

A Study on the Impact of Psychological Capital of University Teachers on Work Engagement

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To Link this Article: <http://dx.doi.org/10.6007/IJARBS/v15-i1/23951> DOI:10.6007/IJARBS/v15-i1/23951

Published Date: 14 January 2025

Abstract

In the current critical stage of deepening higher education reform and improving quality, the work engagement of university teachers is regarded as an indispensable core element in determining teaching quality and research and innovation capabilities. In the face of fierce competition in the global higher education field and the rapidly changing knowledge economy environment, it is crucial and urgent to explore effective strategies to enhance the enthusiasm and persistence of university teachers in their work. Therefore, this study conducted an empirical survey on 200 in-service teachers in public universities in Sichuan Province, using the Likert scale to collect detailed data, aiming to deeply analyze the impact of psychological capital on the work engagement of university teachers. Through rigorous regression analysis methods, the research results reveal that psychological capital and its four basic dimensions - self-efficacy, hope, optimism, and resilience - all have a significant impact on the work engagement of university teachers. Strengthening the psychological capital construction of university teachers is an effective way to promote their increased work engagement. In higher education practice, attention should be paid to creating a good psychological support atmosphere and adopting precise and effective psychological quality training strategies, so as to comprehensively enhance the teaching and scientific research vitality of the teaching staff and inject strong impetus into the development of higher education in China.

Keywords: Psychological Capital, Work Engagement, Regression Analysis, SPSSAU

Introduction

In today's society, university teachers are not only disseminators of knowledge and cultivators of talents, but also leaders of social civilization progress. Their responsibilities are not limited to the classroom, but also contribute to the comprehensive development of society through various aspects of work such as scientific research and social services. However, with the rapid development of higher education, university teachers are facing increasing work pressure, and it is particularly important to further improve their work engagement.

There are many studies on the factors that affect the work engagement of university teachers, and the research entry points and methods are also different. This article takes psychological capital as the independent variable and work engagement as the dependent variable, and analyzes in detail the impact of each dimension of psychological capital on work engagement. This study obtained a positive impact of psychological capital on work engagement through data analysis. This result is helpful in optimizing teacher resource allocation, stimulating teacher potential, promoting the professional development of the teaching team, improving teaching and research level, and ultimately promoting the overall improvement of higher education quality. Building a harmonious university environment has important theoretical and practical significance.

Literature Review

The concept of psychological capital, derived from Luthans' deepening and expansion of the concept of positive psychology, is regarded as a positive psychological state, which is composed of four pillars: self-efficacy, hope, resilience and optimism. It not only goes beyond the traditional theory of human capital and social capital, but also in the field of education, teachers' psychological capital is regarded as the key internal motivation to stimulate teaching enthusiasm, and is a valuable resource that can be continuously improved through investment and cultivation.

Self-efficacy is the belief in one's ability to accomplish objectives and get over challenges. Hope is the ability to set goals and come up with plans to achieve them, whereas optimism is a hopeful view of the future. Resilience is the ability to bounce back from adversity and keep a positive outlook (Ashforth et al.,2008). Optimism is another crucial element of psychological capital. Instructors who have a positive vision on the future are more likely to overcome setbacks and disappointments and keep going. According to Bagozzi and Yi (1988), optimism can increase motivation, job satisfaction, and instructional devotion. Moreover, positive educators are more likely to create a classroom atmosphere that is conducive to learning and growth (WHO survey ,2020).Hope is the ability to set goals and come up with strategies to reach them. Optimistic teachers are more likely to develop teaching strategies that improve student learning and performance (Winkel et al. 2018). The ability to bounce back from adversity and maintain an optimistic outlook is known as resilience. Resilient educators are better equipped to deal with challenges in the classroom, like misbehavior from students, parent-teacher disputes, and time constraints (Zhang et al., 2016).

Work engagement refers to employees' positive attitude and love for work, which has gradually attracted widespread attention in the academic community in the early 21st century. The current research on work engagement is based on the three-dimensional model of vitality, dedication and focus proposed by Schaufeli and other scholars, and explores the interaction between it and psychological capital through empirical research on a large number of multiple samples.

In their research, Karademas and Ntouvelas (2017) examined the relationship between psychological capital and job engagement among Greek teachers. A relationship between teachers' psychological capital and their level of job satisfaction was found in the study. A teacher's interest in their work was positively correlated with job satisfaction and organizational dedication when they possessed strong psychological capital.

According to Ngwenya, B., and Pelser, T. (2020) research, psychological capital significantly improves worker engagement, job satisfaction, and output. The effect of psychological capital on employee performance is mediated by employee engagement, which has a substantial beneficial impact on employee performance.

Methodology

This article is based on in-depth study and systematic organization of previous research literature. I adopted mature scale tools validated by other scholars and conducted a large-scale survey on the work engagement status of teachers in public undergraduate universities in Sichuan Province. A large amount of data was collected through carefully designed questionnaires, and rigorous quantitative research methods were used to quantify the intrinsic connections and impact mechanisms between work engagement and other related variables.

This study used statistical analysis software SPSS and SPSSAU to conduct a comprehensive and detailed descriptive statistical analysis of these data. At the same time, regression analysis was used to explore the causal relationships between various variables, and further mediation effect analysis was used to reveal the complex impact mechanism hidden between work engagement and other related variables.

According to statistics, there are 35 public undergraduate universities in Sichuan Province, with nearly 17000 teaching and administrative staff (including professional course teachers and administrative staff). 200 teaching and administrative staff were randomly selected for sample analysis, including gender, professional title, working age and different roles.

Results

By using the Question-Star platform for electronic questionnaire surveys, the author conducted a comprehensive data collection of 200 university teachers within a month. A total of 200 questionnaires were distributed, and the number of effectively collected questionnaires reached 185, with an effective response rate of 92.5%.

In this study, the core variables are measured in the form of scales, so verifying the data quality of measurement results is the key premise to ensure the significance of subsequent analysis. Firstly, the Cronbach coefficient reliability test method is used to analyze the internal consistency of each dimension. The Cronbach coefficient ranges from 0 to 1. The higher the coefficient, the higher the reliability. It is generally believed that if the reliability coefficient is lower than 0.6, the data reliability is insufficient, and it may be necessary to redesign the questionnaire or re collect data and analyze again. When the reliability coefficient is between 0.6 and 0.7, it is considered credible; When it is between 0.7 and 0.8, it is credible; It is credible when it is between 0.8 and 0.9; When it is between 0.9 and 1, it is very credible. Through this method, the internal consistency of the scale can be evaluated, which provides an important guarantee for the accuracy and reliability of the research results. This study used SPSS to analyze the reliability and validity of the questionnaire, and found that Cronbach's $\alpha=0.958$, $KMO=0.891$, indicating that the internal consistency and validity of the questionnaire are good, which can be further analyzed.

Descriptive Statistics

Through descriptive statistics frequency analysis, it is found that the majority of teachers and staff with master's degree are young, as shown in Table 1.

Table 1
Descriptive Statistics

		Frequency	Percent	Valid Percent	Cumulative Percent
Educational Background	Doctor of philosophy	61	33	33	33
	Undergraduate	13	7	7	40
	Master	111	60	60	100
	Primary title	111	60	60	60
Professional Title	Sub-advanced title	10	5.4	5.4	65.4
	Advanced title	6	3.2	3.2	68.6
	Intermediate title	58	31.4	31.4	100
	15-25 years	22	11.9	11.9	11.9
Working Age	Above 25 years	12	6.5	6.5	18.4
	5-15 years	63	34.1	34.1	52.4
	Within 5 years	88	47.6	47.6	100

ANOVA Test

One way ANOVA (one-way ANOVA) is a statistical method used to compare whether there is a significant difference in the overall mean of three or more groups of data. In the research design, if only the influence of different levels of an independent variable (also known as factor) on a continuous dependent variable is investigated, the one-way ANOVA is applicable. The purpose of one-way ANOVA is to determine whether the average values at these different levels are all equal, or whether there are at least significant differences between the two groups, rather than due to random errors. In order to explore whether different characteristics have different effects on work engagement, one-way variance tests were conducted on education background, professional title, working age and work engagement. The test results are shown in Table 2.

Table 2
ANOVA test of work engagement

		Sum of Squares	df	Mean Square	F	Sig.
educational background	Between Groups	15.537	2	7.768	15.879	0.000
	Within Groups	89.037	182	0.489		
professional title	Between Groups	5.79	3	1.93	3.536	0.016
	Within Groups	98.783	181	0.546		
working age	Between Groups	3.461	3	1.154	2.065	0.106
	Within Groups	101.113	181	0.559		

Note: The first Sig <0.05, It shows that different educational background has significant differences in work engagement ;

The second Sig <0.05, It shows that different professional title has significant differences in work engagement ;

The third Sig >0.05, It shows that different educational background has not significant differences in work engagement.

Regression Analysis

Regression analysis is a quantitative analysis method used in statistics to study the relationship between variables. The core goal is to determine the degree and direction of the influence of one or more independent variables (independent variables) on the dependent variables (response variables) through the observed data, and to establish a mathematical model to describe this relationship.

In this study, to deeply explore the impact of psychological capital on the work input of university teachers, we conducted the regression analysis using the statistical analysis software SPSSAU. Through the sorting and induction of the literature of variable psychological capital and work input, psychological capital, self-validity, hope, optimism, and resilience were taken as independent variables, and the dependent variable was work input. The regression results (Model1, Model2, Model3, Model4, and Model5) are shown in Table 3:

	Dependent variable: work engagement				
	Model1	Model2	Model3	Model4	Model5
Psychological Capital	0.450**				
Self-efficiency		0.311**			
hope			0.307**		
optimistic				0.318**	
tenacity					0.281**
R ²	0.199	0.129	0.129	0.162	0.12
Adj.R ²	0.194	0.124	0.124	0.157	0.115
F	F(1,183)=45.411, p=0.000	F(1,183)=27.019, p=0.000	F(1,183)=27.143, p=0.000	F(1,183)=35.386, p=0.000	F(1,183)=24.899, p=0.000

Note:From the above table Model1, we can see that $Work = 1.941 + 0.450 * PSY$, and the R square value is 0.199, meaning that PSY can explain 19.9% of the change in work engagement. The F test found that the model passed the F test ($F=45.411$, $p=0.000 < 0.05$), The regression coefficient value of PSY was 0.450 ($t=6.739$, $p=0.000 < 0.01$), implying that PSY has a significant positive effect on WORK.

From the above table Model2, we can show that $Work = 2.407 + 0.311 * PSY_CON$, and the model R square value is 0.129, meaning that PSY_EFF can explain 12.9% of the change in work engagement. When performing the F test of the model, the model was found to pass the F test ($F=27.019$, $p=0.000 < 0.05$), and the regression coefficient value of PSY_EFF was 0.311 ($t=5.198$, $p=0.000 < 0.01$), meaning that PSY_CON had a significant positive influence relationship on work engagement.

From the table Model3 above, $Work = 2.446 + 0.307 * PSY_HOP$, and the model R square value is 0.129, which means that PSY_HOP can explain 12.9% of the change in work engagement. In the F test of the model, the model was found to pass the F test ($F=27.143$, $p=0.000 < 0.05$), and the regression coefficient value of PSY_HOP was 0.307 ($t=5.210$, $p=0.000$).

<0.01), implying that PSY _ HOP has a significant positive influence relationship on work engagement.

From the table Model4 above, $Work = 2.437 + 0.318 * PSY_OPT$, and the model R square value is 0.162, which means that PSY _ OPT can explain 16.2% of the change in work engagement. The F test of the model was found that the model passed the F test ($F=35.386$, $p=0.000 < 0.05$), and the regression coefficient value of PSY _ OPT was 0.318 ($t=5.949$, $p=0.000 < 0.01$), meaning that PSY _ OPT has a significant positive influence relationship on work engagement.

From the above table Model5, for $Work = 2.596 + 0.281 * PSY_TEN$, the model R square value is 0.120, which means that PSY _ TEN can explain 12.0% of the change in work engagement. In the F test of the model, the model was found to pass the F test ($F=24.899$, $p=0.000 < 0.05$), and the regression coefficient value of PSY _ TEN was 0.281 ($t=4.990$, $p=0.000 < 0.01$), meaning that PSY _ TEN had a significant positive influence relationship on work engagement.

Discussion

From the empirical results, teachers' psychological capital and its four dimensions have a significant positive impact on the work input. This is associated with Weixing et al. (2022), Xiaoxiao, & Yaguang. (2023), and other research results of scholars are consistent.

Optimistic teachers are more inclined to actively explain the challenges and difficulties in their work, believing that they can overcome the problems and succeed. This positive attitude helps teachers to maintain an efficient working status in the face of pressure, thus improving their work input.

Teachers with high self-efficacy often have firm confidence in their own teaching ability and educational results. They believe that they can effectively impart knowledge, guide students, and successfully cope with various educational and teaching challenges. This confident attitude makes them more active in work and brave to try new teaching methods and strategies, so as to improve their concentration and persistence in the teaching process, and further improve the level of work input.

Teachers with high resilience can quickly recover and adapt to maintain stable work efficiency in the face of changes in the educational environment, professional stress or personal setbacks. Their "rebound ability" not only helps them resist burnout, but also allows them to continuously improve teaching and promote their professional development, which will undoubtedly significantly increase their commitment to work.

Teachers with high hope are hopeful about the future, they set clear teaching goals, and firmly believe that these goals can be achieved through their own efforts. This sense of hope makes them persist in moving forward optimistically in the face of difficulties, maintain their enthusiasm and motivation for work, and continue to invest in education and teaching activities, in order to obtain better teaching results and personal career growth.

Conclusion and Recommendations

After a series of empirical studies, the conclusions of this paper are suggested as follows:

(1) Different educational backgrounds and professional titles have an important impact on work engagement. The higher the educational background, the higher the professional title, the higher the degree of work engagement. Schools should attach importance to and formulate corresponding policies to encourage and support teachers to improve their academic level and academic level, and provide them with more learning and development opportunities, such as setting up special training programs and supporting domestic and foreign study visits and exchanges. At the same time, in the professional title evaluation system, we should adhere to the principle of fairness and justice, optimize the evaluation standards and processes, ensure that excellent talents can stand out, and enhance teachers' sense of professional achievement and enthusiasm through reasonable promotion channels, so as to effectively improve the work engagement of the whole teaching team. In addition, it is also necessary to pay attention to the differences in the needs of teachers with different backgrounds and professional titles, implement differentiated talent training and incentive measures, and ensure that all kinds of teachers can get sufficient development space and a good working environment to jointly promote the progress of higher education.

(2) College Teachers' psychological capital and all dimensions have a direct positive impact on work engagement. As the core force in the field of education, college teachers' professional characteristics are different from those of ordinary enterprise employees. They have a stronger pursuit of improving their own ability and realizing their personal value. Therefore, in the management of higher education, it is very important to pay attention to and actively cultivate the psychological capital of college teachers, such as self-confidence, hope, optimism and resilience.

First of all, enhancing the self-confidence of university teachers is the basis to promote their outstanding achievements in scientific research and teaching. Teachers can be encouraged to set clear work goals and experience a sense of achievement in the process of achieving small goals; At the same time, we should vigorously publicize the deeds of excellent teachers, so that teachers can draw energy from the successful cases of their peers, form positive psychological expectations, and improve their self-efficacy and self-confidence.

Secondly, improving the hope level of teachers is the key to ensure that they maintain lasting passion in the face of challenges. Colleges and universities should help teachers set challenging but practical goals, and guide them to plan a variety of possible implementation paths. When encountering difficulties, teachers can flexibly adjust strategies and always maintain enthusiasm and expectation for work. The school can provide professional development support and build a positive feedback mechanism to stimulate teachers' hope for the future, so as to improve their work engagement.

Moreover, teachers' optimistic attitude should be strengthened, so that they have the ability to treat success and failure objectively and fairly. Managers and colleagues should provide constructive feedback to train teachers to attribute their success to their own internal ability and efforts, and rationally analyze external factors and seek improvement when they fail, rather than simply blame themselves. The optimistic spirit formed in this way helps teachers

maintain an indomitable attitude when encountering setbacks and continue to have a positive outlook on their work.

Finally, teachers' resilience should be cultivated to enable them to adapt to changes quickly, cope with pressure effectively and recover rapidly in adversity. On the one hand, colleges and universities should pay attention to the accumulation of human capital and social capital of teachers, and build a good resource network for them to enhance individual resilience; On the other hand, we should pay attention to mental health care, prevent and manage the risk factors that may lead to the reduction of resilience. By holding various training activities, caring for teachers' family life and other measures, we can help teachers show transcendence in the face of difficulties, and continuously improve their professional adaptability and growth potential.

In short, colleges and universities should systematically integrate educational resources, combine the research results and practical experience of psychological capital intervention at home and abroad, and carry out precise and personalized psychological capital cultivation projects according to the special needs of teachers. By promoting the comprehensive improvement of teachers' psychological capital, it can not only stimulate their potential, improve the teaching quality and scientific research innovation ability, but also improve teachers' professional satisfaction and happiness, and ultimately promote the healthy development of the whole education. At the same time, individual teachers also need to actively play a principal role, actively participate in the process of improving psychological capital, better use psychological capital to deal with the challenges faced in work and life, and further improve work engagement and efficiency.

Implications

Due to time constraints, this study only selected faculty and staff from some universities in Sichuan Province as the research subjects in the selection of the sample. The research results may be influenced by regional and cultural factors, and the ecological validity needs to be improved.

Improving the investment of college teachers is of great practical significance to students, schools and society. For students, it can further improve their academic performance, enhance their learning interest and motivation, and promote their all-round development. For schools, Teachers' work input directly affects the quality of classroom teaching. Create a positive learning atmosphere, attract more excellent students and teachers to join, and can optimize the efficiency of school management. For the society, it can train high-quality talents for the country, promote social development and progress, and build a harmonious community relationship. In short, improving teachers' work investment is not only conducive to the development of individual students, but also plays a key role in the overall effectiveness of school management and education system, and in the long run, it is also crucial for the progress and development of the whole society.

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