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Influence of quality of working life on the stability of technicians: An empirical study in aviation industry

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ABSTRACT

This paper investigates 1276 technicians of 40 typical Enterprises in domestic aviation industry by using interview and questionnaire survey procedure for the quality of working life(QWL). It researches the factors affecting QWL, the factor's impact in different individual characteristic and work region, the correlation between QWL and organizational learning capability, the correlation between QWL and organizational performance, the correlation between QWL and creativity, the correlation between QWL and motivation, the correlation between QWL and resignation tendency by using factors analysis, One-way Anova and correlation analysis. Depending on the above results, the suggestions for improving aviation industry's technicians' QWL could be proposed.

KEYWORDS

Quality of working life; Aviation industry's technicians; Stability.



INTRODUCTION

Quality of Working Life (QWL), began to appear in 1960s and was widely accepted by western countries in a short time^[1]. From then on, managers have paid more attention to it in enterprises' human resource management. Basically, QWL is great progress of modern organizational management. Reflecting the pursuit of economic benefits, QWL pays more attention on social benefits and individuals, and deeply shows enterprises' humanity and spirituality. QWL movement which is the necessary outcome of developed countries' enterprises' human resource theory and long-time practice, is of great significance and importance for Chinese enterprises' human resource management^[2,3]. In this paper, we study the QWL's effects on the stability of aviation industry's technicians in the hope of improving the stability of aviation industry's technicians by raising their QWL.

SAMPLES AND METHOD

Samples

In the research, we chose 40 aviation industrial enterprises which are branches of China Aviation Industry Corporation in Beijing, Liaoning, Heilongjiang, Shanghai, Jiangsu, Jiangxi, Henan, Hubei, Hunan, Guangdong, Sichuan, Guizhou and Shanxi. The survey content includes technicians' individual characteristics, quality of working life, creativity, working enthusiasm, turnover intention and organizational performance. We handed out 1600 questionnaires, and took back 1372 ones. The recovery rate is 85.8%. After eliminating none effective ones, we received 1276 effective questionnaires. The effective rate of questionnaires is 79.8%. TABLE 1 shows the samples' frequency analysis.

Method

Questionnaire on quality of working life

Measuring questionnaire on quality of working life we used in our research has typically drawn on previous archival researches to conclude the content and structure of QWL. What's more, before we achieved the complete questionnaires, we got the advice of 2 professors in organizational behavior and psychology and did pilot survey and test. Questionnaires in our research (as well as questionnaires below) adopt the form of Likert scale and positive items. Every item has 5 answers from "not so" to "perfectly so", which are represented by 1-5.

We apply SPSS13.0 into the pilot survey and test. Firstly, we do KMO measure of samples and Bartlett test for the preliminary measuring questionnaires on quality of working life. The result (KMO is 0.957) shows that the questionnaire is fit for factor analysis. Then, by using varimax-rotation method of factor analysis, we generalize the conclusion that the measurement indexes lie on 6 main constitutions. Thirdly, we apply LISREL8.7 into QWL' 6-dimension structure in order to do the confirmatory factor analysis. The results ($\chi^2/df < 5$) shows that the regression level of the model is acceptable. That NF and CF are 0.89 and 0.91 shows that the closeness of it is good. Besides, RMSEA which is 0.09 is also acceptable. In conclusion, QWL' 6-dimension structure has been well verified. Finally, by applying Cronbach's alpha into questionnaire's reliability analysis, we find that Cronbach's alpha is 0.944, which shows the reliability of the questionnaire is very good.

Therefore, the final questionnaire contains 6 dimensions (organizational characteristics, job characteristics, job background, the balance of job and life, job pressure and conditions, regional features), 18 indexes, and 35 items, including 1 lie detective item and 1 subjective item.

In our research, the meanings of "organizational characteristics" dimension's indexes are: (1) managerial style: organizations and their leaders take the democratic managerial style, and allow employees to have more rights to choose and participate. (2) organizational structure: reducing organization's managerial hierarchies and making the structure more flatter. (3) organizational culture: the sum of the organization's basic belief, values, mode of thought, behavioral norms which are

developed and acceptable in the long growth development of organization itself. (4) team spirit: employees are willing to co-operate and work for team's benefits and targets, and this is exactly the expression of overview, co-operation and service. (5) organizational equality: equality in organization's salary, welfare, training, evaluation, rewards and punishments, not only in institutions-making but also in carrying out. (6) organizational image: people's total understanding and evaluation based on organization's inside culture and outside expression. (7) organizational social responsibility: responsibilities, such as economics, law, ethics and charity, for stakeholders, it has positive effects on society^[4].

The meanings of "job characteristics" dimension's indexes are: (1) job characteristic: organizations motivate employees' initiative and enthusiasm by improving their job characteristics, such as job autonomy, creativity, flexibility, task significance, challenging and so on. (2) job meaning: organizations help employees achieve self value and social value by bringing their full ability into work, giving chance for better development, raising their job expectation and raising approval from society. (3) job growth: employees can achieve great progress by learning new things and skills, raising professional technical capability^[5].

The meanings of "job background" dimension's indexes are: (1) interpersonal relationship: all kinds of interpersonal relations in job background, including friendship, trust, help, contact among colleagues and nice and harmonious relations with superiors. (2) being respected: employees have the democracy, freedom, and dignity in their families, social groups or else organizations. (3) support from society: subjective and objective supports from outside and the degree individuals make use of them.

The meanings of "the balance of job and life" dimension's indexes are: (1) living guarantees: the basic guarantee in economic income in order to meet kinds of living needs in society. (2) the balance of job and family: the balance among employees' job, active family life and personal entertainment.

The meanings of "job pressure and conditions" dimension's indexes are: (1) job pressure: the pressure employees feel at work should be suitable. (2) job conditions: organizational inside environment, including job security, health, space, humidity level, temperature, neatness, lighting, noises and so on^[6].

The meanings of "regional features" dimension's indexes are: organizational outside environment, such as social public support system (including hydroelectric power, traffic, communications, healthcare, entertainment, education and so on), natural conditions, social culture, law etc.

Questionnaire on stability of aviation industry's technicians

In our research, the content of stability of aviation industry's technicians contains organizational learning, organizational performance, creativity, work enthusiasm and turnover intension. Therefore, measuring questionnaires on stability of aviation industry's technicians consist of these parts.

Questionnaire on organizational learning

Measuring questionnaire on organizational learning not only is based on analysis on previous archival researches, but also has typically drawn on questionnaires all home and abroad, such as "learning organization scorecard" designed by Canadian Management and Development Centre, "organizational learning questionnaire" designed by Irish Price Waterhouse Coopers and organizational learning questionnaire by Ma Yufeng^[7]. The questionnaire contains 2 dimensions (organizational efficiency and vision, organizational maturity), 14 indexes and 14 items.

By using LISREL8.7, do confirmatory factor analysis for the two-dimension structure of the organizational learning. That value of χ^2/df is 3.34 (less than 5), shows model fitting degree is acceptable. Values of NFI, CFI were 0.91, 0.91, shows that there is a better fitting degree. Value of RMSEA is 0.102, which can be accepted. Form this several indexes, it can be seen that the two-dimensions structure of the organizational learning got better verified. Via the reliability analysis, get the value of Cronbach's alpha coefficient is 0.928, which shows that the reliability of the questionnaire is very good.

TABLE 1 : Effective samples' frequency analysis

Item	Sample Distribution	Sample Number	Percentage	Sample Distribution	Sample Number	Percentage
Area	Beijing	101	7.9%	Hubei	112	8.8%
	Liaoning	110	8.6%	Hunan	124	9.7%
	Heilongjiang	45	3.5%	Guangdong	43	3.4%
	Shanghai	18	1.4%	Sichuang	122	9.6%
	Jiangsu	126	9.9%	Guizhou	73	5.7%
	Jiangsu	60	4.7%	Shanxi	249	19.5%
	Henan	93	7.3%			
Professional Position	Technician	119	9.3%	Senior-engineer	264	20.7%
	Assistant-engineer	440	34.5%	Else	47	3.7%
	Engineer	406	31.8%			
Administrative Position	Grassroots leader	903	70.8%	High-level leader	5	0.4%
	Middle-level leader	100	7.8%	Else	268	21.0%
Time for Present Job	<1 year	136	10.7%	7-10 years	160	12.5%
	1-3 years	328	25.7%	>10 years	405	31.7%
	4-6 years	247	19.4%			
Academy Degree	Senior	15	1.2%	Master	275	21.6%
	College	968	75.9%	Doctor	18	1.4%
Sex	Male	918	71.9%	Female	358	28.1%
Age	<30	625	49.0%	40-49	191	15.0%
	30-39	401	31.4%	> 50	59	4.6%
Marital Status	Married	766	60.0%	Divorced	9	0.7%
	Unmarried	501	39.3%			

Organization performance measurement questionnaire

In our research, we study organization performance from four indicators of organization's profits, market position, work efficiency and the development status, with a total of four items. The Cronbach's alpha coefficient is 0.841, which shows that the questionnaire has good reliability,.

Creativity, motivation, and turnover intention questionnaire measurement

We use three indicators of incentives to creativity, individual cognition to creativity and organizational climate to speculate and evaluate creativity level of respondents; and use 2 items to evaluate work enthusiasm; use 1 item to speculate turnover intention.

RESULTS AND DISCUSSION

We did empirical analysis to study the related degree between QWL and aviation technology team stability with the method of Pearson correlation analysis.

Overall correlation analysis between QWL and the variables

The correlations between QWL and organizational learning, organizational performance, creativity, turnover intension are $r = 0.553$, $r = 0.516$, $r = 0.317$, $r = 0.354$, $r = 0.269$, respectively significance level 0, there are significant differences.

The analysis result shows that there are significant positive correlations between QWL and organization learning, organizational performance, creativity, work enthusiasm; there is significant negative correlation between QWL and turnover intention. That is when technicians' QWL improve, organizational learning, organizational performance, creativity and work enthusiasm could also improve, with the decrease of turnover intention.

Correlation analysis between each dimension of QWL and each dimension, overall of organizational learning

As shown in TABLE 2, there are significant differences between all dimensions of QWL and organizational learning, organizational efficiency, vision. There are significant differences between other dimensions (except regional features) of QWL and organizational maturity; Relationship between the regional features and organizational maturity is not significant.

TABLE 2 : Correlation analysis between each dimension of QWL and each dimension, overall of organizational learning

		organizational maturity	organizational efficiency and vision	organizational learning
organizational characteristics	Correlation	.288(**)	.748(**)	.708(**)
	Sig. (2-tailed)	.000	.000	.000
	N	1276	1276	1276
job characteristics	Correlation	.256(**)	.270(**)	.370(**)
	Sig. (2-tailed)	.000	.000	.000
	N	1276	1276	1276
job background	Correlation	.282(**)	.085(**)	.268(**)
	Sig. (2-tailed)	.000	.002	.000
	N	1276	1276	1276
the balance of job and life	Correlation	.228(**)	.087(**)	.229(**)
	Sig. (2-tailed)	.000	.002	.000
	N	1276	1276	1276
job pressure and conditions	Correlation	.062(*)	.150(**)	.146(**)
	Sig. (2-tailed)	.026	.000	.000
	N	1276	1276	1276
regional features	Pearson Correlation	.017	.154(**)	.114(**)
	Sig. (2-tailed)	.550	.000	.000
	N	1276	1276	1276

The analysis result shows that there are significant positive correlations between all dimensions of QWL and organizational learning, its organizational efficiency and vision; there are significant positive correlations between other dimensions (except regional features) of QWL and organizational maturity. The correlation coefficient between organizational characteristic and organizational learning is the largest.

Correlation analysis between each dimension of QWL and organizational performance

As shown in TABLE 3, there are significant differences between all dimensions of QWL and organizational performance. The analysis result shows that there are significant positive correlations between all dimensions of QWL and organizational performance. The correlation coefficient between organizational characteristic and organizational performance is the largest.

Correlation analysis between each dimension of QWL and creativity

As shown in TABLE 3, there are significant differences between all dimensions of QWL and creativity. The analysis result shows that there are significant positive correlations between all dimensions of QWL and creativity. The correlation coefficient between job characteristic and creativity is the largest.

Correlation analysis between each dimension of QWL and work enthusiasm

As shown in TABLE 3, there are significant differences between all dimensions of QWL and work enthusiasm. The analysis result shows that there are significant positive correlations between all

dimensions of QWL and work enthusiasm. The correlation coefficient between organizational characteristic and work enthusiasm is the largest.

TABLE 3 : Correlation analysis between each dimension of QWL and four indicators

		Organizational performance	creativity	Work enthusiasm	Turnover intention
organizational characteristics	Correlation	.488(**)	.259(**)	.367(**)	-.282(**)
	Sig. (2-tailed)	.000	.000	.000	.000
	N	1276	1276	1276	1276
job characteristics	Correlation	.281(**)	.412(**)	.284(**)	-.114(**)
	Sig. (2-tailed)	.000	.000	.000	.000
	N	1276	1276	1276	1276
job background	Correlation	.171(**)	.241(**)	.170(**)	.024
	Sig. (2-tailed)	.000	.000	.000	.392
	N	1276	1276	1276	1276
the balance of job and life	Correlation	.294(**)	.123(**)	.161(**)	-.162(**)
	Sig. (2-tailed)	.000	.000	.000	.000
	N	1276	1276	1276	1276
job pressure and conditions	Correlation	.104(**)	.095(**)	.119(**)	-.108(**)
	Sig. (2-tailed)	.000	.001	.000	.000
	N	1276	1276	1276	1276
regional features	Correlation	.165(**)	.058(*)	.085(**)	-.092(**)
	Sig. (2-tailed)	.000	.039	.002	.001
	N	1276	1276	1276	1276

Correlation analysis between each dimension of QWL and turnover intention

As shown in TABLE 3, there are significant differences between other dimensions (except job background) of QWL and turnover intention. The analysis result shows that there are significant negative correlations between other dimensions (except job background) of QWL and turnover intention. The correlation coefficient between organizational characteristic and turnover intention is the largest.

CONCLUSION

The research results show that there are significant positive correlations between QWL of aviation industry's technicians and organizational learning, organizational performance of aviation industry enterprises; there are significant positive correlations between QWL of aviation industry's technicians and their creativity, work enthusiasm, and negative correlation between QWL and turnover intention. The research provides empirical premise and foundation to improve the stability and QWL of aviation industry's technicians.

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