

# A Causal Model of Human Capital Management on Teachers' Career Success at Science and Technology Universities in China

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## Abstract

**Objectives:** The objectives of this study are 1) to study the direct impact of Human Capital Management on teachers' career success, 2) To study the indirect impact of Human Capital Management on leadership style, and 3) to study the indirect impact of Leadership style on teachers' career success. **Methodology:** The quantitative approach distributed 400 questionnaires covering scientific universities in different provinces and municipalities in China. **Results:** By analyzing data through SPSS and AMOS software, we verified the positive effect of human capital management on teachers' career success through leadership style. The main contribution of this study is to provide empirical evidence for HRM and development. Research shows that the use of transactional leadership and transformational leadership styles can effectively encourage teachers to invest actively in teaching and scientific research work, thus promoting more fruitful results and the common sustainable development of teachers and science and technology universities.

**Keywords:** Human Capital Management; Career Success; Leadership style; Transactional Leadership; Transformational Leadership

## Introduction

In today knowledge economy era, which features an information economy, network economy, and digital economy, innovation ability has become a key factor for a country to participate in international competition and establish its global status. In the national innovation system, science and technology universities have become the backbone of innovation with its cutting-edge discipline setting. The key to innovation in science and technology universities are to cultivate a team of academic and energetic teachers. Teachers in science and technology universities usually have high comprehensive quality, strong learning ability, active thinking, and a diligent working attitude. They are full of innovative consciousness and are the core force to promote the teaching and scientific research work in the university. Teachers not only affect the quality of education in science and technology universities but are also an indispensable resource factor in innovation and development. Therefore, building and manage the teachers of science and technology universities, give full play to their role and help them achieve career success has become a key task of the construction of teachers in universities, which is also related to the sustainable development of China higher education and innovation ability. The professional success of teachers not only depends on individual efforts, but also is supported by effective human capital management. In addition, human capital management has an indirect influence on leadership style, and different leadership styles will also play an important role in teachers' career success.

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(Sethuraman & Suresh, 2014).

There is a close correlation between human capital management and career success. This study aims to explore the influence of human capital management model on career success and provide a new theoretical perspective on the influencing factors of career success. Most of the existing research has focused on factors such as organizational performance (Datta et al., 2005; Moynihan, 2005), organizational commitment (Battle, 2002), and employee creativity (Chang & Chen, 2020), less on the relationship between leadership style and employee career success. Human capital management through a series of activities, such as acquisition, allocation, use and development of human capital (Anderson Snyder et al., 2006), improve work efficiency (Rupp, 2003) employee innovation (Guertie, 2002) and other employee performance performance. This study not only expands the research field on the association between human capital management, leadership style and career success, but also extends the relevant theoretical framework from a new theoretical perspective.

Human capital management encompasses not only the management of employees but also the management of leaders. This involves practices such as employee recruitment, training, and motivation, all aimed at helping employees achieve career success. Additionally, it includes strategies to enhance leadership effectiveness, such as performance management, compensation design, and relationship management.

Currently, scholars primarily focus on research related to how human capital management impacts employees' own career success, with less attention given to the influence of human capital management on leadership style. Leadership, as the ability to influence others, achieve organizational goals, and drive change, plays a crucial role in motivating employees, fostering innovation, and impacting employee performance, organizational culture, and overall business success.

This study from the organization level into the career success situation factors — leadership style as an intermediate variable, discusses the transformational leadership and transactional leadership behavior impact on career success, help to the organization level to take effective measures to strengthen the management of teachers and leadership, to promote teachers to achieve career success.

## **Research Objectives**

1. To study the direct impact of Human Capital Management on teachers' career success.
2. To study the indirect impact of Human Capital Management on leadership style.
3. To study the indirect impact of Leadership style on teachers' career success.

## **Literature Review and Hypotheses**

Self-Determination Theory (SDT) was proposed by Deci and Ryan in the 1980s (Deci & Ryan, 1985). This theory mainly studies the motivation, self-determination and self-integration process of individual behavior, clarifies the influence path of external environmental factors on individual behavior, and explores the organic dialectical relationship between social environment factors, individual basic psychological needs, motivation and behavior. Self-determination theory emphasizes the dynamic role of the individual self in behavioral regulation.

Self-Determination Theory (SDT) views individuals as active agents, inherently possessing basic psychological needs for growth, development, and self-integration (Ryan, 1995). The theory identifies three fundamental psychological needs: competence, relatedness, and autonomy. The fulfillment of these internal tendencies is influenced by external environmental factors (Marshall et al., 2016). According to SDT, when environmental factors satisfy these three basic psychological needs, individuals are likely to develop in a positive and healthy manner, which in turn enhances job satisfaction and performance. Conversely, if these needs are not met, individuals may experience negative development and even functional impairments (Deci & Ryan, 2000; Gagné & Deci, 2005).

The theory of self-determination has been widely used and verified in many fields such as psychology, management, health and medical treatment, and these applications have further promoted the development and perfection of SDT. Through combining, the existing research of SDT are reflected in the following aspects.

1) Career success

SDT believes that the motivation behavior of individuals is not only influenced by external environment, but also by internal resources, which explains the problem of internal resources, that is, relatively stable individual differences in the orientation of external motivation into non-individual (Guo et al., 2012), control and autonomous orientation (Deci & Ryan, 1985). Independent orientation, personality perfection, self-development, and good social relations are positively related (Greguras & Diefendorff, 2010) found that active personality and self-orientation are more likely to obtain demand satisfaction, so as to improve individual life satisfaction and job performance, and promote career success.

2) Human resource management

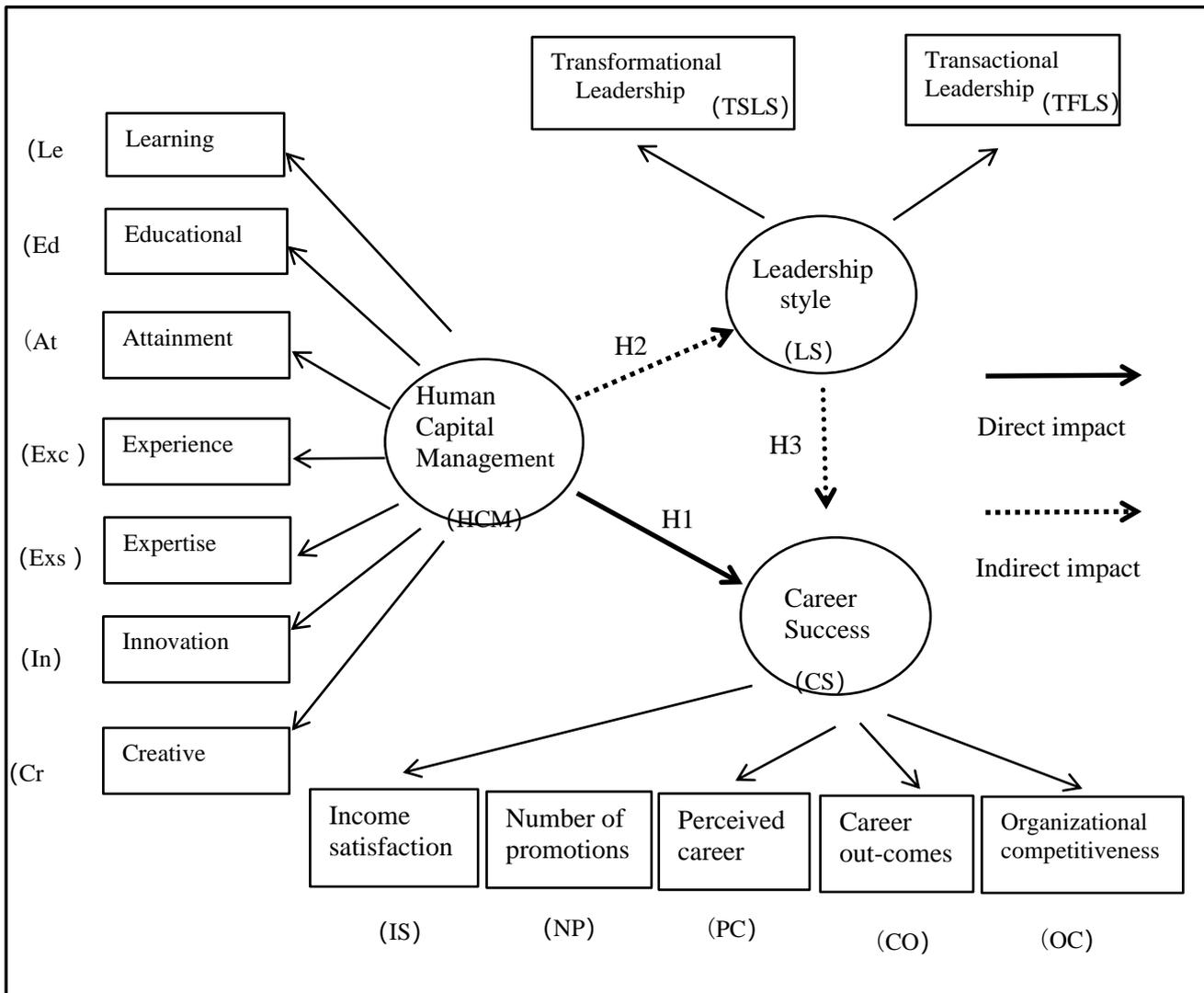
The study found that the matching of human-environment has an impact on employees' organizational recognition and work performance, and the appropriate organizational situation can promote the satisfaction of employees' basic psychological needs (Kanat-Maymon et al., 2016), leading to higher work performance and organizational recognition. By providing a good working environment, the organization develops and enhances their sense of competence and identity (Gagné & Deci, 2005). Providing employees with flexible work schedules and independent ways to complete their work may increase their sense of autonomy (Morgeson & Humphrey, 2006).

3) Leadership style

The study found that transformational leaders meet the basic psychological needs of their subordinates as much as possible, thereby improving their job satisfaction, professional self-efficacy, and commitment to their leadership. The independent support of managers can better satisfy the three basic psychological satisfaction of employees, thus increasing their job satisfaction (Roche & Haar, 2020). Transformational leaders improve job satisfaction, functional self-efficacy and commitment to leadership by satisfying the basic psychological needs of employees (Messmann et al., 2022).

Through the literature collation, analysis and review of the relevant theories and variables. Scholars show that human capital variables play an important part in career success, explain the most part of salary changes and the number of promotion. (Dreher & Ash, 1990; Tharenou & Tharenou, 2009) have found that personal investment in education and experience is the strongest impact for career development. (Kirchmeyer, 2006) considered work experience and tenure were strongly correlated with career success. Therefore, the theoretical

framework of this paper as shown in Figure 1.



**Figure 1** Conceptual Framework

Income satisfaction (IS) means salary and benefits et al. Number of promotions (NP), Mainly the professional titles and skills promotions. Perceived career (PC), Mainly career goals, teaching and academic expectations, etc. Career out-comes (CO), Mainly obtained in the teaching and academic achievements, awards and honors, etc. Organizational competitiveness (OC), both inside and outside the organization competitiveness. Learning (Le), Learn new technology and knowledge. Educational (Ed), Educational background. Attainment (At), Support environment, platform obtained. Experience (Exc), Teaching and research experience. Expertise (Exs), Professional skills to come into effective play. Innovation (In), Change innovation. Creative (Cr), creation of value. Transformational Leadership (TFLS), People-oriented. Transactional Leadership (TSLS), Performance-based.

**Hypothesis 1:** Human Capital Management has a significant direct affect on teachers' career success.

The more Human Capital Management is better managed, the more it affects teachers' career success. This hypothesis means that human capital management directly and significantly affects the extent to which teachers achieve success in their careers. Increased human capital investment (Becker, 1962) can make employees feel more successful in their careers. By providing training, learning opportunities (Hatch & Dyer, 2004), and professional development programs, organizations invest a lot of resources to improve employees' knowledge and skills. In the process of constantly improving their knowledge and skills, teachers are more likely to adapt to career requirements, make outstanding contributions, and thus feel career success.

**Hypothesis 2:** Human Capital Management has a significant indirect affect on leadership style.

This hypothesis shows that human capital management can create favorable conditions for teachers' career success through an effective management system. By providing leadership training and development opportunities, human capital management is able to match the appropriate leadership style, build a positive team culture and external environment (Martins & Terblanche, 2003), and encourage better collaboration among teachers.

**Hypothesis 3:** Leadership style has a significant indirect affect on teachers' career success.

Leadership Style Refers to the leadership individual in the long-term leadership practice formed, stable, with personalized characteristics (Moore, 2007), can lead and influence the members of the organization to achieve the organizational purpose (Hurriyati et al., 2020) and expected goals of the various leadership behavior mode (Behrendt et al., 2017). Leadership affects the level of motivation and engagement of teachers, and the improvement of motivation and engagement can lead to higher work performance, which is crucial to teachers' career success.

## Research Methodology

### Sample and Procedure

Science and technology universities in China usually have strong research and educational capabilities in related disciplines. These universities often achieve remarkable achievements in the field of science and technology and are known for producing outstanding scientists, engineers, and technologists. The development of universities reflects the progress and innovation of science and technology in China, focusing on emerging disciplines and frontier sciences. Therefore, this paper defines the research science and technology universities with the name of "science" or "technology" in the general institution of higher learning at the undergraduate level. The teachers in this paper refer to the teachers who undertake the teaching and scientific research work of the corresponding courses and the prescribed class hours, while the administrative personnel, teaching auxiliary staff and other technical personnel of universities are not directly engaged in teaching or scientific research work, so they do not belong to the research objects of this paper. According to the official website, the university has 62,403 teachers. To ensure the representativeness of the sample data, this paper collected data from scientific universities in different provinces and municipalities in China, and distributed 400 questionnaires through "Questionnaire Star".

### Measurement

This study used a Likert five-level scale to measure the impact of human capital management level on teacher career success, ranging from 1 to 5 points, the higher the score, the stronger the consistency (Drempetic et al., 2020; Kriksciuniene et al., 2019). This researchers used a determination method based on opening a form completed by Taro Yamane (Umar & Wachiko, 2021). The minimum sample size required for the final survey was 397.5, so 400 teachers were selected as the sample. Study reliability, validity, exploratory factor analysis by SPSS 26.0 software and AMOS 24.0. After all the indicators were qualified, the structural equation modeling was performed.

### Results

1) According to the demographic data, 63% of the sample were men and 37% were women, and the number of men was more than women, which meets the basic statistical criteria. In terms of educational level, the sample was divided into three groups. Considering the characteristics of university teachers, most teachers need to have a master's degree or above to teach in universities, of which 58% have a master's degree and 25.5% have a doctor's degree, which is in line with the current situation. In terms of professional title level, 73% were associate senior titles and 19.5% were full senior titles, which was in line with the sample requirements of data collection. Descriptive statistics were performed on the sample data and the mean and standard deviations were met. The means for all factors ranged from 3.675 to 3.96, and were above the mean for all items, and the data are shown in Table 1.

2) The Cronbach's Alpha and Corrected Item Total Correlation (CITS) test were performed for the data collected in this study. The total number of questions included in this study was 63, Whole Cronbach's Alpha is 0.963, The conditions for satisfying internal consistency and reliability are that Cronbach's Alpha is above 0.7, The conditions for internal consistency and reliability are meeting.

3) Exploratory factor analysis show, Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) Career success, human capital management, leadership style are 0.898, 0.932, 0.980, KMO value are above 0.8, very suitable to do exploratory factor analysis. In this study, principal component analysis was used to extract factors and use the maximum variant orthogonal rotation to observe the factor with characteristic value greater than 1. The 63 questions showed a clear 14-factor structure, and the cumulative total explained variance was above 60%. The load of each item is above 0.738 and more than 0.5, and there is no cross load (the conclusion shows that no item is deleted), indicating that the 63 problem items are in a reasonable range and there is no serious deviation of common methods.

4) In this study, Analyze the correlation of the 14 dimensions of the three variables. The results are shown in Table 1. The results show that the value of the correlation coefficient of the 14 dimensions was distributed between 0.198 and 0.684. This indicates a positive relationship between the variables ( $p < 0.01$ ), and these significant results provide pre-test support for the hypothesis test in this paper.

**Tab**

Factors	Mean Value	Standard Deviation	Cronbach's Alpha	1	2	3	4	5	6	7	8	9	10	11	12	13	14
CO	3.858	0.792	0.862	1													
IS	3.864	0.826	0.872	0.388**	1												
NP	3.907	0.816	0.839	0.475**	0.444**	1											
OC)	3.883	0.762	0.8	0.398**	0.426**	0.369**	1										
PC	3.891	0.853	0.889	0.487**	0.458**	0.549**	0.336**	1									
At	3.916	0.883	0.925	0.304**	0.320**	0.281**	0.337**	0.231**	1								
Cr	3.909	0.869	0.894	0.284**	0.362**	0.287**	0.191**	0.401**	0.278**	1							
Ed	3.848	0.876	0.861	0.332**	0.330**	0.301**	0.227**	0.313**	0.415**	0.312**	1						
Exc	3.801	0.882	0.862	0.275**	0.272**	0.198**	0.253**	0.268**	0.462**	0.459**	0.389**	1					
Exs	3.743	0.875	0.857	0.278**	0.297**	0.338**	0.279**	0.397**	0.402**	0.454**	0.473**	0.467**	1				
In	3.719	0.887	0.862	0.256**	0.320**	0.271**	0.223**	0.338**	0.490**	0.436**	0.456**	0.462**	0.434**	1			
Le	3.686	0.912	0.878	0.317**	0.349**	0.328**	0.259**	0.384**	0.486**	0.501**	0.480**	0.496**	0.531**	0.491**	1		
TFLS	3.861	0.853	0.951	0.365**	0.286**	0.322**	0.242**	0.323**	0.321**	0.248**	0.334**	0.233**	0.285**	0.261**	0.282**	1	
TSLS	3.892	0.845	0.957	0.358**	0.283**	0.302**	0.245**	0.279**	0.351**	0.191**	0.355**	0.230**	0.294**	0.266**	0.260**	0.684**	1

\*P-value<0.05 \*\* P-value<0.01

According to Table 2,,after analyzing the fitting indicators of the independent variables,it can be seen that career success,human capitalmanagement,leadership style and the modified structural equation model have good fit to the data, We can see the CMIN /DF value Less than 5, GFI, AGFI, NFI, NNFI, CFI values all above 0.9, RRMSEA less than 0.08, All the fitting indicators have reached a good fitting level.

**Table 2.** The Result of Model Fitness Analysis

Goodness of Fit Index	CMIN	DF	CMI N/DF	GFI	AGFI	NFI	NNFI	CFI	RRMSEA
Career Success Test R result	22.845	99	0.241	0.963	0.949	0.965	0.992	0.993	0.025
Human capital Manag ement Test Result	294.011	268	1.097	0.947	0.935	0.956	0.995	0.996	0.016
Leadership style Test Result	221.833	208	1.067	0.952	0.941	0.97	0.998	0.998	0.013

SEM Test Result	84.977	68	1.25	0.972	0.956	0.959	0.989	0.992	0.025
Level of Acceptance			<5	≥0.95	≥0.90	≥0.95	≥0.95	≥0.90	<0.08
Interpretation	Acceptance								

### Hypothesis Testing

H1: Human Capital Management has a significant direct affect on teachers' career success.(Supported)

According to table3, Analysis the model, the path value of "CS <- - -HCM" is 0.510, the regression weight is estimated to be 0.052 (SE), the regression weight is estimated to be 7.568(C.R.), Non-Standardized Estimate is 0.394, The regression weight of Human Capital Management has a strong predictive effect on teachers' Career Success (p<0.001)(double tail). H2:Human Capital Management has a significant indirect affect on leadership style.(Supported )

According to table3, Human Capital Management impact Leadership Style, "LS<--- HCM" is 0.476.The regression weight is estimated to be 0.061 (SE), the regression weight is estimated to be 7.631(C.R.), Non-Standardized Estimate is 0.465, The regression weight of Human Capital Management has a strong predictive effect on Leadership Style (p<0.001)(double tail).

H3:Leadership has a significant indirect affect on teachers' career success. (Supported )

Leadership Style impact Career Success "CS<---LS" is 0.312, the regression weight is estimated to be 0.051 (SE), the regression weight is estimated to be 4.835(C.R.), on-Standardized Estimate is 0.246. The regression weight of Leadership Style has a strong predictive effect on Career Success (p<0.001)(double tail).

**Table 3.** The Path Coefficient Analysis of Variables

Path		Non-Standardized Estimate	S.E.	C.R.	Standardized Estimate	
Leadership Style	<---	Human Capital Management	.465	.061	7.631	.476
Career Success	<---	Human Capital Management	.394	.052	7.568	.510
Career Success	<---	Leadership Style	.246	.051	4.835	.312
Learning	<---	Human Capital Management	1.000			.746
Innovation	<---	Human Capital Management	.875	.067	13.110	.680
Expertise	<---	Human Capital Management	.862	.065	13.261	.681

		Management				
Experience	<---	Human Management Capital	.847	.066	12.799	.662
Educational	<---	Human Management Capital	.818	.068	12.111	.644
Creative	<---	Human Management Capital	.826	.067	12.378	.666
Attainment	<---	Human Management Capital	.827	.066	12.609	.670
Career out-comes	<---	Career Success	1.000			.671
Income satisfaction	<---	Career Success	1.009	.095	10.633	.645
Number of promotions	<---	Career Success	1.062	.092	11.598	.703
Organizational competitiveness	<---	Career Success	.745	.079	9.396	.544
Perceived career	<---	Career Success	1.140	.096	11.864	.726
Transformational	<---	Leadership Style	1.000			.837
Transactional	<---	Leadership Style	.944	.082	11.574	.817

Note: P value indicates the level of significance 0.001

## Discussion

1) What are the factors of human capital management, leadership style, teachers' career success at science and technology universities in China?

a) It is found that the impact factors of human capital management include: learning ability (Le), educational background (Ed), achievement (At), experience (Exc), expertise (Exs), innovation (Innovation, In), and creativity (Cr). Studies show that learning ability (Le) is the most critical dimension (loading factor of 1). Learning ability is a kind of ability to actively acquire knowledge. Individuals with high initiative can actively adapt to and change the environment, be good at identifying and seizing opportunities, and brave difficulties and actively take action (Deiser, 2009). Teachers with active learning ability are easy to get the trust and support of leaders, get more work guidance and care in life, so as to get more opportunities for paper publication and project application. Under the influence of transformational leadership, these teachers are more likely to obtain professional title promotion, realize career expectations, and thus improve teachers' career satisfaction and career success.

b) The study found that the career success standard of university teachers was Number of promotions (NP), Perceived career (PC), Income satisfaction (IS), Career out-comes (CO), Organizational competitiveness (OC) 5 factors, As is known from the SEM model, Perceived career (PC) in career success has the highest load, Perceived career (PC) explains career

success better than other dimensions (loading 1.14). This shows that teachers in science and technology universities generally have a clear plan for their career development, a clear career development route, and take professional title promotion, salary income, papers and teaching achievements, and other career-related honors as the standard of measuring career success.

c) This paper selected the 2 influence factor of transformational Leadership and transactional leadership, They both positively influence career success, the result shows that, transformational leadership (TFLS) has the higher load in leadership style(LS)(loading 1) than transactional leadership, This shows that a transformational leadership style is more conducive to teachers' career success. This leadership style encourages teachers to go beyond themselves and gain a stronger sense of professional achievement by describing the good vision of the organization, encouraging teachers to pay attention to the interests of the organization, and helping them to improve their skills and tap their potential. This conclusion is consistent with the Self-Determination Theory in promoting psychological demand satisfaction.

2) What is the effect of human capital management through leadership style that impact teachers' career success at science and technology universities in China?

This study introduces the situational factors —— leadership style at the organizational level, as intermediary variables, to explore the interaction between transformational and transactional leadership in human capital management and career success, and the relationship between this interaction and career success. The study raises the hypothesis that human capital management has a significant positive impact on leadership style, while leadership style also has a significant positive impact on teachers' career success. The quantitative data analysis results show that the research results effectively verified the intermediary role of leadership style between human capital management and teacher career success, among which the influence of transformational leadership is more significant (loading factor is 1). Transformational leaders focus on interpersonal relationships and meet the relationship needs of teachers. By creating a supportive working environment and promoting teamwork, leaders can gain a sense of belonging at work and better realize self-determination, thus promoting career success. This result is consistent with the existing theory and literature research results: the higher the level of human capital management, the better the leadership level of matching managers(Baron & Armstrong, 2007). In practical work, the organization gives more training and performance guidance to leaders, continuously improves leadership, and is more inclined to transformative or transactional leadership style, so as to influence the professional behavior of teachers and promote career success.

3) What are approach of human capital management impact to teachers' career success at science and technology universities in China?

The path value that human capital management can significantly affect "CS ← HCM" is 0.51, (SE=0.052, C.R.=7.568). In other words, through the effective management and investment of teachers' human capital, the chances of career success of teachers can be significantly improved. The career success of teachers is not only the goal of individual teachers, but also the common goal of university, teaching team and scientific research team. Human capital management is helpful to improve teachers' ability and realize their self-value. According to the self-determination theory (SDT), when basic psychological needs are met (Deci & Ryan, 1985). Universities meet teachers' autonomy, sense of competence and relationship, through strengthening training, providing opportunities for continuing education,

providing care and guidance, and providing a platform to demonstrate their professional talents. These measures can enhance the intrinsic motivation of teacher development and promote more positive behavior and mental health, thus helping teachers to achieve career success. By improving employees' knowledge, skills and ability (Combs et al., 2006), human capital management can effectively mobilize the enthusiasm of employees to participate in decision-making, and promote employees to strengthen learning and accumulation, thus enhancing the value of overall human capital (Hatch & Dyer, 2004).

The effectiveness of leaders depends on the way they behave in different contexts. Organizations can shape a leadership style that is consistent with their organizational goals by specifically influencing their leaders' behavioral decisions (Siswanto et al., 2022). After an empirical analysis of data from a sample of 405 staff members in Indonesia, studies found that transformational leadership style significantly and positively influenced employee job satisfaction (Judge, 2004). It was also found that transformational leadership not only improved job satisfaction but also had a significant positive correlation with job motivation. Human capital management and leadership behavior are the boundaries of mutual influence (Chuang, 2016); human resource management practice and leadership behavior are also the boundaries (Chuang, 2016; Jiang et al., 2016). The relationship between certain leadership behavior and outcome variables will be strengthened by human capital management, and the impact of human capital management on leadership is obvious (Simić, 2020). Therefore, training, learning and development activities in human capital management can influence the behavior style of leaders to adapt and choose the most appropriate behavior patterns.

## Conclusion

This chapter aims to study the influence mechanism and path between human capital management and career success, while combining Self-determination theory, the human resource management theory to clarify the intermediary role of transformational leadership and transactional leadership in the relationship between human capital management and career success (Riaz & Haider, 2010). Also answered with the objectives of the study.

1) To find out the significance factors of human capital management, leadership style, teachers' career success at science and technology universities in China.

Research findings were, "Learning (Le)" is the most critical dimension to measure the latent variable of "HCM" (loading 1), "Learning" can effectively compensate for other latent variables such as Educational (Ed), Attainment (At), Expertise. The strength of the influence of other dimensions, Therefore, Learning is the most critical dimension to measure the potential variables of human capital management. transformational leadership (TFLS) has the highest load in leadership style (LS) (loading 1), and transformational Leadership explains leadership style (LS) better than transactional leadership (TSLS). "Perceived career (PC)" in career success has the highest load, Perceived career (PC) explains career success better than other dimensions (income, position, competitiveness). Research findings were, the path value of "CS <- HCM" is 0.51, (SE=0.052, C.R.=7.568) Human capital management can have a significant impact on the career success of teachers, that is to say, through effective management and investment (Jiang et al., 2012) of teachers human capital, teachers can significantly improve their career success opportunities.

2) To study the mediator of leadership style that significance impact to teachers' career success at science and technology universities in China.

Research finding were Leadership style plays an intermediary role in human capital management and career success. Human capital management has a significant positive impact on leadership style, and leadership style also has a significant positive impact on teachers' career success. From the results of the quantitative data analysis, The path coefficient of "LS <- -HCM" is 0.476 (SE=0.061, C.R.=7.631) "CS <- -LS" path coefficient up to 0.312 (SE=0.051, C.R.=4.835), the results show that, Human capital management can have a direct and significant impact on teachers' career success (0.51), Human capital management has a significant indirect impact on leadership (0.476), Leadership has a significant indirect effect on career success (0.312), Impact of Human Capital Management on Career Success  $0.51 > 0.476 > 0.312$ , Human capital management has the strongest impact effect. This fully shows that the higher the level of human capital management, the indirect effect of transformational leadership (loading 1) can stimulate the potential of teachers, cultivate their learning ability (loading 1), and help teachers to achieve Perceived career (loading 1.14) and achieve career success.

3) To study factors of Human Capital Management that significance impact to career success at the University of Science and Technology in China.

The study shows that the teachers at science and technology universities have high education, high professional title skills, high income, strong adaptability. To suggest a model of human capital management affecting career success can further help this type of universities improve their human resource management level and teachers career success, so as to promote the realization of organizational performance.

The improvement of human resources level in at science and technology universities are influenced by many factors, and the strongest influencing factor is the learning ability. From the perspective of organizational management, we should establish a learning organization, create a good atmosphere for learning, provide continuing education opportunities and cost support for teachers, and expand their skills and experience. From the perspective of individual, it is necessary to enhance the awareness of learning and constantly actively learn new knowledge and skills. Organizations can create an environment for teachers to encourage innovation and self-learning. Through these measures, human resource management can effectively improve the learning ability of teachers, so as to improve the overall efficiency and adaptability of the universities.

## Recommendations

The conclusion of this study has certain enlightenment and guiding significance for HRM practice.

a) Focus on teachers' career success and provide matching management guidance

In order to help teachers achieve career success, it is not only necessary to pay attention to human capital management mechanisms, policies and activities such as learning, education, experience, professional titles, innovation and creation, but also to be people-oriented to improve teachers' cognition and recognition of the career, and improve their knowledge, skills and ability to meet the job requirements. This person-centred approach can positively change teacher attitudes and behaviors and provide matched management guidance to more effectively help and support them to achieve career success.

b) Pay attention to the cultivation of teachers' learning ability and learning atmosphere.

In the era of rapidly developing knowledge information network, universities advocate professional development and lifelong learning of teachers. Teachers must constantly absorb new knowledge in order to grow and mature in professional quality, so as to achieve career development. Universities can organize skills training, establish learning organizations, support teachers to participate in continuing education, and provide the necessary time and funding to improve their learning initiative and help them achieve career success. In addition, as knowledge-based teachers, active learning is an effective way to acquire knowledge and skills. It is suggested that teachers actively interact with leaders and give feedback to managers when encountering difficulties in teaching and research, and in life, actively seek help and understanding to solve problems in the profession and achieve success.

C) Select the appropriate leadership style and optimize the management mode of teachers

The study found interactions between leadership style and human capital and career success. Both the transformational leadership style and the transactional leadership style have a positive effect on the teachers' career success, among which the transformational leadership style has a more significant influence and is more beneficial to the career success of teachers. Therefore, it is suggested that organizations should select and cultivate appropriate leadership styles (Riaz & Haider, 2010) through an effective human capital management system, so as to improve individual ability and team performance.

## **Limitations**

Although this research has achieved some research results according to the standard research methods, but due to the research time, funding and other conditions limited, there are still many limitations that need further improvement.

The sample size needs to be expanded on regional and university size selection, The population of this study includes the teacher as the research object, excluding the administrative management, teaching assistant staff and temporary employees, the randomness of the sample needs to be further improved. Due to the time constraints. This study failed to further validate the reliability of the findings by qualitative analysis. Future studies could further support and enrich the existing research findings by deeply exploring the relationship between human capital management, leadership and teacher career success.

## **Future Research**

The conclusion of this study shows that both human capital management and leadership behavior have an impact on teacher career success. In this study, human capital management as a precursor variable and leadership style as a mediator explored their impact on teacher career success. Future studies could explore leadership style as an independent variable and human capital management as a mediating variable to further understand the impact of their interactions on teacher career success.

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