's degree (170, 56.67%), Master's degree (69, 23.00%), under Bachelor's degree (56, 18.67%), and Ph.D. or higher (5, 1.67%); worked as the lecturer (214, 71.33%), Assistant (39, 13.00%), Associate Professor (27, 9.00%) and Professor (20, 6.67%); worked for less than 5 years (194, 64.67%), 6-10 years (57, 19.00%), 11-20 years (28, 9.33%), and 20 years and above (21, 7.00%); being public school (157, 52.33%) and private school (47.67%).

***The Results of the Level of the Variables in Teacher Innovation Capability, Transformational Leadership, Corporate Social Responsibility and Work Engagement***

**Table 2: Mean ( $\bar{x}$ ), Standard Deviation (S.D.), and Interpretation for the Level of Variables (n = 300)**

Variables	$\bar{x}$	S.D.	Interpretation
<b>Teacher Innovation Capability (TIC)</b>			
Innovation Awareness (IAW)	3.95	0.72	High
Innovative Thinking (ITH)	3.98	0.73	High
Innovation Application (IAP)	3.83	0.86	High
Innovation Achievement (IAC)	3.80	0.77	High
<b>Total</b>	<b>3.89</b>	<b>0.68</b>	<b>High</b>
<b>Transformational Leadership (TL)</b>			
Idealized Influence (II)	3.97	0.70	High
Inspirational Motivation (IM)	3.86	0.69	High
Intellectual Stimulation (IS)	3.94	0.73	High
Individualized Consideration (IC)	3.87	0.75	High
<b>Total</b>	<b>3.91</b>	<b>0.65</b>	<b>High</b>
<b>Corporate Social Responsibility (CSR)</b>			
Employee-related CSR (EMC)	3.84	0.71	High
Customer-related CSR (CUC)	3.89	0.73	High
Community-related CSR (COC)	3.89	0.76	High
Government-related CSR (GOC)	3.97	0.74	High
<b>Total</b>	<b>3.90</b>	<b>0.65</b>	<b>High</b>
<b>Work Engagement (WE)</b>			
Vigor (VG)	3.94	0.67	High
Dedication (DD)	3.99	0.69	High
Absorption (AS)	3.99	0.75	High
<b>Total</b>	<b>3.98</b>	<b>0.61</b>	<b>High</b>

According to results in Table 2, the means of the latent variables were in a range of 3.89-3.98 at the high level; Work Engagement (WE), Transformational Leadership (TL), Corporate

Social Responsibility (CSR), and Teacher Innovation Capability (TIC), consecutively. Considering each aspect, observation variables of the Teacher Innovation Capability (TIC) were in a range of 3.80-3.98, Innovative Thinking (ITH), Innovation Awareness (IAW), Innovation Application (IAP), and Innovation Achievement (IAC), consecutively. The observation variables of Transformational Leadership (TL) were in a range of 3.86-3.97 at the high level; Idealized Influence (II), Intellectual Stimulation (IS), Individualized Consideration (IC), and Inspirational Motivation (IM), consecutively. The observation variables of the Corporate Social Responsibility (CSR) were in a range of 3.84-3.97 at the high level; Government-related CSR (GOC), Customer-related CSR (CUC), Community-related CSR (COC), and Employee-related CSR (EMC), consecutively. The observation variables of the Work Engagement (WE) were in a range of 3.94-3.99 at the high level; Dedication (DD), Absorption (AS), and Vigor (VG), consecutively.

**Analysis of the Structural Model Relationship**

The exogenous latent variables modeling comprising: Transformational Leadership (TL), Corporate Social Responsibility (CSR), Work Engagement (WE), and Teacher Innovation Capability (TIC) with 15 observation variables, and the acceptable criteria of the factor loadings were greater than 0.70, then the structural equation modeling relationship was analyzed as shown in Table 3 and Figure 2.

**Table 3: The Statistical Significance Test Results of the Influence of Transformational Leadership, Corporate Social Responsibility, and Work Engagement on Teacher Innovation Capability in Colleges of Hainan.**

Relationship	Path Coefficient	Standard Deviation	t-value	P-values
CSR -> TIC	0.293	0.079	3.728***	0.000
CSR -> WE	0.487	0.072	6.771***	0.000
TL -> TIC	0.180	0.080	2.267*	0.024
TL -> WE	0.260	0.073	3.580***	0.000
WE -> TIC	0.249	0.074	3.367***	0.001

\* 0.05 level of significance (p < .05)

\*\* 0.01 level of significance (p < .01)

\*\*\* 0.001 level of significance (p < .001)

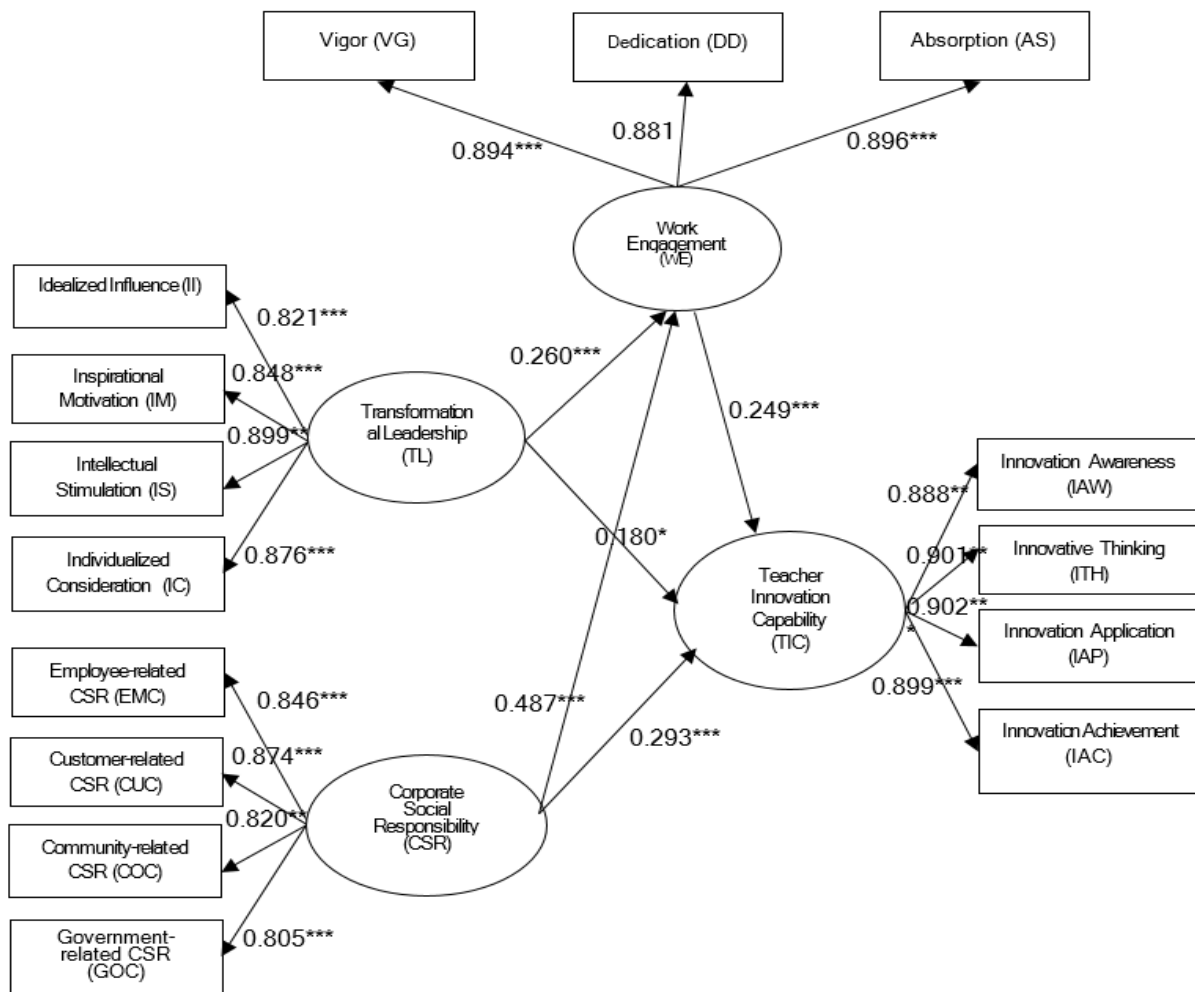
**Table 4: Testing Results of the Statistical Significance of the Mediator Effect**

Relationship	Path Coefficient	Standard Deviation	t-value	P-values
CSR -> WE -> TIC	0.121	0.039	3.147**	0.002
TL -> WE -> TIC	0.065	0.030	2.133*	0.033

\* 0.05 level of significance (p < .05)

\*\* 0.01 level of significance (p < .01)

\*\*\* 0.001 level of significance (p < .001)



**Figure 2: Structural Equation Modeling of Causal Factors and Components of the Influence of Transformational Leadership, Corporate Social Responsibility, and Work Engagement on Teacher Innovation Capability in Colleges of Hainan by Bootstrapping (n = 300)**

Table 3, Table 4 and Figure 2 indicate the relationship between variables and statistical significance. TL has an effect on TIC in colleges of Hainan at a 0.05 level of significance and the coefficient was 0.180. CSR has an effect on TIC in colleges of Hainan at a 0.001 level of significance and the coefficient was 0.293. TL has an effect on WE of college teachers in Hainan at a 0.001 level of significance and the coefficient was 0.260. CSR has an effect on WE of college teachers in Hainan at a 0.001 level of significance and the coefficient was 0.487. WE has an effect on TIC in colleges of Hainan at a 0.001 level of significance and the coefficient was 0.249. TL has an effect on TIC through WE in colleges of Hainan at a 0.05 level of significance and the coefficient was 0.065. CSR has an effect on TIC through WE of college teachers in Hainan at a 0.01 level of significance and the coefficient was 0.121.

## 5. CONCLUSION

### *Discussion*

The research was conducted to explain the relationship between Transformational Leadership, Corporate Social Responsibility, Work Engagement and Teacher Innovation Capability in colleges of Hainan. The findings of quantitative data analysis revealed that the results were consistent with the hypotheses.

For this purpose, firstly, the research findings demonstrated that transformational leadership has a positive relationship with teacher innovation capability. Leaders with good ethical manner, fairness, high ability and clear aims can set a good example for teachers and arouse their enthusiasm and confidence in work so that they take the initiative step in working innovatively. Provided skills and encouragement by leaders, teachers can easily achieve innovative performance at work.

Secondly, corporate social responsibility has a positive influence on teacher innovation capability. Feeling self-convinced that they are members of a college which is socially responsible and provides an atmosphere full of warmth and love, teachers are ready to perform better by applying innovation into their work. Positive CSR supplies teachers with great satisfaction and security which make them feel safe and hopeful so that they are willing to perform extra role which contribute to their generation of innovative idea and methods.

Thirdly, transformational leadership has a significant effect on work engagement. Leaders' selfless help and guidance easily stimulate teachers to work attentively and vigorously. Directed and inspired by the transformational leaders, they become more resilient in work challenge and devoted.

Fourthly, corporate social responsibility has a significant effect on work engagement. Trust is built as a responsible college always put their teachers' and students' interest first. Teachers in return are dedicated to their work and sense the significance and value of their work during absorption in work.

Fifthly, work engagement influences teacher innovation capability positively. Being vigorous and inspired at work, teachers devoted all themselves in searching for innovative methods or approaches to cope with new problems so as to achieve better results. What's more, the research findings indicated that the relationship between transformational leadership and teacher innovation capability is mediated by work engagement. As leaders with transformational leadership style are good at inspirational motivation, intellectual stimulation with idealized influence and individualized consideration, teachers with greater vigor, dedication and absorption are more likely to be innovative at work compared with those who are less engaged. Teachers with teamwork spirit and commitment turn to have higher innovation capability.

Lastly, work engagement mediates the relationship between corporate social responsibility and teacher innovation capability. This can be explained that a college with considerate CSR related to employees (teachers), customers (students), communities and government can bring honor and pride to its teachers, which makes them feel eased to be engaged in doing different kinds

of creative works and improve their innovation capability at the same time. The Model of Transformational Leadership, Corporate Social Responsibility, Work Engagement and Teacher Innovation Capability in colleges of Hainan is well fit and can be applied into application.

### ***Theoretical and Practical Implications***

From the perspective of theory, the research further enriches the theories and literature related to the study of Transformational Leadership, Corporate Social Responsibility, Work Engagement and Teacher Innovation Capability, especially in the context of higher education, which is still rarely found. On the other hand, Work Engagement served as a mediating role in the relationship between Transformational Leadership, Corporate Social Responsibility and Teacher Innovation Capability, which is the most significant theory contribution of this research. The research undoubtedly provides deeper insight into the study of teacher development in colleges. From the perspective of practice, the research results provide the government and colleges with more practical suggestions and support on policies making in higher education. The importance of transformational leadership, corporate social responsibility and work engagement in improving teacher innovation capability was illustrated in the research. Therefore, policies should be made in the sake of fostering transformational leaders and improving corporate social responsibility of colleges for teacher development. Strategies on enhancing teachers' work engagement through transformational leadership and corporate social responsibility should be put forward so as to fully creating its mediating effect on developing teacher innovation capability.

The model of Transformational Leadership, Corporate Social Responsibility, Work Engagement and Teacher Innovation Capability can be employed as a strategy for pushing the educational reform and development, which can promote the local economy and social development. With more qualified innovative talents provided, the improvement of local competition capability and the construction of Hainan international tourism island and Hainan free trade port are well and totally guaranteed.

### ***Limitations and Future Work***

A few limitations are encountered in this research. Firstly, data analyzed in this study is limited as it only came from college teachers in Hainan to study the relationship of Transformational Leadership, Corporate Social Responsibility, Work Engagement and Teacher Innovation Capability. Therefore, future studies may collect data from more college teachers and other provinces in China to increase the reliability of findings. Secondly, this research only focused on teachers in higher education. Further study needs to be extended and tested for teachers in primary and secondary education. Thirdly, the research only used quantitative research method. A mixed-research method including qualitative research one should be used with data analysis software such as NVIVO. Compared with quantitative or qualitative alone, mixed research can provide more comprehensive evidence for research questions (Creswell & Plano Clark, 2017). Last but not least, the Model tested in this research is only for educational field and there is still lack of support in other fields. Further opportunities can be found to test its application in other industries.

## References

- 1) Abdelmotaleb, M., Mohamed Metwally, A. B. E., & Saha, S. K. (2018). Exploring the impact of being perceived as a socially responsible organization on employee creativity. *Management Decision*, 56(11), 2325-2340.
- 2) Afsar, B., Al-Ghazali, B. M., Cheema, S., & Javed, F. (2020). Cultural intelligence and innovative work behavior: the role of work engagement and interpersonal trust. *European Journal of Innovation Management*, 24(4), 1082-1109.
- 3) Ahmad, N., Ullah, Z., AIDhaen, E., Han, H., Araya-Castillo, L., & Ariza-Montes, A. (2022). Fostering hotel-employee creativity through micro-level corporate social responsibility: a social identity theory perspective. *Frontiers in psychology*, 13, 853125.
- 4) Ahmad, N., Ullah, Z., AIDhaen, E., Han, H., & Scholz, M. (2022). A CSR perspective to foster employee creativity in the banking sector: The role of work engagement and psychological safety. *Journal of Retailing and Consumer Services*, 67, 102968.
- 5) Ahmad, R., Ahmad, S., Islam, T., & Kaleem, A. (2020). The nexus of corporate social responsibility (CSR), affective commitment and organisational citizenship behaviour in academia: A model of trust. *Employee Relations: The International Journal*, 42(1), 232-247.
- 6) Ajzen, I. (2002). Perceived behavioral control, self-efficacy, locus of control, and the theory of planned behavior 1. *Journal of applied social psychology*, 32(4), 665-683.
- 7) Albrecht, S., Bredahl, E., & Marty, A. (2018). Organizational resources, organizational engagement climate, and employee engagement. *Career Development International*, 23(1), 67-85.
- 8) Aldabbas, H., Pinnington, A., & Lahrech, A. (2023). The influence of perceived organizational support on employee creativity: The mediating role of work engagement. *Current Psychology*, 42(8), 6501-6515.
- 9) Al-Husseini, S., El Beltagi, I., & Moizer, J. (2021). Transformational leadership and innovation: the mediating role of knowledge sharing amongst higher education faculty. *International Journal of Leadership in Education*, 24(5), 670-693.
- 10) Ariyani, N., & Hidayati, S. (2018). Influence of transformational leadership and work engagement on innovative behavior. *Etikonomi*, 17(2), 275-284.
- 11) Ashrafi, M., Magnan, G. M., Adams, M., & Walker, T. R. (2020). Understanding the conceptual evolutionary path and theoretical underpinnings of corporate social responsibility and corporate sustainability. *Sustainability*, 12(3), 760.
- 12) Avolio, B. J., Zhu, W., Koh, W., & Bhatia, P. (2004). Transformational leadership and organizational commitment: Mediating role of psychological empowerment and moderating role of structural distance. *Journal of Organizational Behavior: The International Journal of Industrial, Occupational and Organizational Psychology and Behavior*, 25(8), 951-968.
- 13) Bagheri, A. (2017). The impact of entrepreneurial leadership on innovation work behavior and opportunity recognition in high-technology SMEs. *The Journal of High Technology Management Research*, 28(2), 159-166.
- 14) Bakker, A. B., & Leiter, M. (2017). Strategic and proactive approaches to work engagement. *Organizational dynamics*, 46(2), 67-75.
- 15) Bakker, A. B., Petrou, P., Op den Kamp, E. M., & Tims, M. (2020). Proactive vitality management, work engagement, and creativity: The role of goal orientation. *Applied Psychology*, 69(2), 351-378.
- 16) Balwant, P. T., Mohammed, R., & Singh, R. (2020). Transformational leadership and employee engagement in Trinidad's service sector: The role of job resources. *International Journal of Emerging Markets*, 15(4), 691-715.



- 17) Bapat, S., & Upadhyay, P. (2021). Implications of CSR initiatives on employee engagement. *Social Responsibility Journal*, 17(2), 149-163.
- 18) Bass, B. (1985). *Leadership and performance: Beyond expectations*. New York: Free Press.
- 19) Bass, B., & Steidlmeier, P. (1999), "Ethics, character, and authentic transformational leadership behavior," *Leadership Quarterly*, 10(2),181–217.
- 20) Bass, B., Avolio, B., Jung, D., & Berson, Y. (2003). Predicting unit performance by assessing transformational and transactional leadership. *Journal of Applied Psychology*, 88(2), 207–218.
- 21) Bass, B. M., & Avolio, B. J. (1994). Transformational leadership and organizational culture. *The International journal of public administration*, 17(3-4), 541-554.
- 22) Bin Saeed, B., Afsar, B., Shahjeha, A., & Imad Shah, S. (2019). Does transformational leadership foster innovative work behavior? The roles of psychological empowerment, intrinsic motivation, and creative process engagement. *Economic research-Ekonomska istraživanja*, 32(1), 254-281.
- 23) Bowen, H.R. (1953), *Social Responsibilities of the Businessman*, Harper and Row, New York, NY.
- 24) Burns, J. M. (1978). *Leadership*. New York: Harper & Row.
- 25) Cai, W., Gu, J., & Wu, J. (2023). The effect of corporate social responsibility on open innovation: the moderating role of firm proactiveness. *Management Decision*.
- 26) Carroll, A. B. (1979). A three-dimensional conceptual model of corporate performance. *Academy of management review*, 4(4), 497-505.
- 27) Chaudhary, R. (2019). Corporate social responsibility perceptions and employee engagement: role of psychological meaningfulness, safety and availability. *Corporate Governance: The International Journal of Business in Society*, 19(4), 631-647.
- 28) Chen, S., & Cuervo, J. C. (2022). The influence of transformational leadership on work engagement in the context of learning organization mediated by employees' motivation. *The Learning Organization*, 29(5), 567-585.
- 29) China. China's Ministry of Education. (2014). *Employment and Entrepreneurship for Graduates from Higher Education Institutions in China*. [https://www.gov.cn/xinwen/2014-12/10/content\\_2789226.htm](https://www.gov.cn/xinwen/2014-12/10/content_2789226.htm)
- 30) China. CPC Central Committee, State Council. (2016). *Strategy Guideline for National Innovation Driven Development*. [http://www.Gov.cn/gongbao/content/2016/content\\_5076961.Htm](http://www.Gov.cn/gongbao/content/2016/content_5076961.Htm).
- 31) China. CPC Central Committee, State Council. (2018). *Opinions on Furthering All-Round Reform of Teacher Staff Construction in New Era*. [https://www.gov.cn/zhengce/2018-01/31/content\\_5262659.htm](https://www.gov.cn/zhengce/2018-01/31/content_5262659.htm)
- 32) China. CPC Central Committee, State Council. (2019). *Educational Modernization of China 2035*. <http://edu.people.com.cn/n1/2019/0225/c1006-30899811.html>
- 33) China. CPC Central Committee, State Council. (2020). *Overall plan for the construction of Hainan free trade port*. <http://house.china.com.cn/1653524.htm>
- 34) China. Ministry of Education of People's Republic of China. (2010). *Plan for the National Medium and Long-term Education Reform and Development (2010-2020)*. [http://www.moe.gov.cn/srcsite/A01/s7048/201007/t20100729\\_171904.html?gs\\_ws=tqq\\_635879677144434007](http://www.moe.gov.cn/srcsite/A01/s7048/201007/t20100729_171904.html?gs_ws=tqq_635879677144434007)
- 35) China. State Council of China. (2010). *Opinion of Promoting the Development of Hainan International Tourism Island*. [https://www.gov.cn/zwgk/2010-01/04/content\\_1502531.htm](https://www.gov.cn/zwgk/2010-01/04/content_1502531.htm)

- 36) China. State Council of China. (2018). *Guidelines on Supporting Hainan in Furthering All-Round Reform and Opening up*. [https://www.gov.cn/gongbao/content/2018/content\\_5288811.htm](https://www.gov.cn/gongbao/content/2018/content_5288811.htm)
- 37) Creswell, J. W., & Plano Clark V. L. (2017). *Designing and Conducting Mixed Methods Research*. Los Angeles: SAGE.
- 38) Dwiparaniti, N. K., & Netra, I. G. S. K. (2021). The Effect of Transformational Leadership on Organizational Commitment Mediated by Work Engagement. *American Journal of Humanities and Social Sciences Research (AJHSSR)*, 5(6), 140-144.
- 39) El Akremi, A., Gond, J. P., Swaen, V., De Roeck, K., & Igalens, J. (2018). How do employees perceive corporate responsibility? Development and validation of a multidimensional corporate stakeholder responsibility scale. *Journal of management*, 44(2), 619-657.
- 40) Fan, L., Uddin, M. A., & Das, A. K. (2017). Empirical study on the antecedents predicting organizational innovation of the small and medium enterprises in Bangladesh. *Journal on Innovation and Sustainability RISUS*, 8(2), 142-150.
- 41) Farid, T., Iqbal, S., Ma, J., Castro-González, S., Khattak, A., & Khan, M. K. (2019). Employees' perceptions of CSR, work engagement, and organizational citizenship behavior: The mediating effects of organizational justice. *International journal of environmental research and public health*, 16(10), 1731.
- 42) Farooq, O., Rupp, D. E., & Farooq, M. (2017). The multiple pathways through which internal and external corporate social responsibility influence organizational identification and multifoci outcomes: The moderating role of cultural and social orientations. *Academy of management journal*, 60(3), 954-985.
- 43) Galdeano, D., Ahmed, U., Fati, M., Rehan, R., & Ahmed, A. J. M. S. L. (2019). Financial performance and corporate social responsibility in the banking sector of Bahrain: Can engagement moderate?. *Management Science Letters*, 9(10), 1529-1542.
- 44) Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: Indeed a silver bullet. *Journal of Marketing theory and Practice*, 19(2), 139-152.
- 45) Ismael, F., & Yesiltas, M. (2020). Sustainability of CSR on Organizational Citizenship Behavior, Work Engagement and Job Satisfaction: Evidence from Iraq. *Revista de Cercetare si Interventie Sociala*, 71.
- 46) Ismail, H. N., Iqbal, A., & Nasr, L. (2019). Employee engagement and job performance in Lebanon: the mediating role of creativity. *International Journal of Productivity and Performance Management*, 68(3), 506-523.
- 47) Jia, Y., Yan, J., Liu, T., & Huang, J. (2019). How does internal and external CSR affect employees' work engagement? Exploring multiple mediation mechanisms and boundary conditions. *International journal of environmental research and public health*, 16(14), 2476.
- 48) Kahn, W. A. (1990). Psychological conditions of personal engagement and disengagement at work. *Academy of management journal*, 33(4), 692-724.
- 49) Kanter, R. M. (1988). Three tiers for innovation research. *Communication Research*, 15(5), 509-523.
- 50) Karatepe, O. M. (2013). High-performance work practices and hotel employee performance: The mediation of work engagement. *International Journal of Hospitality Management*, 32, 132-140.
- 51) Kwon, K., & Kim, T. (2020). An integrative literature review of employee engagement and innovative behavior: Revisiting the JD-R model. *Human Resource Management Review*, 30(2), 100704.
- 52) Lai, F. Y., Tang, H. C., Lu, S. C., Lee, Y. C., & Lin, C. C. (2020). Transformational leadership and job performance: The mediating role of work engagement. *Sage Open*, 10(1), 2158244019899085.

- 53) Le, P. B., & Lei, H. (2017). How transformational leadership supports knowledge sharing: evidence from Chinese manufacturing and service firms. *Chinese Management Studies*, 11(3), 479-497.
- 54) Li, Y., Zhang, G., & Liu, L. (2021). Platform corporate social responsibility and employee innovation performance: a cross-layer study mediated by employee entrepreneurship. *Sage Open*, 11(2), 21582440211021406.
- 55) Mirvis, P. (2012). Employee engagement and CSR: Transactional, relational, and developmental approaches. *California management review*, 54(4), 93-117.
- 56) Mohammed, A. A., Ferraris, A., & Troise, C. (2022). CSR practices and creativity during COVID-19 pandemic in the emerging market: investigating the mediating effect of affective commitment. *Management Decision*, 60(10), 2669-2693.
- 57) Monje-Amor, A., Vázquez, J. P. A., & Faíña, J. A. (2020). Transformational leadership and work engagement: Exploring the mediating role of structural empowerment. *European Management Journal*, 38(1), 169-178.
- 58) Opoku-Dakwa, A., Chen, C. C., & Rupp, D. E. (2018). CSR initiative characteristics and employee engagement: An impact-based perspective. *Journal of Organizational Behavior*, 39(5), 580-593.
- 59) Paluri, R. A., & Mehra, S. (2018). Influence of bank's corporate social responsibility (CSR) initiatives on consumer attitude and satisfaction in India. *Benchmarking: An International Journal*, 25(5), 1429-1446.
- 60) Rahman, M. F. W., Kistyanto, A., & Surjanti, J. (2022). Does cyberloafing and person-organization fit affect employee performance? The mediating role of innovative work behavior. *Global Business and Organizational Excellence*, 41(5), 44-64.
- 61) Rais, S., & Rubini, B. (2022). Increasing Teacher Creativity through Strengthening Transformational Leadership, Teamwork, and Work Engagement. *Pegem Journal of Education and Instruction*, 12(1), 232-241.
- 62) Rogers, E. M. (1995). *Diffusion of innovations* (4th ed.). New York: The Free Press.
- 63) Rogers, E. M. (2003). *Diffusion of Innovations* (5th Edition). New York: Free Press.
- 64) Schaufeli, W. B., Salanova, M., González-Romá, V., & Bakker, A. B. (2002). The measurement of engagement and burnout: A two sample confirmatory factor analytic approach. *Journal of Happiness studies*, 3, 71-92.
- 65) Shafi, M., Lei, Z., Song, X., & Sarker, M. N. I. (2020). The effects of transformational leadership on employee creativity: Moderating role of intrinsic motivation. *Asia Pacific Management Review*, 25(3), 166-176.
- 66) Steele, L. M., Watts, L. L., & Den Hartog, D. N. (2018). Transformational leadership and innovation across cultures: A meta-analysis. In *33rd Annual Conference of the Society for Industrial and Organizational Psychology*, Chicago, IL.
- 67) Sudha, K. S., Shahnawaz, M. G., & Farhat, A. (2016). Leadership styles, leader's effectiveness and well-being: Exploring collective efficacy as a mediator. *Vision*, 20(2), 111-120.
- 68) Sumarni, W., & Kadarwati, S. (2020). Ethno-stem project-based learning: Its impact to critical and creative thinking skills. *Jurnal Pendidikan IPA Indonesia*, 9(1), 11-21.
- 69) Tan, A. B., Van Dun, D. H., & Wilderom, C. P. (2021). Innovative work behavior in Singapore evoked by transformational leaders through innovation support and readiness. *Creativity and innovation management*, 30(4), 697-712.

- 70) Tong, Z., Zhu, L., Zhang, N., Livuza, L., & Zhou, N. (2019). Employees' perceptions of corporate social responsibility and creativity: Employee engagement as a mediator. *Social Behavior and Personality: an international journal*, 47(12), 1-13.
- 71) Turker, D. (2009). Measuring corporate social responsibility: A scale development study. *Journal of business ethics*, 85, 411-427.
- 72) Uddin, M.A.; Fan, L.; Yang, X. (2018). The influence of transformational leadership on creative process engagement: Intrinsic motivation as a mediator. *J. Wuhan Univ. Technol. Social Sci. Ed.* 2018, 31, 78-83.
- 73) Vladić, N., Maletič, D., & Maletič, M. (2021). Determinants of innovation capability: an exploratory study of inclusive leadership and work engagement. *Quality Innovation Prosperity*, 25(2), 130-152.
- 74) Watts, L. L., Steele, L. M., & Den Hartog, D. N. (2020). Uncertainty avoidance moderates the relationship between transformational leadership and innovation: A meta-analysis. *Journal of international business studies*, 51, 138-145.
- 75) Werther Jr, W. B., & Chandler, D. (2010). *Strategic corporate social responsibility: Stakeholders in a global environment*. Sage.
- 76) Xu, Y. (2021). The connotation of teacher innovation capability in vocational colleges and background and path for its improvement. *Education and Vocation*, (2), 81-86.
- 77) Zhou, G., Gul, R., & Tufail, M. (2022). Does servant leadership stimulate work engagement? The moderating role of trust in the leader. *Frontiers in Psychology*, 13, 925732.
- 78) Zhou, H., Wang, Q., & Zhao, X. (2020). Corporate social responsibility and innovation: A comparative study. *Industrial Management & Data Systems*, 120(5), 863-882.
- 79) Zhou, Y. W. & Fan, H. H. (2018). The construction and empirical study of the evaluation system of college teachers' innovative capability based on factor analysis. *Journal of Zhengzhou University of Aeronautics: Social Science Edition*, 37(5), 125-135.