

The Effect of Employee Training and Information Technology Adoption on Organizational Performance of Educational Organization in Heilongjiang Province, China: The Mediating Role of Task Orientation and Flexibility Capability

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Abstract

This article aims to study the effect of employee training and information technology adoption on organizational performance of educational organizations in Heilongjiang Province, China through the mediating role of task orientation and flexibility capability. The quantitative research methodology used was to study, the sample consists of 848 university personnel, including the positions of president, vice president/assistant administrator, dean, deputy dean/assistant dean, director, deputy director, department head, and deputy department head. Data were collected through a questionnaire covering training and development, information technology adoption, task orientation, flexibility capabilities, and organizational performance with Likert's scale. Structural equation modeling (SEM) was used to analyze the data. The results revealed that the effect of employee training and information technology adoption on organizational performance of educational organizations in Heilongjiang Province, China through the mediating role of task orientation and flexibility capability was at the statistically significant level of 0.05. This study also indicated that skill enhancement and technology adoption are important factors that enable organizations to quickly adapt to changes. The research recommendations indicate that executives should pay more attention to personnel skills development through comprehensive training and the use of information technology to support work to improve organizational efficiency.

Keywords: Employee Training, Information Technology, Organizational Performance, Task Orientation, Flexibility

Introduction

The apparently important than ever for such organizations with multi-faceted strategies of human capital management that seeks to strengthen employee engagement and create a commitment that goes further than the contractual employer/employee relation to enhance organization performance. A holistic human capital approach requires organizations to view talent acquisition, development, and retention and employee engagement in a radically new way as a single entity rather than distinct parts. Organizations have to evaluate the value that

is generated by the employees to be able to find out how successfully they use their knowledge and skills. Huselid, Becker, and Beatty (2020) showed that many Human Resource Managers have not attempted to understand the usefulness or how Human Capital Management can be used in their organizations successfully.

In today's competitive environment in the context of the rapidly developing educational sector, staff training and IT play a significant role in the enhancement of the organization's performance (Nugroho et al., 2022). To enhance its operations and education plans, training must be done to prepare employees for the management of new technological developments. They also found that the ways in which IT improve the flexibility, communication, and decision-making processes, and thereby improves the competitive position of an institution (Chen et al., 2018). However, training and IT adoption depends on factors such as mission focus and flexibility, which relates the organizational goals with the performance of employee and enhances adaptability when circumstances change (Akhtar et al., 2021; Yang et al., 2018). Studies show that the concept of the task focus improves efficiency in training since it provides employees with organizational goals, which help in improving performances (Li et al., 2018). The ability to adapt or resilience helps educational organizations to manage IT use to its best and innovate within external pressures (Wang et al., 2021; Hou, 2020). This flexibility was especially observed during the COVID-19 crisis when robust institutions implemented technologies for distance learning (Sahibzada et al., 2020). Since these factors are important in the current business environment. This article will investigate the moderating role of task orientation and flexibility in the relationship between employee training and IT adoption and the organizational performance of educational institutions in Heilongjiang Province, China. This article will help in identifying the appropriate training approaches for increasing flexibility and durability of training to suit the existing technological advancements.

Literature Review

Training and Development

Objectives and Importance of Training and Development Employees are defined as the bedrock and most valuable asset of any organization (Hammed & Waheed, 2011) and their performance to a large extent determines organizational efficiency, success and survival (Glaveli & Karassavidou, 2011; Kaur, 2016). The objectives of Training and Development arise from the situation analysis of the organization's current manpower that is obtainable through a comprehensive manpower survey which reveals the existence of skill gap requiring attention (Ngu, 1994). Modern organizations actively invest on employee training and development with the main objective of achieving increased productivity, profitability, competitive edge, sustainable growth (Garavan, 1997; Kaur, 2016) and organizational development (Nelson et al, 2012). This is only feasible through a well-properly trained and highly developed organizational workforce who directly or indirectly contributes towards attaining organizational efficiency,



productivity, growth and reputation in the current work and business environment (Akbar & Matto, 2010). Moreover, trained employees are conceived as company intellectual assets that are highly correlated to success and are acquainted with the present trends in the modern workplace and market environment (Wheelen & Hunger, 2012) which tends to either reduce or avert operational losses likely to be incurred because of ignorance (poor knowledge) or inadequate employee skills (Zhou et al, 2011). Furthermore, having a skilled base employee, growth enhancement and guaranteed long-term business success is another objective aimed to be achieved by several companies (Salas et al, 2012). However, there are various specific Training and Development objectives depending on the type of organization and their training needs assessment for specific jobs which often emanates from the analysis of job requirement (examining job description), performance appraisal (measuring employee performance against standard performance), human resource survey (identifying areas of deficiencies) and organizational analysis (Infande, 2015). In view of the above, the major objectives of Training and Development to various organizations can be geared towards achieving some of the followings; Increased organizational productivity, building competitive advantage, profitability, cost effectiveness, organizational growth & development, reputation, survival and sustainability. All of which are only achievable through a well-trained organizational workforce. Training and Development are significantly important as they are the catalyst for progress and growth for emerging and existing businesses and economies, and they are used as tools for responding to the dynamic trends of globalization, uncertainty, growing clients/customer expectation and technological exploitation (Hung, 2010) in this 4th Industrial Revolution working environment of today (WEF, 2018). Training & development is very important to both employees and organizations in numerous ways. Firstly, it improves employee morale, satisfaction, job security, productivity which in turn leads to an increase in organizational productivity (Onyango & Wanyoike, 2014). Secondly, employee self-efficacy is developed through training and development (Tahir et al, 2014) thereby resulting to the removal of weak traditional work practices and replacing them with modern practices in the workplace (Wajidi & Tabassum, 2016) and in turn leads to organizational effectiveness and efficiency. Thirdly, it helps in decreasing employee anxiety and frustration which may emanate from their inability to perform their jobs/work to the desired level and may also influence their decision to leave the organization, resulting to higher rate of employee turnover (Chen et al., 2005). It bridges the gap between the required necessary skill for the job and that which is possessed by the employee, the lower the gap the higher employee job satisfaction and vice-versa. Trained employees display a high level of satisfaction on their work and are capable of satisfying customers/clients satisfactorily (Rowden & Conine, 2005). Fourthly, it helps in improving employee morale (through increasing their confidence & motivations), reduces cost of production (through avoiding waste and reducing operational risks), reduces absenteeism and the rate of labour turnover, enhanced staff quality and achievement of organizational goal (Cole, 2002). Lastly, it is an important tool for managing organizational

change through employee participation (involving them actively) in the change process, educating and equipping them with the necessary skills required for new, changing and complex situations (Cole, 2002) modifying the work related behaviour of employees and encouraging them to actively partake towards achieving organizational success and yielding greater return (Mamoria, 1995) as well as improving its profitability base (Tahir et al, 2014). Therefore, it can be deduced that the imperative of training and development to both employees and organization is enormous and cannot be underestimated. A major objective of business organization is profitability, growth and sustainability which dependson revenue (Singh & Mohanty, 2012) and the revenue cycle is controlled by knowledge, creativity and innovation of which all emanates from organizational workforce (employees) (Kaur, 2016). Thus, training these work force for development leads to productivity which in turn generates this revenue. Training and development do not only improve productivity but inspire and motivate employees towards performing their task making it inevitable to all organizations in the modern business and work environment

Organizational Performance

Organizational performance is the achievement of a goal depending on the organization's performance, namely the ability of an organization to implement strategically and effectively manage the goals of an organization (Randeree & Al-Youha 2009; Salim & Rajput, 2021). Organizational performance is the actual result or output of an organization as measured against the organization's intended output (Tomal & Jones, 2015; Sun & Henderson, 2017). Organizational performance is the ability to achieve organizational tasks by using resources effectively and efficiently (Wanasida et al., 2021; Uljanati et al., 2021). Organizational performance is part of the organization's strategy that serves as a guide to determine how the organization will develop over time in an effort to achieve the goals that have been set and measured (Irnawati & Prasetyo, 2020; Adhi & Aima, 2021). Organizational performance can be defined as the ability to exploit the organization's environment in the acquisition of scarce and valuable resources to maintain its function (Seashore & Yuchtman 1967; Alrowwad et al., 2020). Organizational performance considered as a description of the success or failure of the organization during the implementation of the main tasks and functions, in order to realize the goals, objectives, vision and mission. It is also associated as achievement within a certain period (Effiyanti et al., 2021).

Based on the literature review and previous research as well as the relationship between the variables, the framework of thought is a description of the presence or absence of a direct influence from one variable to another and the relationship between each variable. Based on the literature review and previous research as well as the relationship between variables, the framework for the effect of employee training and Information technology adoption on organizational performance of educational Organization in heilongjiang province, china: the mediating role of task orientation and flexibility capability, can be seen in Fig 1 as follows:

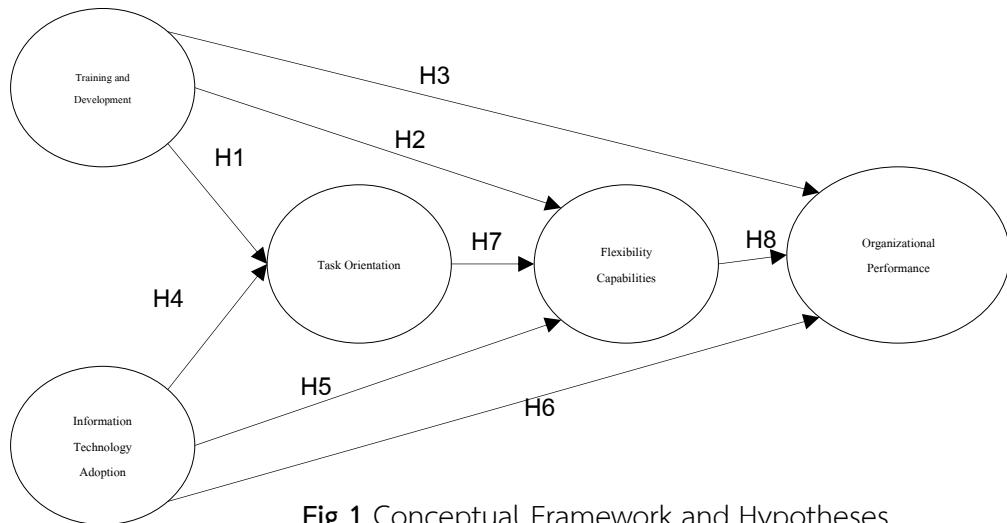


Fig 1 Conceptual Framework and Hypotheses

Methodology

This article is quantitative research. The sample consists of 848 university personnel, including the positions of president, vice president/assistant administrator, dean, deputy dean/assistant dean, director, deputy director, department head, and deputy department head. Purposive sampling was used to obtain a sample group with experience and important roles in management and decision-making of the educational organization. The tool used for data collection was a questionnaire, which was divided into 4 parts: 1) Personal information such as gender, age, education level, work experience, and job position; 2) training and development 5 items and 3) information technology adoption 6 items (Nieves & Quintana, 2018); 4) task orientation 5 items (Burch & Anderson, 2004); 5) flexibility capabilities 4 items (Yang & Hsu, 2018; Poberschnigg et al., 2020); 6) organizational performance 6 items (Pollanen et al., 2017; Sciarelli et al., 2020) using a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The followings are the items used in the study.

Validity is the quality of instruments used in gathering data that makes it possible to measure what it intends to measure. Drawing meaningful and beneficial inferences from scores on the instrument is what validity is ready. The study supervisor reviewed the instrument to ensure content validity. Logical judgment as to whether the instruments covered what they were supposed to cover was gotten from content validity. Reliability is explained as the measure of the extent to which a research instrument gives consistent output or data after repeated tests. The study adopted Cronbach Alpha to test reliability of the studies units. The values ranged from zero to 1 wherein values among 0.7 to 1 indicate significant and suitable reliability whereas values underneath 0.7 have been unacceptable and much less reliable.

Results and Discussion

This study was collected from 848 educational personnel of Heilongjiang Province, China and were at different leadership level. The number of patients by age group were 31-40% (45.5%) while 47.2% of the participants had received a Bachelor's degree. About 37.7%

of the respondents had worked for one to five years most of whom were junior employees. According to the job status, the department head position constituted the highest proportion (19.6%). In table 2, the mean scores for all the variables were above the 4.0 scale, a clear seal that the respondents had a high level of satisfaction with training for IT adoption, task orientation, flexibility and organizational performance (Nieves & Quintana, 2018).

Table 1 Overview of Questionnaire items

Variables	Mean	S.D.	Kurtosis	Skewness
Training and Development	4.219	0.685	0.462	-0.621
Information Technology Adoption	4.249	0.690	0.807	-0.736
Task Orientation	4.138	0.705	0.911	-0.659
Flexibility Capabilities	4.086	0.683	1.706	-0.712
Organizational Performance	4.157	0.673	0.971	-0.615
Overall	4.175	0.687	0.935	-0.666

Structural Model Analysis and Hypotheses Testing

By applying the SEM analysis, the research noted the relationships between training and development (HR_TD), the information technology adoption (HR_ITA), task orientation (TO_TO), flexibility capability (RC_FC), and organizational performance (Per_E). HDs HR_TD and HR_ITA had direct associations with TO_TO and Per_E where HR_ITA was found to have large effects on TO_TO ($B = 0.426$) and Per_E ($B = 0.220$) (Table5). This finding is consistent with findings by Azizi et al., (2021) who further described a positive impact of IT on learning Platforms and development of skills. These implications advise ITP and EU scholars that empowering proper use of IT can help employees to adapt themselves better and increase both assurance and performance in changing environment, which is so crucial for smooth transition in dynamic educational climate.

This pattern of correlation was also accompanied by mediating effects of TO_TO and RC_FC. TO_TO has a high effect on RC_FC, cooperation ($t = 11.628$), and RC_FC, strongly affecting Per_E, experience ($t = 15.693$) (Table 5). These results Re-emphasize that a well-defined work direction and versatile competencies are crucial for the improvement of organizational robustness and adjustability (Yang and Hsu, 2018). This study also revealed that organizational that adopted an active perspective to flexibility had the ability to manage change effectively and, therefore, sustain and outcompete themselves.

Table 2 Analysis of Confirmatory Factor of Variables

Variables	Factor Loading	t		rho_c	rho_a	AVE	α	
HR_TD	0.911	- 0.941	104.474	- 170.355	0.960	0.945	0.857	0.944
HR_ITA	0.940	- 0.956	121.839	- 191.701	0.982	0.978	0.902	0.978
TO_TO	0.948	- 0.966	86.107	- 233.946	0.982	0.978	0.917	0.977
RC_FC	0.940	- 0.951	73.414	- 160.464	0.971	0.960	0.892	0.959
Per_E	0.938	- 0.964	93.691	- 206.142	0.980	0.975	0.909	0.975

Table 3 Discriminant validity by Fornell-Larcker Criterion

Variables	HR_TD	HR_ITA	TO_TO	RC_FC	Per_E
HR_TD	0.926				
HR_ITA	0.769	0.950			
TO_TO	0.637	0.664	0.958		
RC_FC	0.575	0.622	0.703	0.944	
Per_E	0.617	0.680	0.675	0.827	0.953

Note: Bold values in diagonal line display the square root of AVE meanwhile the others are correlation matrix

Fornell-Larcker criterion which compares the square root of Average Variance Extracted (AVE) with the cross loadings between variables is presented in table 4. The bold numbers on the diagonal represent the square roots of the AVE of each construct, in order to cross-verify discriminant validity, the square root of the AVE of each construct must be higher than the absolute value of the correlation between the constructs below it. For instance, the square root of the AVE for Training and Development (HR_TD) is 0.926 whereas its comparisons to Information Technology Adoption (HR_ITA) is 0.769, Task Orientation (TO_TO) is 0.637, Flexibility Capability (RC_FC) is 0.575 and Organizational Performance (Per_E) is 0.617. This pattern appears for all constructs in the table and indicates that each construct does not relate with the other construct in the model.

Discriminant validity is important to this research because it helps to establish that variables such as Training and Development, Information Technology Adoption, Task Orientation, and Flexibility Capability represent distinct areas of Organizational Performance Enhancement. Of course, this division offers the confidence in the model, as it enhances the understanding that changes in the organizational performance relate to different factors and not the overlapping constructs. This supports Yang and Hsu's (2018) argument about how well distinct construct is essential to organisational flexibility and success.

Indirect Effects and Mediating Roles

The assessment of indirect effects (Table 5) indicates that there is moderate to strong mediated effect of both HR_TD and HR_ITA on organizational performance through TO_TO

and RC_FC. In particular, HR_TD and HR_ITA have not only a direct positive effect on Per_E, but also stimulate the organization's organizational readiness for adaptation and response by increasing the emphasis on the specificity of tasks to be performed. Such a dual role also emphasizes the interdependence of training, IT application and organizational performance in complex environments and change.

Focusing on the results of the main model, it is possible to highlight the significance of TO_TO as a mediator. Since task orientation outlines orders and makes work plans clearer, workers are committed thus ensuring that personal undertakings are in coherence with the company's goals (Nieves & Quintana, 2018). Supporting the proposed relationship, the standardized estimate of HR_ITA was high with TO_TO, further indicating that the adoption of information technology enhances structured work approach considerably. Through enhancing communication, decision making and performance, IT indeed helps an organization to sustain higher level of task orientation. As per the study done by Azizi et al. (2021), they also discuss that the adoption of IT supports organizations in realizing a culture of efficiency and alignment with organizational goals by delivering information and resources for teamwork (Table4).

Additional, flexibility capability (RC_FC) also adds more value to the organizational performance by allowing employees as well as management to address the dynamic demands and conditions. The fact that correlation between TO_TO and RC_FC is highly significant and positive fully implies Yang and Hsu's view that task orientation enables a workforce to better accept flexibility. When employees know what is expected from them in a given task or assignment, they are in a better position to change direction with the organization without straying off the vision set for the company. This ability to reassess and adapt to changes in the organizational environment is particularly important in educational organizational that are now bearing the brunt of continuous technological and teaching-learning process innovations.

Furthermore, the intermediary effect of TO_TO and RC_FC also establishes how training and IT adoption shape the resilient organizational structure shown by the path, HR_TD and HR_ITA → Per_E. For example, improving task orientation, employee training builds the human resources to shoulder the tasks efficiently will and arms the employees with the ability on how to cope with challenges. While it strengthens the agreements' positivism by simplifying information flow, enabling remote and flexible work arrangements, and allowing for procedural modifications promptly as required (Khin & Ho, 2018, p. 62). This pathway shows that, while task orientation and flexibility are distinct, they complement each other; both variables interact to moderate the relationship between training and IT and performance.

The literature also indicates that these indirect effects are important to the sustainability of organizational in the long run. In their review, Nieves and Quintana (2018) on going training, focusing on technical and interpersonal skills are crucial for a flexible workforce. On the other hand, IT adoption complements these training endeavors by availing means through which continued training can occur, hence keeping the organizational perky and innovative. This blended approach as I have discussed earlier where organizations focus on

developing people's skills and at the same time also focus on developing systems that support people's work have been concluded in the paper of Koster and Benda (2020) that proved that such organizations are in a better position to maintain high performance in organizations even during crisis or change.

Therefore, similarly to the previous analysis results, this study also discovered that HR_TD does not directly influence the flexibility capability (RC_FC). This may imply that although training enhances specific skills training may not be sufficient in making employee ready to handle emergent events where there is no prior specification that the employees should be ready to handle at any given time of their practice or profession if not supplemented by an organizational culture and leadership mentality. Teece et al. (2016) points out that flexibility is not only an issue of technology; it is an issue of strategic process and culture. This problem indicates that the training environment should be designed not only to teach the relevant skills, but also to foster creativity, problem solving ability, and the ability to learn from new technologies and work situations.

The indirect effects presented in this study suggest the necessity of a reciprocal development of training, IT, task orientation and flexibility at work. It is therefore postulated that organizations that foster these elements as a part of their strategic plan are likely to realize better organizational performance over time due to increase employee appreciation in the ability to manage work effectively and the efficiency with which change can be embraced.

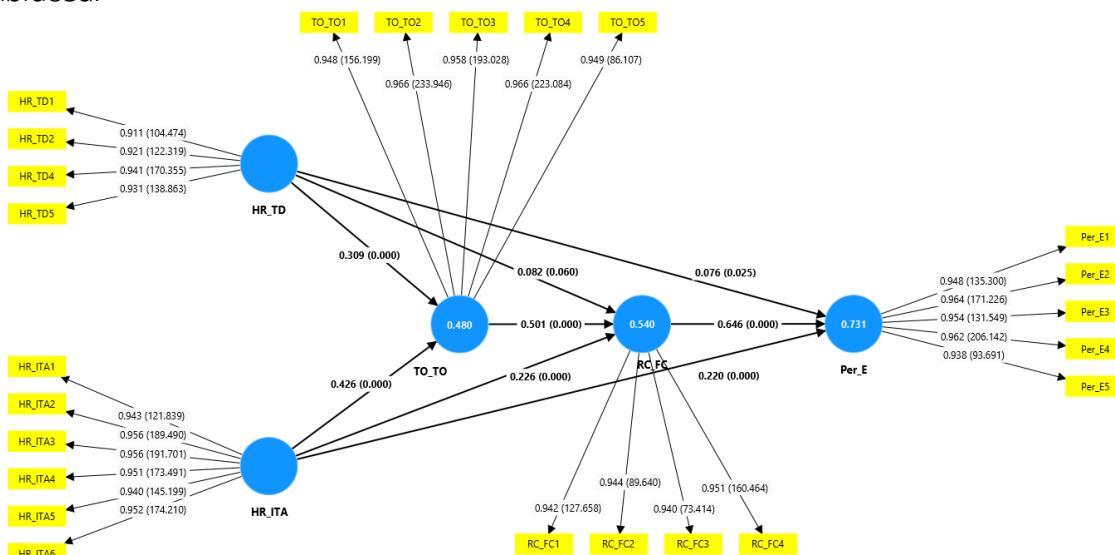


Fig 2 Finalized Model

Table 4 Path Analysis and Indirect Testing

Path Analysis	S.E.	t	P	Result
H1: HR_TD -> TO_TO	0.309	5.843***	0.000	Accept
H2: HR_TD -> RC_FC	0.082	1.882	0.060	Reject
H3: HR_TD -> Per_E	0.076	2.235	0.025	Accept

Path Analysis	S.E.	t	P	Result
H4: HR_ITA -> TO_TO	0.426	7.891	0.000	Accept
H5: HR_ITA -> RC_FC	0.226	5.125	0.000	Accept
H6: HR_ITA -> Per_E	0.220	5.416	0.000	Accept
H7: TO_TO -> RC_FC	0.501	11.628	0.000	Accept
H8: RC_FC -> Per_E	0.646	15.693	0.000	Accept
Indirect Testing				
H9: HR_TD -> TO_TO -> RC_FC -> Per_E	0.100	5.180	0.000	Accept
H10: HR_ITA -> TO_TO -> RC_FC -> Per_E	0.138	5.523	0.000	Accept

** A significance level of .01

*** A significance level of .001

Table 5 Direct Effect, Indirect Effect, Total Effect

Variables	TO_TO			RC_FC			Per_E		
	DE	IE	TE	DE	IE	TE	DE	IE	TE
HR_TD	0.309**	-	0.309**	0.082	0.155**	0.237**	0.076**	0.153**	0.229**
HR_ITA	0.426**	-	0.426**	0.226**	0.213**	0.440**	0.220**	0.284**	0.504**
TO_TO	-	-	-	0.501**	-	0.501**	-	0.324**	0.324**
RC_FC	-	-	-	-	-	-	0.646**	-	0.646**

Note: HR_TD, Training and Development; HR_ITA, Information Technology Adoption; TO_TO, Task Orientation; RC_FC, Flexibility Capabilities; Per_E, Organizational Performance; ** means p-value of <.01

Table 5 details the direct, indirect, and total effects of each variable on Task Orientation (TO_TO), Flexibility Capability (RC_FC), and Organizational Performance (Per_E). The table helps in understanding not only the immediate impact (direct effect) of each factor but also how they collectively influence other variables through mediation (indirect effect).

Training and Development (HR_TD) has a direct effect on Task Orientation (TO_TO) with a coefficient of 0.309, indicating that employee training directly enhances task focus. Information Technology Adoption (HR_ITA) has an even stronger direct effect on TO_TO (0.426) and Flexibility Capability (RC_FC) (0.226), underscoring IT's powerful role in enhancing organizational focus and adaptability. These direct effects confirm that skill-building initiatives and technology play vital roles in establishing structured, adaptable environments that support organizational goals. This supports findings from Khin & Ho (2018), who noted that IT adoption boosts goal alignment and task specificity in organizations.

The indirect effects highlight the pathways through which HR_TD and HR_ITA influence Organizational Performance (Per_E) via TO_TO and RC_FC. For example, HR_TD has an indirect effect on Per_E of 0.153, with TO_TO and RC_FC serving as mediating factors. Similarly, HR_ITA's total indirect effect on Per_E is 0.284, indicating that IT adoption significantly boosts organizational performance by enhancing both task orientation and flexibility. This indirect



influence aligns with Nieves and Quintana's (2018) work, which emphasizes the combined value of training and IT adoption in fostering a resilient, high-performance workforce.

The cumulative effects (total effect) reveal that Information Technology Adoption (HR_ITA) has the most substantial impact on Organizational Performance (Per_E) with a total effect of 0.504. This suggests that investing in technology has a far-reaching influence, not only through direct improvements but also through fostering an environment that supports clear task orientation and adaptability. This confirms previous studies, such as those by Azizi et al. (2021), which advocate for IT as a catalyst for efficiency and adaptability in dynamic environments.

Suggestions

Future research directions should focus on using longitudinal research methods to track the impact of innovative effective human resource management on educational institution performance over the long term, which will help understand the cause-and-effect relationships, as well as changes in recruitment, training, and retention processes over time, to determine which approaches yield more sustainable or short-term benefits. Furthermore, the impact of innovative effective human resource management should be studied in different cultural and regional contexts, as different educational institutions may face different challenges and opportunities. Comparative studies between countries or regions can help identify effective approaches universally, as well as approaches that need to be adapted to specific contexts. Furthermore, studies should focus on the role of digital transformation in enhancing effective human resource management, such as the use of digital technologies in recruitment, training, and performance appraisal processes, to analyze how digital systems can enhance decision-making accuracy and enhance organizational efficiency. Finally, barriers to the implementation of innovative effective human resource management should be studied, considering factors such as resource constraints, inflexible management systems, or cultural and organizational structural issues, to find effective solutions for effective human resource management implementation in educational institutions

Conclusion

In conclusion the moderating role of task orientation and flexibility in the relationship between employee training and IT adoption and organizational performance in educational institution in Heilongjiang Province, China. The results found out that training and IT adoption improves performance though IT enhances task orientation and flexibility. This raises several implications: it means that only when the tasks are structured, but also fluid, one can understand how the teams can approach them. As much as training is important, it should be so with flexibility that is part of the organizational cultures. The results of the study only mean one thing: while seeking improvements, it is high time for the educational organizations to invest significant amount in training and technology. innovative human resource management

had a positive effect on organizational performance with resilience capability as a significant mediator, while talent team optimization alone had no significant effect. However, when combined with resilience capability, it enhanced organizational performance. The study established a significant positive relationship with organizational performance, established and provided evidence that on the job training and job orientation enhances employee ability to discharge their duties and this had positive influence on organizational performance.

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