

Employee Capability, Employee Satisfaction & Employee Sustainability – Sub Constructs Of Human Capital As A Component Of Intellectual Capital

Dr V Shanthy

*Associate Professor & Head Department of Corporate Secretaryship Ethiraj College for Women
 Corresponding Author: Dr V Shanthy*

Contemporary economy is characterized by globalization and knowledge-intensive production. Organizations recognize that there is a shift from the old, industrial based economy to a new knowledge-centric economy. In order to maximize the organizational profits and to gain competitive advantage they should use their knowledge base, in addition to various tangible assets, in an effective way which is often embodied as technologies. Corporations not only recognize knowledge as the critical resource, but they also try to manage organizational knowledge more intensely and effectively. Human Capital is at the heart of intellectual capital (Wright, McMahan, and Mc Williams (1994)), working from a resource-based perspective, argue that in certain circumstances, sustained competitive advantage can accrue from a pool of human capital. This paper aims to test the relationship of the sub constructs of Human Capital as a major determinant of Intellectual Capital.

KEY WORDS: *Intellectual Capital, Human Capital, Employee Capability, Employee Satisfaction, Employee Sustainability*

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I INTRODUCTION

Human Capital at the individual level focuses on education, experience, genetic inheritance and attitudes about personal life and business. It is the heart of Intellectual Capital containing task related skills such as tacit knowledge and soft skill like communication skills, entrepreneurial skills etc. It also includes conscientiousness and the willingness to engage in learning process continuously. Kaplan and Norton 1996 have considered Human Capital as employee capability, Employee Satisfaction and Employee Sustainability. In this study also the researcher adopted Kaplan and Norton classification of Human Capital. Accordingly, the confirmatory factor analysis was carried using fifteen indicators grouping into three dimensions of namely Employee Capability, Employee Satisfaction and Employee Sustainability.

Employee Capability includes individual competence, soft skills, and an individual's investment in their Human Capital (Dulewicz & Herbert, 1999; Mayo, 2000). Sveiby 1997 emphasized Employee Capability as a key asset for organizational growth. Employee Capability as a sub factor of Human Capital has five indicators such as Cost per hire, Information Technology literacy of staff, Leadership skills, Training expense per employee and Proportion of challenging assignments. Similarly Employee Satisfaction has five indicators such as Employee accomplishment, employee motivation, Innovations per employee, Team building capacity, Value added per employee. Finally the third sub factor of Human Capital, Employee Sustainability has five indicators namely Years of experience in profession, Turnover ratio, Percentage of employees with degrees, Ratio of managers to employees and Age of the management and operational staff. Therefore, Human Capital has three sub factors (latent variables) namely employee capability, Employee Satisfaction and Employee Sustainability.

Each factor is measured by number of observed variables.

HUMAN CAPITAL INDICATORS

S.No.	HUMAN CAPITAL INDICATORS
1	Years of experience in Profession
2	Cost per hire
3	Employee Satisfaction
4	Turnover Ratio
5	Information Technology Literacy of Staff
6	Leadership skills
7	Employee Motivation
8	Training Expense per Employee
9	Percentage of Employees with degrees

10	Ratio of Managers to Employees
11	Proportion of Challenging Assignments
12	Innovations per Employee
13	Team Building Capacity
14	Value Added per Employee
15	Age of the Management and Operational Staff

The three fold concept of IC indicates that while it is individuals who generate, retain and use knowledge (Human Capital) this knowledge is enhanced by the interactions between them to generate the institutionalized knowledge possessed by an organization. clearly it is the knowledge, skills and ability of the individuals that create value which is why the focus has to be on means of attracting, retaining, developing and maintaining the Human Capital they represent, but organizational effectiveness also depends upon making good use of their knowledge, which has to be developed, captured and exchanged in order to create organizational capital. Furthermore, the emerging concept of knowledge worker highlights the importance of managing Intellectual Capital (IC) for organizational effectiveness and exploiting real tacit knowledge of the workforce. The current Human Capital (HC) model the researcher investigated 15 indicators which are considered as observed variables with three constructs namely Employee Capability, Employee Satisfaction and Employee Sustainability which are latent variables to HC.

II REVIEW OF LITERATURE

Human capital consists of the individual knowledge and skills embodied in a corporation's employees - the primary source of intellectual capital for any firm. At a fundamental level, the workforce's knowledge and capabilities serve as an engine, allowing corporations to operate, innovate, execute, and adapt to changing business conditions. In this sense, human capital is the most dynamic form of intellectual capital, as it allows a firm to flexibly and rapidly respond to new challenges. It is also the most dynamic and difficult to manage, since it depends upon staff retention as well as the effective use of individual abilities.

Beyond the explicit, task-oriented skills of the workforce, human capital consists of knowledge and capabilities that are inherently tacit in nature and, accordingly, can be extremely difficult to define and manage.

Human capital is the lifeblood of intellectual capital. It is the source of innovation and improvement, but it is also the hardest component to measure. Moreover, human capital cannot be owned by a company, it can only be “rented” (i.e., in the form of employees). Investment in human capital increases the companies’ value.

In 1995, for example, the National Center on the Educational Quality of the Workforce (EQW) released a report about the relationship between education and productivity at more than 3,100 U.S. workplaces. The findings showed that, on an average, a 10 percent increase in the educational level of employees led to an 8.6 percent gain in total productivity. By contrast, a 10-percent rise in the value of equipments (capital stock) increased productivity by only 3.4 percent. These figures suggest that the marginal value of investing in people is about three times greater than that of investing in equipment.

IV METHODOLOGY

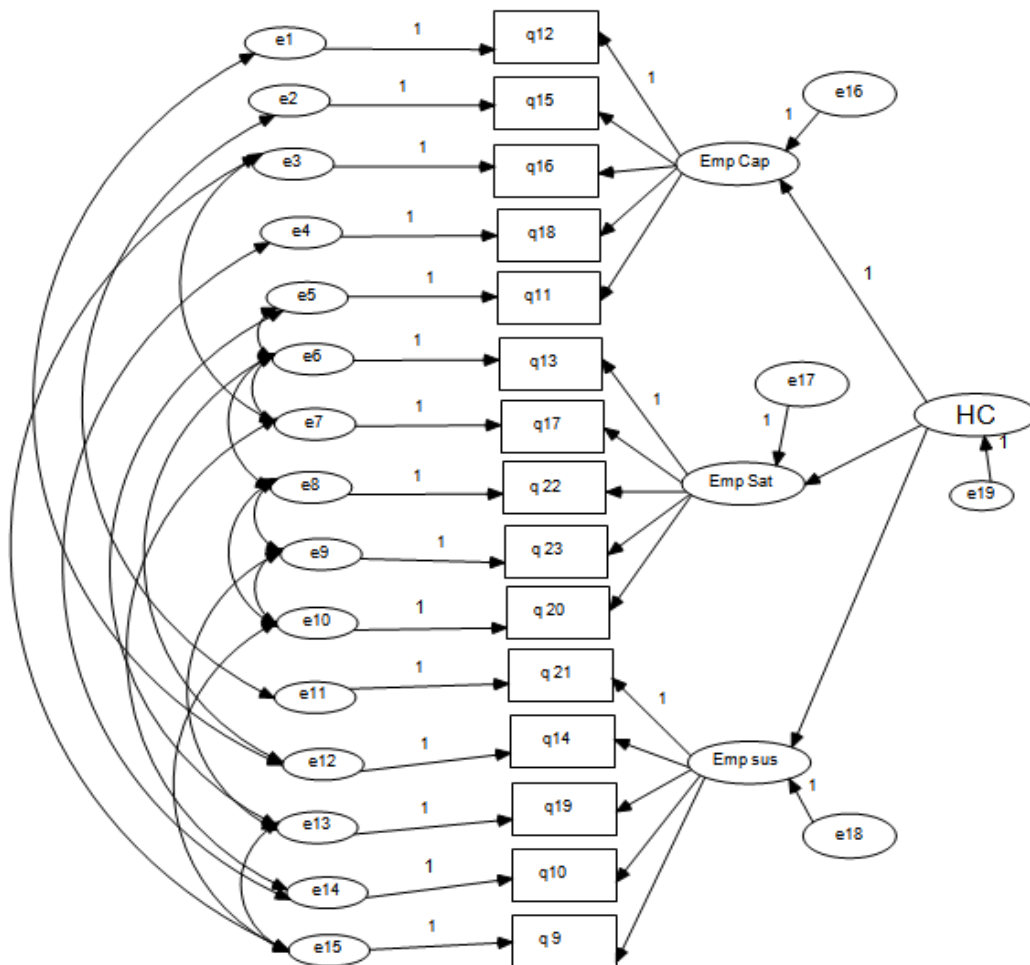
Structural Equation Modeling (SEM) technique’s was employed to analyse the data. The unique feature SEM, is to allow separate relationships for each set of dependent variables. It aims to find the most optimal model or combination of the variables that fits well with the data on which it is built and serves as a powerful representation of the reality from which the data has been extracted, and provides a parsimonious explanation of the data (Kline, 1998). Variances, regression coefficients, and covariance among the variables are the parameters of a SEM. A Confirmatory Factor Analysis (CFA) of the “combined” measurement model is performed using the software package (AMOS). In order to validate the measures of the latent constructs, indicators are specified to load on their underlying constructs, but the constructs are allowed to inter-correlate. Modifications indices (MI) are useful indications to assess the measurement model fit, (Jorekog and Sorbom, 1993). To achieve the “best fitting” measurement model, incremental modifications are necessary, which refers to the deletion of some indicators or even measures incrementally according to the modifications indices that are judged by the theories appropriate.

V ANALYSIS

In the current HC model the researcher investigated 15 indicators which are considered as observed variables with three constructs namely Employee Capability, Employee Satisfaction and Employee Sustainability which are latent variables to HC.

Initial model with the above observed and latent variables were given in the following figure. 1. This model was drawn using AMOS 6 graphic windows. This model will evaluate how the scores of 15 observed variables are related to three constructs of HC. Appropriate error items were also incorporated in the model

Fig. 1. Measurement model of Human Capital using CFA



Goodness of fit criterion for HC

A number of goodness of fit measures is available to assess the overall fit of the hypothesis model. Some commonly used measures of absolute fit include chi squared statistic, goodness of fit statistic and the root

mean square error of approximation. The results of the fir index of structural model of Human Capital are given in the following table 1:

TABLE No.1. STRUCTURAL MODEL FOR HUMAN CAPITAL

Model	Chi-square	Degrees of Freedom	χ^2/df	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI	RMSEA	GFI
Default model	141.42	70	2.02	.950	.925	.974	.961	.974	.048	.959

Note: CFI = Comparative Fit Index, TLI = Tucker Lewis Index, IFI = Incremental Fit Index, RMSEA = Root Mean Square Error of Approximation.

Criteria to accept model; χ^2/df should be smaller than 5; CFI, GFI, TLI and IFI should be greater than .90; RMSEA should be less than .08, significant at $p < 0.01$.

The initial model specified by the researcher was only restrictive to test the hypothesized relationship between the observed variables and constructs (latent variables) of HC. Improving the model fit is an inevitable process in the application of SEM. (Butler 2000).Improvement in the model was carried out with the assistance of modification indices. The largest modification index tells about which parameter is set to free to improve the fit maximally (Jores K.G and Sorborn 1993). The results produced after improving the model with the help of Modification Indices are given with its standard coefficient are shown in figure 3

Estimates and goodness-of-fit statistics after modification given in table 1 reveals that the value of Root Mean Square of Approximation is (RMSEA) .048 which indicates acceptable fit and values of normal fit index and goodness-fit-index have exceeded the recommended .90 level indicating good-fit (Segars and Grover, 1993)

In the present example for the hypothesized model of Human Capital there are 18 results or paths with 120 sample moments and 50 parameters. Standardized and unstandardised regression weights were calculated and the results are presented in the following table 2 and table 3:

TABLE NO. 2. REGRESSION WEIGHTS OF HC INDICATORS WITH 15 OBSERVED VARIABLES

Regression weights			Estimate	S.E	C.R	P
Employee capability	< ---	HC	1.000			
Employee satisfaction	< ---	HC	.842	.084	10.029	***
Employee sustenance	< ---	HC	.693	.077	9.033	***
Cost per hire (q12)	< ---	Emp cap	1.000			
IT of staff (q15)	< ---	Emp cap	1.097	.102	10.771	***
Leadership skills (q16)	< ---	Emp cap	1.018	.096	10.583	***
Proportion Of challenging assignments (q18)	< ---	Emp cap	1.210	.107	11.284	***
Training expenses per employee (q11)	< ---	Emp cap	1.130	.108	10.486	***
Employee accomplishments (q13)	< ---	Emp sat	1.000			
Team building capacity (q17)	< ---	Emp sat	1.373	.102	13.529	***
Value added per employee (q22)	< ---	Emp sat	1.340	.115	11.665	***
Employee motivation (q23)	< ---	Emp sat	1.046	.108	9.646	***
Innovations per employee (q20)	< ---	Emp sat	1.197	.115	10.386	***
Years of experience in profession (q21)	< ---	Emp sus	1.000			
Turnover ratio (q14)	< ---	Emp sus	1.329	.139	9.548	***
Percentage of employees with degrees (q19)	< ---	Emp sus	1.318	.144	9.132	***
Age of the management and operational staff (q10)	< ---	Emp sus	1.457	.149	9.795	***
Ratio of managers to employees (q9)	< ---	Emp sus	1.279	.147	8.706	***

FIGURE 2. STRUCTURAL MODEL OF HUMAN CAPITAL USING CFA WITH UNSTANDARDIZED REGRESSION WEIGHTS

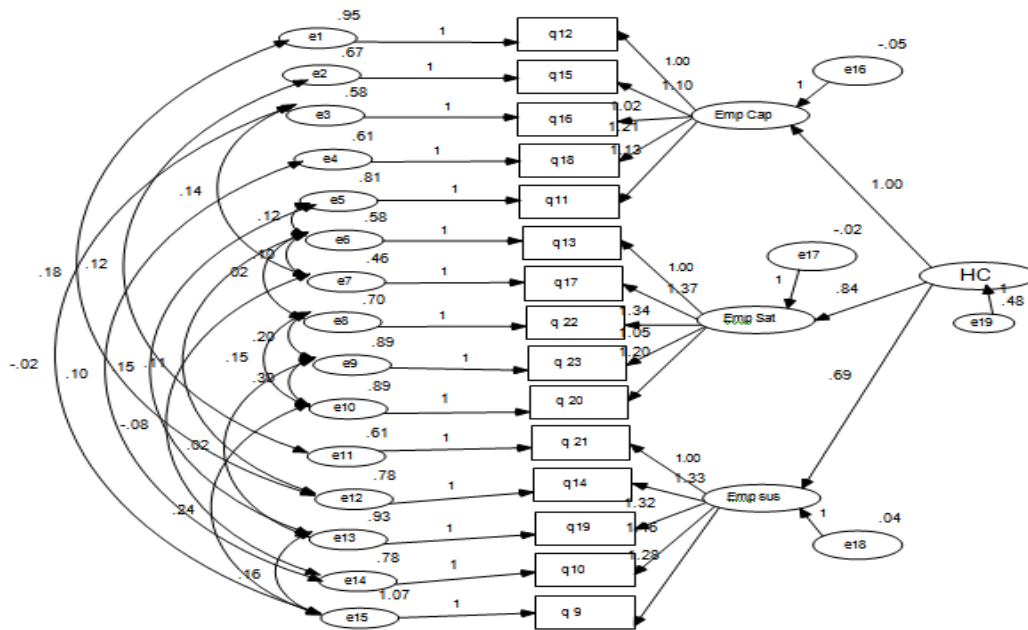
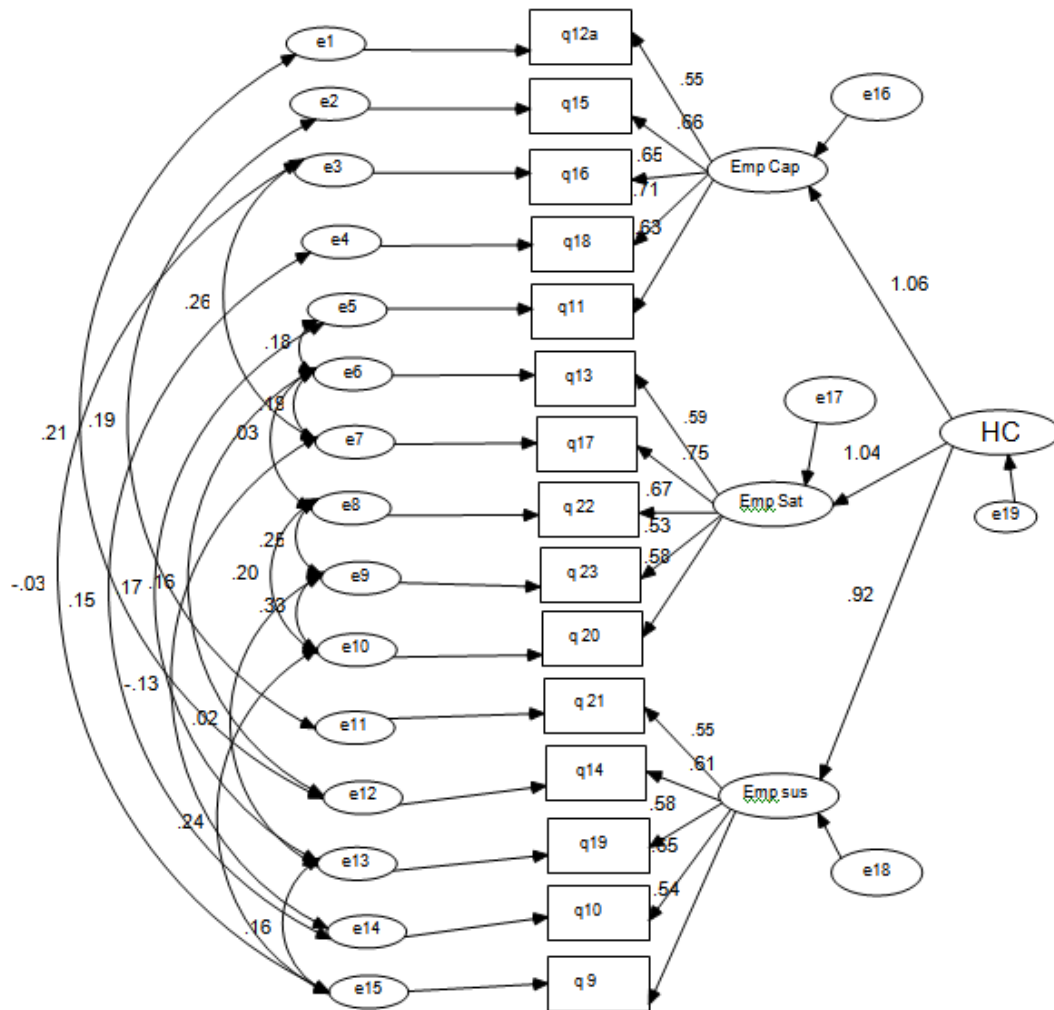


TABLE NO.3. STANDARDIZED REGRESSION WEIGHTS OF HC INDICATORS WITH 15 OBSERVED VARIABLES

Regression weights			Estimate
Employee capability	< ---	HC	1.061
Employee satisfaction	< ---	HC	1.038
Employee sustenance	< ---	HC	.921
Cost per hire (q12)	< ---	Emp cap	.555
Inf. Technology literacy of staff (q15)	< ---	Emp cap	.657
Leadership skills (q16)	< ---	Emp cap	.654
Porp. Of challenging assignments (q18)	< ---	Emp cap	.710
Training expenses per employee (q11)	< ---	Emp cap	.632
Employee accomplishments (q13)	< ---	Emp sat	.590
Team building capacity (q17)	< ---	Emp sat	.750
Value added per employee (q22)	< ---	Emp sat	.666
Employee motivation (q23)	< ---	Emp sat	.527
Innovations per employee (q20)	< ---	Emp sat	.579
Years of experience in profession (q21)	< ---	Emp sus	.553
Turnover ratio (q14)	< ---	Emp sus	.615
Percentage of employees with degrees (q19)	< ---	Emp sus	.578
Age of the management and operational staff (q10)	< ---	Emp sus	.649
Ratio of managers to employees (q9)	< ---	Emp sus	.539

FIGURE 3. STRUCTURAL MODEL OF HUMAN CAPITAL USING CFA WITH STANDARDIZED REGRESSION WEIGHTS



The three factors of Human Capital were scaled by fixed loading of each one of the indicators to 1 (which also means the factors are unstandardized). Each of the fifteen observed variables has an error item which is grouped into three factors resulting in eighteen variances; these were estimated along with the covariance and factor variances of all models. Hence, the three factor model of Human Capital was analyzed for the viability of dependence relationships between the factors and the indicators using a covariance matrix of the fifteen indicators as shown in figure3

Associated with each estimated standardized coefficient is a Standard Error (SE) and a Critical Error (CE). The SE of the coefficients represents the expected variation of the estimated coefficients and is an index of the efficiency of the predicted variables in predicting the endogenous variables. Smaller the SE more efficient is the predicted variable. The CR is the test of the significance path coefficients, based on this principle CR value that is more extreme than ± 1.96 indicates significant paths. Based on the above criterion it can be seen that indicators q12, q15, q16, q18 and q11 are highly significant predictors to Employee Capability and indicators q13, q17, q22, q23, q20 are highly significant to Employee Satisfaction. Similarly indicators q21, q14, q19, q10, q9 are highly significant to Employee Sustainability. To sum up, the overall fit of the default model is superior to the independent model. The values of the fit indices with more standardized matrix also indicate a preference for three factor model. The overall fit of the three factor model of Human Capital is very reasonable and far superior to the base line model. It portrays that the model is able to fit satisfactorily. With the three factors of fifteen observed variables the validity coefficients (magnitude of the latent variable of Human Capital and each indicator) of the model are on the higher side. Based on the above findings it is concluded that all the fifteen observed variables conform to the three latent factors included in the study. All these factors are found to be contributing to Human Capital which in turn determines the volume of Intellectual Capital. Hence, the current 15 indicators, the three construct model was considered to be more appropriate in practicing HC of an organization.

VI CONCLUSION

One of the main component of Intellectual Capital is Human Capital. The sub construct of HC, Employee Capability was most significant with a maximum weight of .88 as compared to the other two sub constructs (Employee Satisfaction and Employee Sustainability) of Human Capital. This was followed by Employee Sustainability with a weight of .86 and Employee Satisfaction with a weight of .81. From these it is deduced that the sub construct Employee Capability of Human Capital is the most significant contributor to Intellectual Capital.

In addition, research interests in human capital have expanded to include the mode of delivery of those characteristics which impact its quality. For example, Yamauchi, Kohn & Yu 2007 gives evidence that suggests that the quality of human capital is dependent upon social learning and the cultural weight assigned to education. To a society, labour represents the economic interests of societal growth. Intelligent workers increase economic prominence, thus allowing intellectual development to promote economic growth. Accordingly, intellectual capital holds interrelated value to society and business. While such economic interests are measured for societal purposes (as in the rates of unemployment, inflation, or interest), business relations of the economics of labour supply and demand fluctuate, determining a necessary adjustment in value association. Labour is the business of a society and intellectual capital makes the society of the business. Thus, in the knowledge era human capital had been considered an important part of Intellectual capital.

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