



Determining the effect of factors on human resource development in enterprises by quantitative method: The case of telecommunication of Ho Chi Minh City

Doan Hoang Hai

Tra Vinh University, Tra Vinh, Vietnam

* Corresponding Author: **Doan Hoang Hai**

Article Info

ISSN (online): 2582-7138

Volume: 04

Issue: 03

May-June 2023

Received: 02-05-2023;

Accepted: 23-05-2023

Page No: 1014-1021

Abstract

This article aims to identify the degree of the effect of factors affecting the human resource development in telecommunication of Ho Chi Minh city. The factors identified in the proposed research model include: recruitment, training and career development, working environment and remuneration policy. The article mainly uses quantitative research methods with tools such as exploratory factor analysis (EFA), Confirmatory factor analysis (CFA) as well as Structural equation modeling SEM. The results of CFA confirmatory factor model analysis and SEM linear structure with 500 data show the appropriateness of the research factor model. From that, a number of appropriate policy implications are proposed for human resource development in telecommunication enterprises in Ho Chi Minh City (HCMC).

DOI: <https://doi.org/10.54660/IJMRGE.2023.4.3.1014-1021>

Keywords: Human resources, human resource development, telecommunications, corporate culture, structural equation modeling

1. Introduction

Human resources are one of the reasons that experts consider the weakness of Vietnam's telecommunications industry. Although Ho Chi Minh City (HCMC) is leading in terms of economy and technology development, this situation cannot be avoided (General Statistics Office, 2021). In such competitive conditions, Ho Chi Minh City's telecommunications needs to innovate in which to actively develop human resources because it is the decisive factor for all remaining factors and resources. Therefore, the analysis of factors affecting human resource development is a very important practical requirement for telecommunications industry managers as well as for specialized researchers. Therefore, in-depth research on human resource development in telecommunication enterprises will help to better understand the difficulties of telecommunication enterprises in human resource development. Meanwhile, no in-depth research has been carried out for telecommunication enterprises in HCMC.

From the above reasons, the study "*Determining the effect of factors on human resource development in enterprises by quantitative method: The case of telecommunication of Ho Chi Minh city*" is very necessary and practical. Accordingly, the overall goal of the study is to find out the degree of the effect of factors affecting the human resource development ability of telecommunication enterprises in Ho Chi Minh City so that author can propose directions and policies to develop human resources for the study area.

2. Research method

From the research model proposed by the author in Figure 2 with the questionnaire, the research collects data using the probability method, stratified sampling form at telecommunication enterprises in Ho Chi Minh City with a sample size of 600. Firstly, the research assesses the reliability of the scale using Cronbach's Alpha coefficient, EFA analysis is performed to test the scale. The result of this process helps form the official scale. The final number of observed variables constituting the official scale will be the basis for determining the sample size in case a quantitative study is carried out. Next, the research confirms the model using confirmatory factor analysis (CFA) as well as test the research hypotheses using SEM Structural equation modeling. Finally, the research tests the differences between groups using multi-group analysis, discuss research results and governance implications; the analytical framework of the study is presented in Figure 1 as follows.

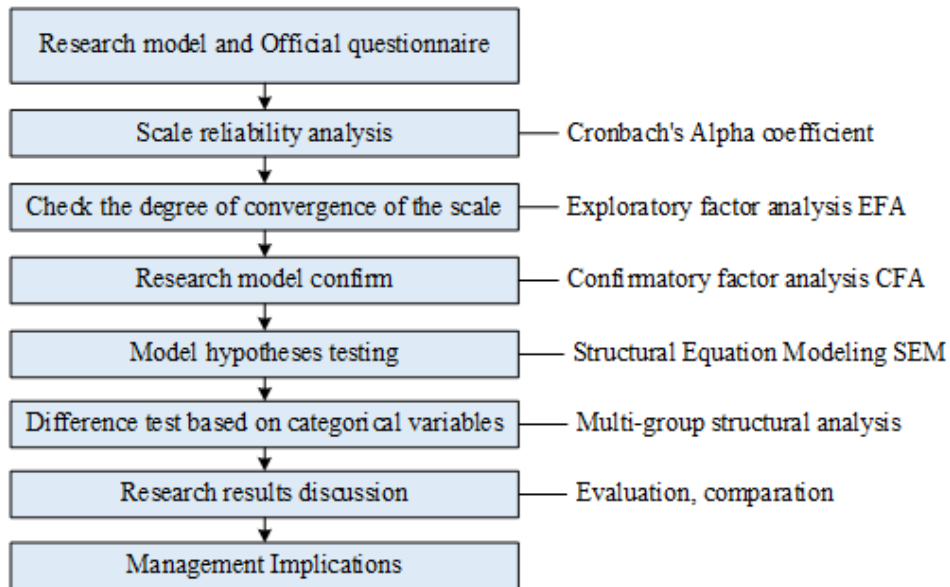
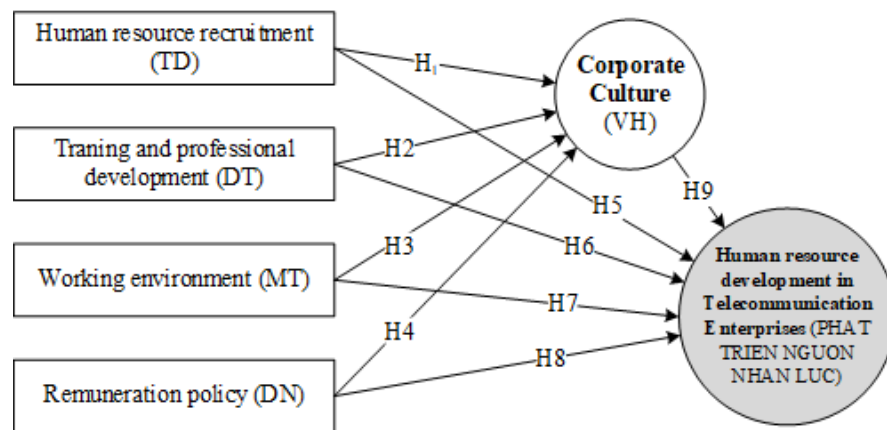


Fig 1: Analytical framework (Source: Author's proposal, 2023)



Source: Author's compilation (2023)

Fig 2: Proposed research model

3. Research results

3.1. Sample statistics after collecting data

To collect the expected number of samples, the author sent out a total of 600 printed survey questionnaires along with contacting and calling for the survey process on the internet

through the Google Docs tool. The results collected 426 printed results (71% response rate) and 74 results through the Google Docs tool, a total of 500 results that were fully informative and used for analysis. The sample statistics are presented in Table 1.

Table 1: Sample descriptive statistic

	Sample	Frequency	Percent (%)	Cumulative (%)
Sex	Male	359	71.8	71.8
	Female	141	28.2	100.0
	Total	500	100.0	
Age	Under 30	135	27.0	27.0
	From 30 to less than 40	191	38.2	65.2
	From 40 to less than 50	108	21.6	86.8
	From 50 and up	66	13.2	100.0
	Total	500	100.0	
Academic level	Beginner/Intermediate	104	20.8	20.8
	College	143	28.6	49.4
	University	194	38.8	88.2
	Graduate	59	11.8	100.0
	Total	500	100.0	
Seniority	Less than 3 years	79	15.8	15.8
	From 3 to less than 5 years	197	39.4	55.2
	From 5 to less than 10 years	113	22.6	77.8
	From 10 to less than 20 years	70	14.0	91.8
	20 years or more	41	8.2	100.0

	Total	500	100.0	
Workplace	Business	102	20.4	20.4
	Technical experts	225	45.0	65.4
	Accounting, finance, human resources	72	14.4	79.8
	Manager, director	52	10.4	90.2
	Other	49	9.8	100.0
	Total	500	100.0	

Source: Author's compilation (2023)

3.2. The results of the scale reliability analysis

The results of the reliability analysis of the scales are presented in Table 2.

Table 2: Results of analysis of scale reliability

Variable	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item - Total Correlation	Cronbach's Alpha If Item Deleted
TD1	9.65	9.133	.852	.919
TD2	9.64	8.979	.884	.909
TD3	9.64	9.132	.859	.917
TD4	9.64	9.489	.817	.931
DT1	12.76	11.905	.676	.870
DT2	12.88	10.951	.717	.862
DT3	12.91	10.929	.738	.856
DT4	12.76	11.963	.713	.863
DT5	12.92	11.272	.776	.848
MT1	9.81	4.902	.692	.836
MT2	9.72	4.717	.700	.833
MT3	9.70	4.731	.657	.851
MT4	9.71	4.395	.811	.786
DN1	14.14	9.113	.678	.870
DN2	14.02	8.621	.769	.849
DN3	14.15	8.666	.714	.862
DN4	14.39	8.664	.692	.868
DN5	14.12	8.737	.764	.851
VH1	21.8200	17.318	.691	.835
VH2	21.7800	17.050	.691	.834
VH3	21.8240	16.827	.730	.829
VH4	21.6980	17.277	.684	.836
VH5	21.8500	16.484	.724	.829
VH6	22.1120	17.647	.333	.901
VH7	21.7960	16.535	.741	.827
PTNNL1	12.80	2.982	.743	.844
PTNNL2	12.77	2.884	.794	.823
PTNNL3	12.89	3.002	.721	.853
PTNNL4	12.88	3.203	.701	.860

Source: Author's compilation, 2023

The results of the scale reliability analysis show that, Cronbach's Alpha coefficient on all scales is greater than 0.6 (satisfactory) and the Corrected Item - Total Correlation of all variables is greater than 0.3 (satisfactory). Therefore, all variables were retained for EFA analysis in the next step.

3.3. Exploratory factor analysis results

Pattern Matrix has only variable VH6 with factor loading factor value less than 0.5 (the rest are satisfactory), and variable VH6 has also been noted in the scale reliability analysis. Therefore, to improve the analysis results, the author decided to remove the variable VH6 and conduct the EFA analysis again. The analysis results including 28 variables belonging to 6 scales are presented from Table 3. The KMO coefficient of 0.900 (satisfactory) and the Sig value of Barlett's test of 0.000 (satisfactory) demonstrate the appropriate level to conduct exploratory factor analysis. There are still 6 extracted factors (with Eigenvalue greater

than 1) with a total variance extracted 65.3% (greater than 50%). The Pattern Matrix at this time with all factor loading is greater than 0.5 (satisfactory).

Table 3: Official factor loading coefficient results

Variable	Factor					
	1	2	3	4	5	6
VH7	.854					
VH3	.845					
VH4	.751					
VH5	.745					
VH1	.700					
VH2	.611					
TD2		.926				
TD3		.910				
TD1		.885				
TD4		.823				
DT5			.835			
DT3			.814			
DT2			.775			
DT4			.748			
DT1			.739			
DN5				.834		
DN2				.813		
DN3				.788		
DN1				.741		
DN4				.733		
MT4					.985	
MT1					.753	
MT2					.730	
MT3					.646	
PTNNL2						.874
PTNNL3						.741
PTNNL1						.724
PTNNL4						.699

Source: Author's compilation, 2023

3.4. Confirmatory factor analysis results

The relevance of the CFA confirmatory factor model through the following criteria is evaluated.

(1) Unidirectionality

The results show that the value $\chi^2 = 878,727$ with p-value = 0.00 (less than 0.05: Not suitable; this result may be because the sample size is not large enough); degrees of freedom $df = 335$; value of χ^2 adjusted to degrees of freedom $\chi^2/df = 2,623$ (less than 3: Very good); TLI = 0.933 and CFI = 0.941 (both greater than 0.9: Good); RMSEA index = 0.057 (less than 0.6: Very good). Thus, the model has indicators that fit the standard and there is no correlation between errors. Conclusion, the model meets the requirements for unidirectionality.

(2) Reliability

The results of the composite reliability CR are presented in Table 4, whereby all the composite reliability coefficients CR

are greater than 0.6 (satisfactory). Along with that, the reliability assessed by Cronbach's Alpha coefficient is satisfactory.

Table 4: Composite reliability results and extracted variance

Scale	Composite reliability coefficient	Average Variance Extracted
VH	0.902	0.606
TD	0.938	0.791
DT	0.886	0.61
DN	0.886	0.609
MT	0.869	0.626
PTNNL	0.881	0.649

Source: Compiled from AMOS software, 2023

• **Conclusion:** The model is valid in terms of reliability.

(3) Convergence value

The results of all unnormalized and normalized weights are greater than 0.5 and the mean extracted variance (Table 4) is greater than 0.5 (satisfactory). Conclusion, the research model has convergent validity.

(4) Discriminant validity

The test results of the correlation coefficient r between the component concepts show that all CR test values are larger than the critical value ($t_{\alpha/2, n-2} = 1.96$, as well as with the

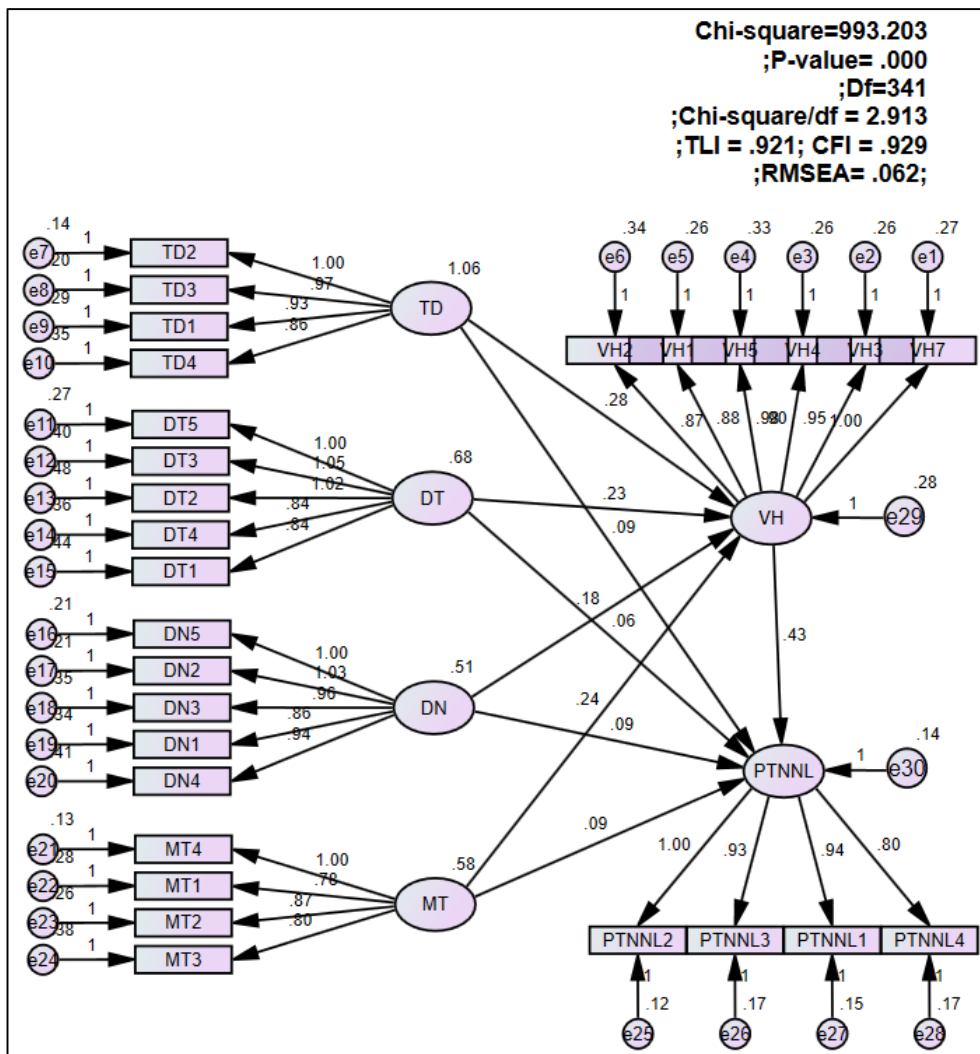
95% confidence level, the p-values are all less than 0.05. Conclusion The correlation coefficient of the pairs of concepts is different from 1. Conclusion, the research model has discriminant validity.

(5) Theoretical value

The model is researched based on the practice of human resource development in telecommunication enterprises in Ho Chi Minh City, so it has theoretical value. Conclusion, the confirmatory factor model is consistent with the actual data.

3.5. Linear structural analysis results

The results of SEM linear structure analysis showed that the value $\chi^2 = 993.203$ with p-value = 0.00 (less than 0.05: Not suitable; this result is similar to confirmatory factor analysis because the sample size is not large enough); degrees of freedom $df = 341$; value χ^2 adjusted to degrees of freedom $\chi^2/df = 2.913$ (less than 3: Very good); TLI = 0.921 and CFI = 0.929 (both greater than 0.9: Good); RMSEA index = 0.062 (although greater than 0.06 but still less than 0.08: Good). These results are referred to in Figure 2 (unnormalized weights). As such, the model has the indicators in accordance with the standard. Conclusion, the linear structural model is suitable for the analysis process.



Source: Compiled from AMOS software, 2023

Fig 2: Confirmatory factor model results (unnormalized weights)

3.6. Hypothesis and model test results

The results of the SEM linear structure analysis show the

impact coefficients between the pre-assumed relationships as shown in Table 5.

Table 5. Impact coefficient results of the relationships

Relationship			Coefficient		Standard error	Critical Ratios	p-value	Result
			Not Standardized	Standardized				
VH	<---	TD	.275	.426	.028	9.789	.000	Not yet rejected
VH	<---	DT	.229	.284	.035	6.497	.000	Not yet rejected
VH	<---	DN	.184	.199	.040	4.655	.000	Not yet rejected
VH	<---	MT	.238	.273	.038	6.327	.000	Not yet rejected
PTNNL	<---	VH	.428	.525	.046	9.227	.000	Not yet rejected
PTNNL	<---	TD	.089	.169	.024	3.791	.000	Not yet rejected
PTNNL	<---	DT	.064	.097	.028	2.291	.022	Not yet rejected
PTNNL	<---	DN	.092	.121	.031	2.976	.003	Not yet rejected
PTNNL	<---	MT	.089	.126	.030	2.987	.003	Not yet rejected

Source: Compiled from AMOS software, 2023

The results of testing the research hypotheses show that there is not enough evidence to refute the hypotheses and the impact direction (+) is correct as expected at the 5% significance level.

4. Managerial Implications

4.1. For employee’s recruitment

The results of structural model analysis show that the factor of personnel recruitment has a positive impact on corporate culture (with a coefficient of 0.275) and at the same time also has a positive impact on human resource development activities in HCMC Telecommunication Enterprises (with a coefficient of 0.089). From this, some suggested managerial implication are as follows.

▪ **Some requirements of the recruitment process**

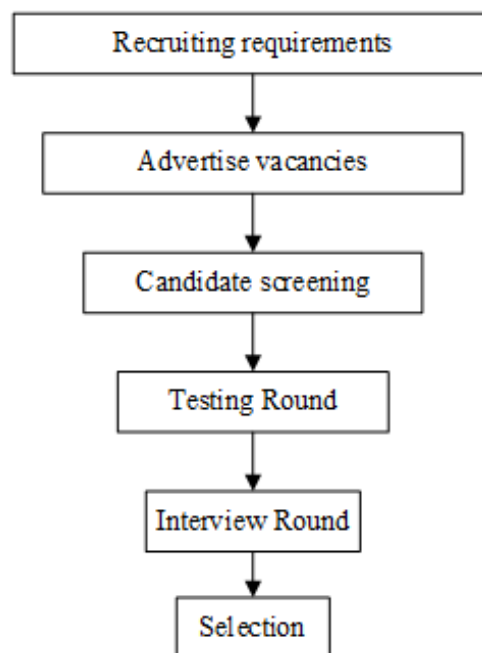
Whenever recruiting is required, all information needs to be communicated to the human resources department about the

vacancy, from which the new department begins their work. The admissions department will have a maximum time from 30 to 60 days to recruit and select candidates.

Recruitment activities need to be allocated a certain amount of budget quarterly/yearly to maintain and balance the operation process. In the operating environment with most small and medium sized enterprises like in Ho Chi Minh City, maintaining communities, job fairs (both in person and online) every year is necessary for contacts to be used, job coordination to be leveraged, telecommunication enterprise and personnel to be accessed to each other.

▪ **Recruitment and selection process**

The author proposes the recruitment and selection process for personnel in the context of Telecommunication Enterprises in Ho Chi Minh City according to the process shown in Figure 3.



Source: Compiled by the author, 2023

Fig 3. Recruitment and selection process

To support this process, businesses need to advertise on job sites such as careerbuilder.vn, topcv.vn, vieclam24h.vn, careerlink.vn, timviec365.vn... Personnel also need to

supplement health information with the confirmation of functional units to ensure the physical and mental capacity to be able to perform the job. Medical examination reports are

managed by human resource operations department.

▪ **Probation and capacity assessment**

In the case of the study, which surveyed 225 employees in the position of specialists and technicians (accounting for 45%), the probationary period of these employees will not exceed 30 days. The remaining 55% of employees take up positions such as business, accounting, finance, human resources, manager, director... the probationary period is usually about 2 months and in special cases it may be more.

employees who are experts and technicians need to be designed to test actual capacity and to decide whether to continue to be contracted for labor in the future or not. While the rest of the staff may need two forms of evaluation, mid-process and final.

In addition, in case an employee intends to leave, the corresponding form should be provided to officially notify the human resources department at least 30 days in advance so that the enterprise has time to search and add suitable personnel as well as transfer and train new employees. And the information of all candidates needs to be stored for at least 3 working months, in case it needs to be added at an urgent time.

4.2. Training and career development

The results of structural model analysis show that the factor of training and career development has a positive impact on corporate culture (with a coefficient of 0.229) and also has a positive impact on human resource development activities in HCMC Telecommunication Enterprises (with a coefficient of 0.064).

The main purpose of training is to acquire and improve knowledge, skills and attitudes towards work-related tasks. It is one of the most important potentials that can lead to both short-term and long-term benefits for both the individual employee and the Telecommunication Enterprises. There are many benefits that can be gained from the human resource training process, like high morale – trained employees increase their confidence and motivation to work, helping them cope with both work-related and non-work stress, thus helped to adapt together to work stress and personal life challenges, lower production costs – employees have the ability to use materials and equipment thereby minimizing and avoiding waste, create a sense of security in the workplace, help manage change by increasing employee understanding and involvement in the change process and also provide the skills and abilities needed to adapt to new situations, provides recognition, enhances accountability and advancement, helps to improve staff availability and quality.

Levels of training and professional development: Training and development needs can occur at three corporate levels, (1) the strategic level where the needs are identified by senior management while considering the goals, mission, strategy and problems of the business that need to be addressed or remedied, (2) a tactical level where needs are identified by middle management while considering evolving needs for coordination and cooperation between units within the business and (3) operational level when needs are identified with lower management and other employees while considering operational issues as performance issues of each employee and department in the business.

Methods of training and professional development: In general, there are two different methods that organizations can choose to train and develop the skills of their employees,

namely on-the-job training and off-the-job training. Accordingly, a form of on-the-job training for an enterprise's employees conducted while performing their regular job at the workplace and off-the-job training related to remove employees from their usual work environment.

Job rotation and transfer: Job rotation and transfer as a way to develop the skills of employees in the business, it involves coordinating the employee's responsibilities between jobs.

Coaching and/or mentoring: This involves letting more experienced employees coach less experienced employees, and mentoring has many benefits for developing accountability and building relationships.

Orientation: The orientation method involves getting new employees acquainted and trained in new jobs in the business.

Scenario handling: This method tries to capture and present situations for employees to make decisions by themselves. In other words, this method allows employees to execute work scenarios. Employees are provided with some information related to role descriptions, interests, goals, responsibilities, feelings, etc.

Formal training courses and development programs: These are some of the methods that can be used to develop the skills needed in a Telecommunication Enterprises. These courses and programs are usually a set of known and defined programs, where the content, duration and all details of the training are clear to both the business and the trained employees.

4.3. Working environment

The results of structural model analysis show that working environment factors have a positive impact on corporate culture (with a coefficient of 0.238) and at the same time also has a positive impact on human resource development activities in HCMC Telecommunication Enterprises (with a coefficient of 0.089).

• **Shaping the working environment**

In order to ensure safe and healthy working conditions, Telecommunication Enterprises need to meet certain standards regarding the working environment and are designed to keep employees in good health.

The successful combination of organizational and technical solutions related to working conditions and in line with employees expectations should extend to:

- Physical working conditions, complete with physical factors (such as machinery and equipment, ancillary equipment, workrooms), environmental parameters (light, temperature, noise, mechanical vibration, radiant energy) as well as organic and inorganic chemical agents (vapours and gases);
- The organization of work, including the assignment of responsibilities, the distribution of working time and the selection of the employee's method of execution;
- Economic factors underpinning job performance;
- Working conditions are characterized by social relations.

• **Apply a social responsibility strategy to shape the working environment**

Corporate social responsibility (CSR) requirements are increasingly embedded in strategic governance guidelines. Due attention should be paid to a social responsibility strategy related to the working environment that helps to improve employee' satisfaction with working conditions. Some guidance related to a friendly-working environment

can be found in the ISO 26000 standard.

4.4. Compensation policy

The structural model analysis results show that the remuneration policy factor has a positive impact on corporate culture (with a coefficient of 0.184 and at the same time also has a positive impact on human resource development activities in hcmc telecommunication enterprises (with a coefficient of 0.092). Key Managerial Implications should focus on compensation structures, management models, and seeking to achieve internal equity and consistency through corporate beliefs.

In addition, the salary and bonus policy that is competitive with other businesses in the same industry is an advantage. And especially, the practice of compensation policy must be oriented to employee performance.

4.5. Corporate culture

The results of structural model analysis show that the factor of corporate culture has a positive impact on human resource development (with the highest coefficient of 0.428). A value-oriented culture should be created in Telecommunication Enterprises so that individuals understand that the business values them and treats them as a means to achieve their goals and develop themselves.

The culture of participation should be considered by individuals involved in decision making as well as the presentation of new ideas and problem solving. A culture that should be created for success in doing things better will lead to everyone's success in meeting economic and social needs.

5. Conclusion

The results of testing the research scale with Cronbach's Alpha reliability analysis and EFA factor analysis show that the removal of the VH6 variable is necessary for the overall (remaining) scale to reach the necessary level of reliability and convergence for practical research.

The CFA confirmatory factor model analysis criteria and SEM linear structure show a good fit of the model. From that, the study's hypotheses do not have enough evidence to refute and the impact model of the factors is synthesized and concludes the level of influence of the factors on the development of human resources in telecommunication enterprises in HCMC. The research results serve as a basis for the process of proposing some appropriate policy implications for human resource development in telecommunication enterprises in HCMC.

6. Reference

1. Bui Van Nhon. Management and development of social human resources. Justice Publishing House, 2006.
2. Bui Thi Thanh. The influence of human resource management practices on employee satisfaction and business results of enterprises – the case of Dong Nai Telecommunications. Doctoral Thesis, Open University, Ho Chi Minh City, 2014.
3. Do Phu Tran Tinh. Analysis of factors affecting the long-term commitment of employees to the enterprise. Journal of Development and Integration. 2012; 7:54-60.
4. Huynh Thi Thu Suong. Factors affecting human resource retention in industrial zones in Ho Chi Minh City. Economic - Culture - Education Magazine, 2016, 22.
5. Nguyen Quang Thu. Analysis of changes in human resources and some solutions to reduce human resource risks in the household wood processing industry in Ho Chi Minh City. Ministry-level scientific research project, 2005.
6. Nguyen Van Diem, Nguyen Ngoc Quan. Textbook of Human Resource Management. Publishing House of Hanoi National Economics University, 2004.
7. Nguyen Tiep. Human Resource Curriculum, University of Labor and Social Affairs. Labor - Social Publishing House, 2005.
8. Nguyen Huu Than. Human Resource Management, Labor and Social Publishing House, 2007.
9. Tran Kim Dung. Results of practical research on human resource management in Vietnamese enterprises. Internal report, 2009.
10. Tran Xuan Cau, Mai Quoc Chanh. Human Resource Economics, National Economics University Publishing House, 2008.
11. Bartlett KR. The relationship between training and organizational commitment: A study in the health care field. Human resource development quarterly. 2001; 12(4):335-352.
12. Gilley JW, Maycunich A, Quatro SA. Comparing the roles, responsibilities, and activities of transactional and transformational HRD professionals. Performance Improvement Quarterly. 2002; 15(4):23-44.
13. Marwat ZA, Tahir QM. Impact Of Human Resource Management (Hrm) Practices On Employees Performance. Pearson, 2011.
14. Moulton P. The Telecommunications Survival Guide. Prentice-Hall, Inc., USA, 2001.
15. Vahdat S. Essential Independent Factors for Developing Human Resource In Iran's Hospitals. World Applied Sciences Journal. 2012; 19(11):1591-1595.
16. Singh K. Impact of HR practices on perceived firm performance in India. Asia pacific. Journal of Human Resources. 2004; 42(3):301-317.
17. Storey L. Doing interpretative phenomenological analysis. Analysing qualitative data in psychology. 2007; 51:64.
18. Alsabbah MY, Ibrahim H. HRM practices and employee competence: A general system perspective. International Journal of Business, Economics and Law. 2014; 4(1):11-17.
19. Chan SH, Kuok OM. A study of human resources recruitment, selection, and retention issues in the hospitality and tourism industry in Macau. Journal of Human Resources in Hospitality & Tourism. 2011; 10(4):421-441.
20. Aswathappa KEMAL. Human resource and personnel management. Tata McGraw-Hill Education, 2005.
21. Brenner P. Workers physical surrounding. Impact bottom line accounting. Smarts Pros.com, 2004.
22. Sageer A, Rafat S, Agarwal P. Identification of variables affecting employee satisfaction and their impact on the organization. IOSR Journal of business and management. 2012; 5(1):32-39.
23. Mondy RW. Human Resource Management. New Jersey: Prentice Hall, Inc., 2008.
24. Chew J, Chan CC. Human resource practices, organizational commitment and intention to stay. International journal of manpower, 2008.
25. Nazir T, Shah SFH, Zaman K. Review of literature on expatriate compensation and its implication for offshore workforce. Iranian Journal of Management Studies.

- 2014; 7(2):203-221.
26. Bamberger PA, Biron M, Meshoulam I. Human resource strategy: Formulation, implementation, and impact. Routledge, 2014.
 27. Martins EC, Terblanche F. Building Organizational Culture that Stimulates Creativity and Innovation. European Journal of Innovation Management. 2003; 6(1):64-74.