An Empirical Study on the Influence Factors of Digital Human Resource Management on Deviant Innovation

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Abstract. In order to clarify the influence factors of d digital-HRM mode on deviation innovation, this study used the confirmatory factor analysis method in the empirical analysis of 147 samples from educational administration personnel of some colleges and universities in Sichuan province. In this regard, this paper discusses four key factors affecting deviance innovation, namely colleague factors, personal factors, leadership factors, and organizational factors. Individual factors directly impact deviance innovation, while colleague factors and personal factors cause influence deviance innovation by arousing deviance, personal factors, and leadership factors. In addition, organizational factors cause influence deviance innovation by pleasing deviance; gender plays a regulatory role between individual factors and arousal deviance, and gender plays a regulatory role between leadership factors and pleasure deviance. Through the research of this thesis, it is able to supplement the theoretical basis of deviance innovation, It can also provide some guidance for academic staff in Colleges and universities to make deviant innovation under the digital-HRM mode.

Keywords: Digital-HRM, arousal deviance, pleasure deviance, deviance innovation.

1 Introduction

In recent years, the Internet, big data, cloud computing, blockchain, artificial intelligence, and 5G technology have become important topics in the political economy of various countries. The digital economy is becoming a key force in restructuring global factor resources and reshaping the global economic structure. Understanding the impact of gender in the digital human resource management(digital-HRM) will help managers mine the change characteristics of deviance innovation behavior of academic administrators in colleges and universities in the digital-HRM from big data and predict the possible changes of deviance innovation structure brought by college educational administrators according to the gender differences and different situations of college educational administrators and leaders so that they can provide a reference for the correct guidance of deviance innovation behavior.

According to a study by Seagate and IDC (Internet Data Center), expected by 2025, the global data volume will rise from 16ZB in 2016 to 163ZB (1 ZB=1 billion TB=1 trillion GB), which is equivalent to 489 million views of the entire Netflix directory[1]. Actually, the contribution of mobile offices can not be underestimated among these data volumes. Chairman Jinping Xi mentioned in his speech during the 34th collective learning session of the 19th Central Political Bureau: "To build a digital economy with data as the key element. We will accelerate the

development of the digital economy, promote the integrated development of the real economy and the digital economy, and accelerate the formation of a digital economy dominated by innovation[2]." Since the emergence of mobile offices, it has rapidly penetrated into all walks of life, and the development momentum of digital manufacturing, digital transportation, digital education, and other industries is strong. The digital-HRM has gradually entered people's vision.

Meanwhile, during the outbreak of COVID-19, various industries around the world are trying to carry out large-scale digital management reform to improve the modernization and efficiency of management. The office locations of various industry managers have gradually shifted from the office to the cloud. Premier Keqiang Li mentioned in the executive meeting of the State Council that we should strengthen the construction of information infrastructure, develop integrated infrastructure steadily and build livelihood infrastructures such as telemedicine and online education [3]. On the premise of increasingly clear digital development prospects, more and more various industries have deployed data management.

The survey of workday company, a giant in human resource management technology, shows that the digital transformation of management has accelerated with digitization, which is a global development trend. According to a survey by the IBM Institute of business value, more than one-third of enterprise executives said that the time was ripe for the subversion of the global human resource management function. The study also found that they reached a broad consensus on the five common features supporting HR 3.0: "experience centered deep personalized design belongs to the core skills of the enterprise, AI has driven data-based decision-making, agile practice to improve speed and respo-nsiveness, and consistent transparency to maintain trust and reduce reputation risk." According to a survey by enterprise technology research, in 2020, about 72% of the global employees work remotely, and the proportion of employees who always work from home will increase to 34% in 2021 [4].

In 2020, many technology companies such as alphabet announced that a certain proportion of employees are allowed to work permanently at home, which can release more space and freedom of innovation for academic administrators in colleges and universities so as to provide a favorable hotbed for deviance innovation. It can be predicted that the new economic background, new management technologies, and means and new policies will continue to reshape people's office mode[5], and the digitization of management will be further accelerated. This helps managers create a "people-oriented" employee humanistic experience. Employee self-help, real-time online processing, and a simple user interface become the future development direction. This design centered on the care and experience of deep individual values helps employees increase their sense of happiness and belonging, which is conducive to stimulating employees' innovation, enthusiasm, and initiative, but on the other hand, the pursuit of personality is more likely to lead to deviance behavior.

Secondly, this management model will pay more attention to performance assessment and regard skills as the core of assets. In the digital-HRM, enterprises will pay more attention to employees' performance and give more financial and policy support to employees with good performance. Employees expect to produce more performance through better skills, which helps to encourage employees' innovation and practical behavior and form an innovative enterprise atmosphere, but at the same time, it implies the deviance risk of the one-sided pursuit of performance. Third, in the digital-HRM, resources are shared in the form of data, and staff carries out business practices based on data. The integration and timely updating of the unit's

resources is the most basic module in the construction and various digital-HRM platforms. Going to the cloud has become an important way to optimize resource management, and real-time dynamic resource sharing and personalized resource exchange have become the norm. The exchange of information and resources is more convenient and efficient, which contributes to innovative behavior.

More importantly, employees in digital-HRM are far away from organizations and colleagues, work alone in different places or at home, and are physically isolated from the central organization in terms of time and place. It is far away from the working environment of getting along with colleagues and leaders day and night, reporting, and timely supervision, which provides a favorable space for employees' violations. In addition, military orders are not affected. Under digital-HRM, whether employees are more likely to have deviance innovation behavior, what factors affect them more than traditional posts, and exploring the relationship and influence mechanism between digital-HRM and deviance innovation has gradually attracted the attention of scholars. As the office space of academic administrators in colleges and universities changes from the traditional field office to the Internet, the phenomenon of deviance innovation is more obvious[6].

Digital-HRM can facilitate academic administrators to adapt to a flexible working environment and better stimulate staff's deviance and innovative behavior. Nevertheless, the existing research on deviance innovation mainly focuses on the level of enterprise or university performance management, while whether there are other research values and some new influencing factors in the research on deviance innovation by academic administrators in colleges and universities in the digital-HRM still needs to be further discussed. In summary, This paper uses confirmatory factor analysis to make an empirical analysis of the samples of educational administrators in some colleges and universities in Sichuan Province, China, and clarify the key factors affecting deviance innovation, which is in order to help managers understand the deviance innovation mentality of college educational administrators better and provide methods and ways to standardize and guide the deviance behavior of academic administrators in colleges and universities. This paper is described in five parts: literature review, research hypothesis, and model construction, the research method, data analysis, and hypothesis testing and conclusion.

2 Literature Review

The digital-HRM is mainly based on the theory of quantifying the management object and management behavior based on statistical technology[7], while the deviance innovation is based on the deviance innovation behavior under the social behavior in sociology[8]. Therefore, combined with the introduction, this paper mainly identifies the research content in three words: digital-HRM, management mode, and deviance innovation.

2.1 Digital-HRM

Digital-HRM refers to the management activities and methods that use the computer, communication, network, and other technologies to quantify the management objects and management behaviors through statistical technology to realize the functions of R&D, planning, organization, production, coordination, sales, service, and innovation[9]. Although digital has

the simplest, objective, fast, international, powerful, and talkative characteristics, the digital-HRM must focus on the people-oriented principle in the management process. Because people are the principal part of digital-HRM, we should not forget the people-oriented principle just because of digital. In digital-HRM, we must pay attention to people-oriented, and it's necessary to understand, respect people, stimulate people's enthusiasm and creativity, tap people's potential and give full play to people's wisdom so as to achieve the best work effect.

2.2 Management mode

Among the five major management functions, only the organizational model of management can fully exert its functions. At the same time, it is emphasized that the organizational model is divided into different departments based on different functions, and each department is managed according to a pyramid structure.The most important part of pyramid functional organization which is characterized by this hierarchical structure is unified command and centralized leadership. There are many inherent defects such as multi-level, poor information flow, difficult coordination between departments, poor adaptability, and so on, which are more and more unable to adapt to the requirement of complex environmental changes[10]. Therefore, the organizational structure of the digital management mode is mainly constructed from three levels: virtual work, flat organizational unit, and work team. The marketization of virtual work is transformed into a dynamic entity organization. In the management system of electric power companies, it is mainly to digitize the work of leading units. The flat organizational unit is mainly used to change the horizontal influence of the management system of the power company and learn from the influence of colleagues. Working groups are cross departmental or major working groups set up for students according to some specific tasks. These three levels are interrelated and organically combined to form the digital management mode of the power company management system. In addition, they have also become the representatives of the digital organization mode of the management system of power companies, leading the trend of the future.

2.3 Digital-HRM in colleges and universities

It is of great significance to the work effect whether the management mode of a unit is successful or not. The digital-HRMl of the educational administration department in colleges and universities comprehensively embodies the two main characteristics of management organization and behavior. Under this management mode, the development of educational administration departments in colleges and universities should be provided with higher flexibility and adaptability. We make a rapid and positive response to the instructions issued by the leaders and make corresponding countermeasures for the huge group of teachers and students. Only in this way can the advantages of digital-HRM be brought into play. Moreover, the flexibility, convenience, and speed of the digital-HRM can well solve the complex work problems of educational administration departments in colleges and universities.

2.4 The influencing factors of deviance innovation

Deviance innovation mainly includes deviance behavior and illegal innovation[11]. The"deviance behavior" refers to the behavior that violates the norms of the organization and has an adverse impact on the achievement of the expected objectives of the organization and other members of the organization[12]; while the"Illegal innovation"refers to the behavior that

originates from the organization and ultimately serves the organization. Employees generate different innovative ideas from the past to solve the problems they encounter in their work. Once these ideas are put into action, they will promote the common development of enterprises and individuals[13]. At present, deviance innovation mainly focuses on the separate research of deviance behavior or innovation results. Most of the research is mainly invested in listed enterprises, and there is still a lot of room for research on power company management. When studying internal innovation within an organization, the term 'biased innovation' was proposed and interpreted as an informal and innovative work mode among members of the organization[14].

So far, although it has not been recognized and studied by many scholars, it also has attracted many scholars' great attention to the connotation of its deviance innovation. Nowadays, most scholars mainly study two kinds of behaviors in the interpretation of deviance innovation. One of them is to act deviance behavior without the permission of the leader or organization or under the premise of concealing the leader and organization, and the result is defined as illegal innovation activities. This kind of deviance innovation mainly embodies an independent behavior that has not been informed to the superior and hopes that the final result could be conducive to the development of the organization [15]. The above behaviors mainly emphasize the behavior of giving full play to individual innovation activities in the case of the organization that does not know anything about them. So, the good and bad results of innovation have not been clearly defined. The other one is that the leader or organization gives negative instructions in the case the leader or organization is not in the dark, but the executor ignores the negative right of the leader or organization.

He firmly believes that his behavior must be good for the result of innovation behavior, violates the will of the leader or organization, and makes the final deviance innovation behavior[16]. The most important difference between the two different behaviors is whether the leader or organization knows and rejects the deviance innovation behavior, but both of them are unified. And when the leader or organization knows that something is happening, the executor can only carry out activities in a hidden situation. As a result, deviance innovation also has some concealment. Similarly, these two behaviors also have a common feature - the ultimate goal is to bring users to the organization, but the way adopted in the implementation process is unreasonable and should conform to the basic rules and regulations of the enterprise[17]. With the continuous efforts and extended research of later researchers, the deviance innovation in this part mainly has the following four main influencing factors: Influencing factors among people in the working environment (colleague factors); individual spontaneous behavior (personal factors); not known by the superior (leadership factors); without permission from the organization (organizational factors)[18].

Therefore, this thesis studies internal influence and external influence. The internal influence factors are called pleasure deviance, which is mainly divided into personal and leadership factors, and the external influence factors are called arousal deviance, which is mainly divided based on colleague and organizational factors[19]. This thesis will discuss the influence of these two factors on deviance innovation behavior.

In summary, this paper discusses the influence factors of college educational administration managers on deviance innovation under the digital-HRM, which are mainly composed of four main factors: colleague factors, personal factors, leadership factors, and organizational factors.

3 Research hypothesis and model construction

In 1912, American economist Schumpeter proposed the concept of innovation in economic development theory. In 1950, American sociologist Merton explained deviant behavior based on the social anomie theory of French sociologist Durkheim. Based on the concepts proposed by previous scholars in terms of technological progress and policies, the impact factors of digital management models on deviant innovation are divided into awakening deviant and pleasure deviant[20]. The awakening bias is mainly composed of colleague factors and personal factors. The happiness bias is mainly composed of leadership factors and organizational factors. And the internal relationship between variables and the impact mechanism of variables on academic managers' deviant innovation were studied through seven themes. Finally, gender issues were studied and discussed.

3.1 Research on the influence of colleague factors on deviance innovation

In the influence of organizational environment on deviance innovation behavior, deviance innovation occurs within the organization, especially after knowing that colleagues have deviance innovation behavior at work. The conclusions and different attitudes of leaders to the organization mainly include the following four categories: The first one is to bring benefits to the organization and be appreciated by leaders[21]; the second one is to bring benefits to the organization, but the leaders say they deceive this innovation[22]. The third category is those who don't bring benefits to the organization but are encouraged by leaders; the last one is those who did not bring benefits to the organization and was severely criticized by the leaders[23]. No matter what the above conclusions of colleagues' deviance innovation behavior belong to, it will eventually affect employees' work behavior. So this thesis puts forward the following assumptions for colleague factors:

H1a: It is assumed that in deviance innovation, colleague factors positively and significantly impact arousing deviance.

H1b: It is assumed that colleague factors positively and significantly impacts pleasure deviance in deviance innovation.

3.2 Research on the influence of personal factors on deviance innovation

Currently, most educational administrators are only children born in the 1980s or 1990s, with distinct personalities and strong self-awareness. Therefore, it is normal for them to not be afraid of instructions from superiors and unwilling to accept organizational constraints during the work process. In this situation, when employees have a sense of independent innovation and are not recognized by leaders or organizations, it is likely to form deviant innovation behavior [24]. Under the premise of personal characteristics, the personality traits that lead to deviance and innovation are opposite, so using only five different personality traits cannot clearly analyze deviant innovation behavior [25]. In both cases, personal factors are more focused on reflecting one's own value, and the new generation of employees are more likely to form deviant innovative behaviors. Therefore, this article proposes the following assumptions regarding personal factors:

H2a: It is assumed that in deviance innovation, personal factors positively and significantly impact arousing deviance.

H2b: It is assumed that in deviance innovation, personal factors positively and significantly impact pleasure deviance.

H2c: It is assumed that personal factors directly have a positive and significant impact on deviance innovation in deviance innovation.

3.3 Research on the influence of leadership and organizational factors on deviance innovation

This paper studies the deviance behavior between leadership style and employee characteristics from different perspectives and studies and analyzes the response of leaders to employees' deviance innovation behavior[26]. Through the following analysis of the different situations finally reflected, the first category is that some leaders choose a tolerant attitude after knowing that employees have had deviance innovation behavior, but the leaders still made a negative decision on this behavior, so these employees would be grateful for the leader's behavior[27]; Second, some leaders know that employees' deviance innovation is to improve the interests of the whole organization, and leaders will encourage such employees to give more opportunities and rights to make deviance innovation[17]; In the third category, some leaders took severe criticism and punishment measures after knowing that employees had deviance innovation behaviors, so as to maintain the unity of organization and management and the right of leadership[28]; In the fourth category, when some leaders know that employees make deviance innovation behavior, they take control methods so that the organization doesn't need to bear potential risks, so that the employee's deviance innovation behavior can directly bring absolute benefits to the organization[24]. When employees make deviance innovation behavior, no matter how leaders react, they will be affected to varying degrees. Therefore, this paper puts forward the following assumptions for leadership factors:

H3a: It is assumed that in deviance innovation, leadership factors positively and significantly impact pleasure deviance.

H3b: It is assumed that leadership factors directly have a positive and significant impact on deviance innovation in deviance innovation.

In this era of environment and tasks, organizations take different management measures to affect employees' work efficiency to a certain extent and affect employees' deviance innovation behavior. The instability of standardized management has certain hidden rule contradictions. By stimulating such contradictions, it affects the standardized management mode in the organization so that employees can have flexibility and creativity in deviance innovation, further improving organizational performance and organizational interests[14]. The organizational atmosphere should have the courage to bear the mistakes made by the innovation atmosphere and try to bear the innovation risks[29]. The innovative ideas of contemporary new employees will be the product of diversified influence, which is also the main factor affecting deviance innovation. Therefore, this paper puts forward the following assumptions for organizational factors:

H4a: It is assumed that in deviance innovation, organizational factors positively and significantly impact arousing deviance.

H4b: It is assumed that in deviance innovation, organizational factors positively and significantly impact pleasure deviance.

3.4 Research on the impact of arousing and pleasing deviance on deviance innovation

The emotional factors affecting employees' deviance innovation behavior are mainly reflected in the in-depth study of arousing and pleasant emotions. Employees can really make deviance innovation behavior at work only on the premise of satisfying the happy working state and arousing deviance innovation behavior under the influence of the outside world[17]. Therefore, this thesis puts forward the following assumptions for arousal and pleasure deviance:

H5a: It is assumed that arousing deviance has a positive and significant impact on pleasure deviance in deviance innovation.

H5b: It is assumed that in deviance innovation, arousing deviance directly has a positive and significant impact on arousing deviance.

H5c: It is assumed that in deviance innovation, pleasure deviance directly has a positive and significant impact on arousing deviance.

3.5 The moderating effect of gender on indicators

Gender has a certain impact on the arousal and emotions of deviant innovation. Previous studies have shown that women are more susceptible to female arousal and emotional influences than men [30]. In addition, in the process of participating in deviant innovation, men and women also have a certain influence in different environments and organizations. Especially in the work environment and with the intervention of others, men exhibit more calm deviant and innovative behavior. In addition, digital human resource management is still in its early stages of use by educational management personnel in universities. The leaders have not yet truly understood the new management model of long-term use of computers; Deviant innovative behavior will have a stronger incentive effect on university education managers. Therefore, this article proposes the following assumptions about gender:

H6a-1: It is assumed that gender plays a regulatory role between colleague factors and arousing deviance in deviance innovation.

H6a-2: It is assumed that gender plays a regulatory role between colleague factors and pleasure deviance in deviance innovation.

H6a-3: It is assumed that gender plays a regulatory role between personal factors and arousing deviance innovation in deviance innovation.

H6a-4: It is assumed that gender plays a regulatory role between personal factors and pleasure deviance in deviance innovation.

H6b-1: It is assumed that gender plays a regulatory role between leadership factors and pleasure deviance in deviance innovation.

H6b-2: It is assumed that gender plays a regulatory role between organizational factors and arousing deviance innovation in deviance innovation.

H6b-3: It is assumed that gender plays a regulatory role between organizational factors and pleasure deviance in deviance innovation.

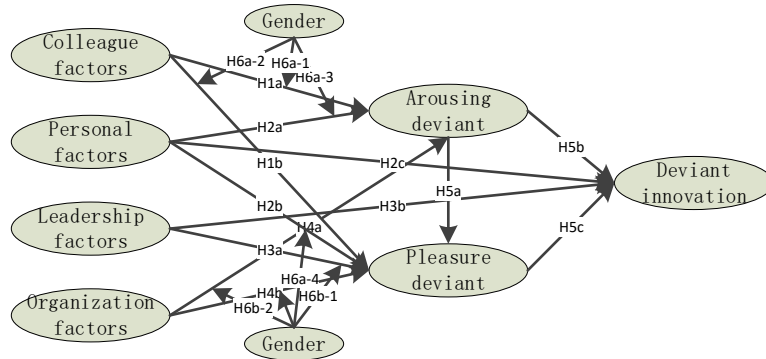The hypothetical model of this study is shown in Figure 1

Fig. 1. Hypothetical model diagram

4 The research method

4.1 Variable measurement

Based on the digital transformation model, this paper constructs the influencing factor model of digital management mode on deviance innovation and issues the questionnaire point-to-point to verify whether the model is appropriate. The design of the Likert scale is used to determine the value for measurement, and the satisfaction is measured by the 5-point scale method so that the respondents can only tick their satisfactory answers from "completely inconsistent", "slightly inconsistent", "uncertain", "somewhat consistent" and "very consistent", and their values are 1-5points respectively, So as to get the actual situation of the respondents and score them[31]. The measurement of research variables refers to the relevant literature, and the items are modified and supplemented according to the opinions of experts and the research contents of previous scholars so as to make them more in line with the office situation of academic administrators. The sources of variable items are shown in Table 1.

Table 1. Source of variable items.

Measurement variables	Number of items	Reference
Colleague factors (T1)	4	Kluemper et al.2019[32]
Personal factors (T2)	6	Xu et al.2020[27]
Leadership factors (T3)	5	Xianmia et al.2019[33]
Organization factors (T4)	4	Fang et al.,2019[25]
Arousing deviance (T5)	3	Bin et al.2020[12]
Pleasure deviance (T6)	3	Deng et al.2019[11]
Deviance innovation (T7)	3	Huang et al.2022[30]

4.2 Data collection

From June to August 2023, this paper conducted a questionnaire survey among teaching managers in some colleges and universities in Sichuan Province, China. The two methods of random sampling and snowball sampling were used to study. After the validity and reliability of the scale were tested with the pre-test data, the title items that failed to reach were deleted, and the scale was further modified and improved according to the opinions of the subjects. Finally, 168 questionnaires were recovered, of which 147 were valid; the effective rate was 87.5%. It can be seen that the effective questionnaire of this group conforms to the statistical standards and educational research methods.

5 Data analysis and hypothesis testing

5.1 Digital-HRM

According to the effective data of academic administrators in colleges and universities, male data accounted for 50.3% of the total survey data, while female data accounted for 49.7%. It can be seen that the data distribution in the proportion of men and women is relatively moderate, which shows that the gender in the questionnaire has full confirmatory significance for this study.

The data under the age of 30 accounts for 6.8% of the total survey data in the valid questionnaire data, the data from the age of 30 to 40 account for 49.0% of the total survey data, the data from the age of 40 to 50 account for 20.6% of the total survey data, the data over the age of 50 accounts for 11.6% of the total survey data, and the data over the age of 60 accounts for 2.0% of the total survey data. It can be seen that most of the respondents who have certain educational administration work experience are relatively young, and all love the educational administration work in colleges and universities.

According to the valid questionnaire data, 985 + 211 colleges and universities account for 10.9% of the total data, first-class undergraduate colleges and universities account for 15.0%, second-class colleges and universities account for 46.3%, vocational and technical colleges account for 15.6% of the total data, and higher vocational colleges account for 12.2% of the total data. It can be seen that the data are distributed in colleges and universities at all levels throughout the country, and most of the data are gathered in ordinary colleges and universities. The results of this group of data will be of universal significance to colleges and universities. The analysis results are shown in Table 2.

Table 2. Statistics of samples' basic information.

Variable name	Variable options	Variable data	Proportion %
Gender	Male	74	50.3
	Female	73	49.7
Age	Under 30	10	6.8
	30 to 40 years old	72	49.0
	40 to 50 years old	45	30.6

	50 to 60 years old	17	11.6
	Over 60 years old	3	2.0
	985+211	16	10.9
	First-class undergraduate institutions	22	15.0
University level	Ordinary secondary school	68	46.3
	Vocational and Technical College	23	15.6
	Higher Vocational Colleges	18	12.2

5.2 Reliability test and validity test

Cronbach's α Coefficient (α=(k/(k-1))*(1-(∑Si2)/St2) was used for data reliability analysis to test the impact of various variables on learning motivation. The test results show that the reliability coefficient of each scale is 0.778. Obviously, the scale belongs to relatively suitable access content. The validity test uses the KMO test for variables and Bartlett's sphere to test the impact of various variables on teaching evaluation. The test results show that the KMO (Kaiser-Meyer-Olkin) value is 0.779, greater than 0.5, and Bartlett's sphere test value is less than 0.05, so it shows that the validity of the data scale is good. The analysis results are shown in Table 3.

Table 3. KMO and Bartlett's tests.

Sufficient sampling for Kaiser-Meyer-Olkin measurement		0.779
	Approx. chi-square	2102.415
Bartlett's Test	Degrees of freedom	378
	Significance	0.000

5.3 Structural equation model analysis

In this paper, the estimation model parameters are constructed by using the maximum likelihood estimation method in AMOS24.0. The structural equation model is constructed according to the hypothetical relationship of the research factors, colleague factors T1, personal factors T2, leadership factors T3, organizational factors T4, arousal deviance T5, pleasure deviance T6, and deviance innovation T7. The analysis results are shown in Table 4.

Table 4. Analysis of results of structural equation model.

Hypothesis	Path relationship	Standardized path coefficient	Non-standardized route factor	T value	Hypotheses results
H1a	T1→T5	0.20522	0.07214	2.845	Support
H1b	T1→T6	-0.15646	0.07507	-2.084	Not support
H2a	T2→T5	0.28005	0.07086	3.952**	Support
H2b	T2→T6	0.45918	0.06919	6.636***	Support

H2c	T2→T7	0.30272	0.06736	4.494***	Support
H3a	T3→T6	0.12653	0.05501	2.300	Support
H3b	T3→T7	0.28299	0.07052	0.013	Not support
H4a	T4→T5	0.26304	0.05770	0.559	Not support
H4b	T4→T6	0.44218	0.06886	6.421***	Support
H5a	T5→T6	0.02268	0.07142	0.317	Not support
H5b	T5→T7	0.17914	0.06373	2.811	Support
H5c	T6→T7	0.38435	0.06952	5.529***	Support

Note: ***indicates $P < 0.001$, ** indicates $P < 0.05$

Table 4 shows that H1a, H2a, H2b, H2c, h3a, H4b, H5b, and h5c assumptions are supported. However, the H1b, H3b, h4a, and h5a assumptions are not supported.

5.4 Regulation effect test

This study takes gender as the regulatory variable and uses AMOS24.0 multi-group path analysis to test the regulatory effect of gender in the mobile office on deviance innovation. According to the analysis results based on the structural equation model in Table 2, the five groups of relationships T1 → T5, T2 → T5, T2 → T6, T3 → T6, and T4 → T6 are established, so the regulatory effect of gender in these four groups of relationships is tested. The test results of the gender moderating effect are shown in Table 5 and Table 6.

Table 5. Test results of the regulatory effect of gender.

Hypothesis	Degree of freedom change	Chi-square value change value	P
H6a-1	4	11.448	1.191
H6a-3	6	4.239	0.001
H6a-4	5	2.052	0.451
H6b-1	5	2.371	0.013
H6b-3	4	6.452	0.846

Table 5 shows that gender plays a regulatory role in the relationship between personal factors and arousing deviance and leadership factors and pleasure deviance, and the significance p-value of the change of chi-square value is less than 0.05. In the regulation effect test, the fitness indexes in the unrestricted model and the restricted model corresponding to the relationship of the four groups are shown in Table 4.

Table 6. Summary of fitness test of unrestricted model and restricted model assuming h6a-3 and h6b-1.

Model	CMINIDF	CFI	AGFI	RMSEA
H6a-3 personal factors and arousal deviance				
Unrestricted model	1.456	0.944	0.932	0.045
Restricted model	1.863	0.916	0.911	0.064

H6b-1 leadership factors and pleasure deviance				
Unrestricted model	1.675	0.982	0.918	0.052
Restricted model	2.423	0.912	0.917	0.059

Table 6 shows that in assumptions h6a-3 and h6b-1, the difference between the unrestricted model and restricted model divided by degrees of freedom is between 1 and 3, the goodness of fit index is greater than 0.9, the average goodness of fit index is greater than 0.9, and the root means square of approximation error is less than 0.08. Therefore, the model reaches the standard value of fitness. According to the analysis results in Table 3 and Table 4, the gender of digital-HRM in the mobile office plays a regulatory role in the relationship between personal factors and arousing deviance, and the gender of digital-HRM in the mobile office plays a regulatory role in the relationship between leadership factors and pleasure deviance. Therefore, h6a-3 and h6b-1 are assumed to be true.

Based on the above analysis results, the assumptions finally adopted in this study are H1a, H2a, H2b, H2c, h3a, H4b, H5b, h5c, h6a-3, and h6b-1.

6 Conclusion

Based on the characteristics of the digital-HRMl, this paper constructed the research on the influencing factors of deviance innovation, using the four dimensions of colleague factors、 personal factors, leadership factors, and organizational factors, and passed the factor test by confirmatory factor analysis, help college academic administrators use deviance innovation behavior to improve work performance in the digital-HRM. The results show that: firstly, the colleague factors in the digital-HRM positively affect the arousing deviance behavior, and affect the deviance innovation behavior of academic administrators in colleges and universities by arousing deviance behavior; in the digital-HRM, personal factors not only positively affect arousing deviance behavior, but also affect pleasure deviance behavior, but also directly affect the final deviance innovation behavior, and affect the deviance innovation behavior of academic administrators in colleges and universities by arousing deviance behavior and pleasure deviance behavior; Secondly, the organizational factors in the digital-HRM positively affect the pleasure deviance factors, and affect the deviance innovation behavior of college educational administrators by pleasure deviance; Thirdly, arousing deviance and pleasure deviance in the digital-HRM of academic administrators in colleges and universities can positively affect the final deviance innovation behavior; Fourth, gender plays a regulatory role between personal factors and arousing deviance. It also plays a regulatory role between leadership factors and pleasure deviance.

In the research hypothesis of this thesis, H1b has not been verified; that is, the colleague factors have no significant impact on pleasure deviance. The main reason may be that the colleague factors have a relatively small impact on the mood of academic administrators in colleges and universities. From different perspectives, it can be seen that the smaller the influence of the colleague factor on deviance innovation, the more favorable the organizer's power control is so as to reflect the authority of managers[27]. H3b has not been verified; leadership factors have no significant impact on deviance innovation behavior. The main reason may be that the personal characteristics of academic administrators in colleges and universities are mainly high intellectuals and different environments.

Especially in 985+211 colleges and universities, academic administrators are mainly highly educated people with master's degrees or above, plus Educational administration personnel is mainly young people from the post-80s generation. Their personal characteristics and learning experience are oriented when they continue to study, and they take these orientations directly into their work, which is also the main reason why they do not adopt leaders' opinions. H4a has not been verified; that is, organizational factors have no significant impact on arousing deviance, and in a normal public institution in general, it is not easy for employees to engage in deviance behavior within their jurisdiction. In this case, it is unrealistic for organizational factors to impact arousing deviance behavior directly.

H5a has not been verified; arousing deviance behavior has no significant impact on pleasure deviance behavior. Among the arousing deviance factors, the main reason may be the satisfaction of the actor who produces deviance innovation behavior happy mood is difficult to achieve. Deviance innovation itself is an activity carried out against the will of leaders or organizations. It can really make the actor arouse deviance behavior and pleasure deviance behavior at the same time. It can only occur on the premise of meeting personal interests. This kind of behavior is against the behavior of putting the interests of the organization in the first place, so arousing deviance will have no significant effect on pleasure deviance.

This study also shows that h6a-1 has not been verified; gender does not play a regulatory role between colleague factors and arousing deviance. The main reason may be that no matter whether colleagues are male or female, it will be difficult for them to influence the executor to arouse deviance behavior, and they can not arouse deviance innovation behavior. H6a-2 has not been verified; gender does not play a regulatory role between colleague factors and pleasure deviance. The main reason may be that whether colleagues are male or female, they do not exist when affecting pleasure deviance, which can not affect the feelings of deviance innovation actors at all.

H6a-4 has not been verified; gender does not play a regulatory role between personal factors and pleasure deviance. Similarly, like colleagues, personal factors, whether male or female, cannot directly affect the mood of deviance innovation actors. H6b-2 has not been verified; gender does not play a regulatory role between organizational factors and arousal deviance. Therefore, it is difficult to arouse deviance actors in the context of organizational factors, whether male or female. H6b-3 has not been verified; gender does not play a regulatory role between organizational factors and pleasure deviance. The main reason may be that organizational factors can only affect whether the executor deviance innovation behavior but have no direct impact on the executor's gender and mood.

The theoretical contributions of this thesis are mainly reflected in two aspects: Firstly, under the digital-HRM of academic administrators in colleges and universities, the influence of four factors, including; colleague factors, personal factors, leadership factors, and organizational factors, on deviance innovation changes, so as to provide directional guidance for college leaders to master the deviance innovation behavior of academic administrators. The existing research on deviance innovation mainly focuses on the level of enterprise employees, while there is less practical research in public institutions and colleges and universities (Anderson et al., 2014). Secondly, using the structural model, this paper studies the impact of deviance innovation behavior under the digital-HRM from the different perspectives of four factors,

which expands the theoretical perspective of the digital-HRM. Previously, it mainly focused on the technical level to study the digital-HRM.

The main limitations in the research process of this paper are as follows: Firstly, the research object is part of colleges and universities in Sichuan Province, not all colleges and universities, even the colleges and universities around the world. Therefore, it has certain limitations and can not fully explain academic administrators' characteristics fully in all colleges and universities. Secondly, in the process of sampling research, this paper mainly focuses on mining and analyzing the data of academic administrators' deviance innovation actors in the normal working environment and digital-HRM. In the future, we will try to avoid the above two limitations for analysis and research.

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