DEVELOPMENT & VALIDATION OF QUALITY OF WORK LIFE SCALE IN THE IT SECTOR

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ABSTRACT

The growth, development, efficiency, and effectiveness of an organization depend on how effectively the human resources are managed. Competent, skilled, and efficient human resource is very crucial for the functioning of the organization. It is in this context the significance of this paper arises. This paper gives a detailed view about the development and validation of the scale measuring the quality of work life of the employees working in the IT sector. The exploratory and confirmatory factor analysis using SEM and Partial least square approach is done to confirm the validity and reliability of the scale. The analysis reveals the legitimacy of the quality of work life scale through its factor loadings and reliability.

KEYWORDS: *Reliability, Validation, Legitimacy,* Disparagement, *Prevailing, Intrinsic.*

INTRODUCTION

Modern management has realized that human factor is the most important of all factors of production. The inadequacy of human resources may result in the disparagement in all other factors of production. Many societies have developed and became wealthy using the potentialities of their human resources who have the drive for creativity, ingenuity, and the spirit of enterprise. McGregor has stated that the effectiveness of the organizations can at least be doubled if their managers are able to discover how to tap the unrealized potentials present in their human resources. The human resources can grow and develop their potential in the long run, if they are properly organized and motivated and hence the value of human resources cannot be depreciated.

Quality of work life refers to the degree of satisfaction an employee derives from his work depending on the extent to which he feels motivated, valued, rewarded etc. It is concerned with the extent of the relationship between an employee and the organizational factors prevailing in that working environment. Many studies have revealed that the organization should provide working environment conductive to satisfy the needs of the workers. It mainly involves the work-related aspects like work environment, wages and working hours, incentives and benefits, career development, etc., which are directly related to the motivation and satisfaction of the workers.

(Wichit, 2007) Studied the quality of work life and its relationship with demographic factors, job characteristics and organizational environment among the bus drivers in Bangkok. The study pointed out that bus drivers had a moderate level of quality of work life and the organizational environment, job characteristics and age had a positive relationship while work duration had a negative relationship with the quality of work life.

(Khani A, 2008) Explored the nurses' quality of work life in Iran since they had suffered from the higher demands of the profession and of the workload and underpay. The study indicated that the salaries were inadequate and the workload was too heavy for the nurses. Further the respondents had little energy left after work and were unable to balance their work and family lives and stated that rotating schedules negatively affected their lives. The study suggested implementing discretionary employee benefits programs to enhance the work life quality of nurses.

(Hanita Sarah Saad, 2008) Studied the employees' perception of their quality of work life in a private university in Malaysia. The test revealed that each of the quality of work life variable on its own is a salient predictor of job satisfaction. The study suggested that other dimensions of job satisfaction, especially on the intrinsic rewards and key performance indicators or the performance evaluation criteria should be used while doing the future research on job satisfaction in other areas.

Scale Development and Validation

After reviewing the literature, the researcher found that various components of quality of work life were used in different sectors to measure the same. Hence it became necessary to develop a suitable scale to measure quality of work life and validate the same in the IT sector in Kerala.

Data Collection and Cleaning

The purpose of the research was explained to the respondents before distributing the questionnaires. A total of 700 questionnaires were distributed among the respondents out of which 626 questionnaires were collected upon the completion from the respondents. Out of the 450 questionnaires distributed in the Technopark Trivandrum, 414 questionnaires were collected from the respondents. 200 questionnaires were distributed in Infopark Kochi and Koratty out of which 176 were returned by the respondents, while 36 questionnaires were returned out of 50 questionnaires distributed in the Kinfrapark Malappuram thus constituting a total of 626 questionnaires.

After the collection, the data were then checked to identify the missing responses, outliers, and reliability. Using Excel and Warp PLS 4.0 the data outliers were identified, thus ensuring the quality of the data. The multivariate outliers were identified at a minimal level on examining the data. A total of 69 responses were thus identified reducing the primary data collected to **557** in number.

The primary data collected was subjected to the principal component factor analysis with varimax rotation using SPSS 20. An Exploratory factor analysis was done separately for each of the scales of Quality of work life, Employee satisfaction and Employee turnover.

Quality of Work Life Scale (QWLS)

The most important components relating to the quality of work life which were frequently used in the previous studies were identified which included working environment, fair compensation, job contentment, opportunities for skill utilization, employee career development, fair treatment, autonomy of work, organizational communication, job security, total life space, facilities, and attitude of management. An exploratory factor analysis was done to identify the major components contributing to the quality of work life and to reduce the indicators that form the dimensions using the principal component analysis.

Exploratory Factor Analysis (EFA)

SPSS 20 was used to conduct factor analysis to identify the major components of the Quality of work life scale. It is suggested that the factor extraction can be done by extracting combinations of variables that explain the greatest amount of variance if the data set had a large set of variables. The selection of the method of factor rotation (between common factor analysis and component analysis) was based on two criteria: (1) the objectives of the factor analysis and (2) the amount of prior knowledge about the variance in the variables (Hair et al 2009). The Component Factor Analysis method, also known as Principal Component Analysis was adopted in the study since the primary objective was to reduce the data, focusing on the minimum number of factors that needed to account for the maximum portion of the total variance (common, specific and error variances) represented in the original variables set (Eappan, 2014).

Hair, Black, Babin and Anderson (2009) has summarized certain assumptions for factor analysis, which included linearity and homoscedasticity (which means dependent variable exhibits equal levels of variance across the range of predictor variables). They further argued that these statistical assumptions need not be met if the data matrix had sufficient correlation to produce representative factors and justify the application of factor analysis. The Bartlett's Test of Sphericity and Kaiser-Meyer-Olkin Measure of Sampling Adequacy approaches are used to determine the sufficiency of correlations in the data set for factor analysis (Eappan, 2014). The results of the KMO and Bartlett's test are discussed in the table 1.

Table 1 KMO and Bartlett's Test of Quality of Work Life Scale

Kaiser-Meyer-Olkin Measure of Sampling Adequacy	.929
Approx. Chi-Square	12911.251
Bartlett's Test of Sphericity Df	1176
Sig.	.000

Source: SPSS FA Output

Kaiser-Meyer-Olkin (KMO) test was performed to check the sampling adequacy of data for factor analysis. The KMO statistic indicated the proportion of variance in the variables that might be caused by the underlying factors. Kaiser and Rice (1974) stated that if the KMO values were greater than 0.6, it was adequate. The Barlett's test of sphericity related to the significance of the study and indicated the suitability of the responses collected to the problem being studied. The Barlett's test of sphericity is a statistical test to identify the presence of correlations among the variables and tests the hypothesis that the correlation matrix is an identity matrix i.e. all diagonal elements are 1 and off diagonal elements 0 indicating that all variables are uncorrelated and hence suitable for structure detection and it must be less than 0.05 for the factor analysis to be recommended. Since the KMO value is 0.929, it is acceptable. Barlett's test values (12911.251, dof 1176, Sig 0.00) indicates that the values are significant and implies that non-zero correlations existed at the significance level of less than 0.001, and hence proceed to factor analysis (D R Swamy, 2015).

The component factor analysis method, also known as principal component method was used in the study since the primary concern was to reduce the data based on the minimum number of factors needed to account for the maximum portion of the total variance represented in the original set of variables. The latent root criterion technique was used to decide on the number of factors to be extracted. The factors having latent roots or Eigen values greater than 1 are considered significant with the component analysis (Eappan, 2014).

The principal component analysis using varimax rotation was shown in the Appendix.

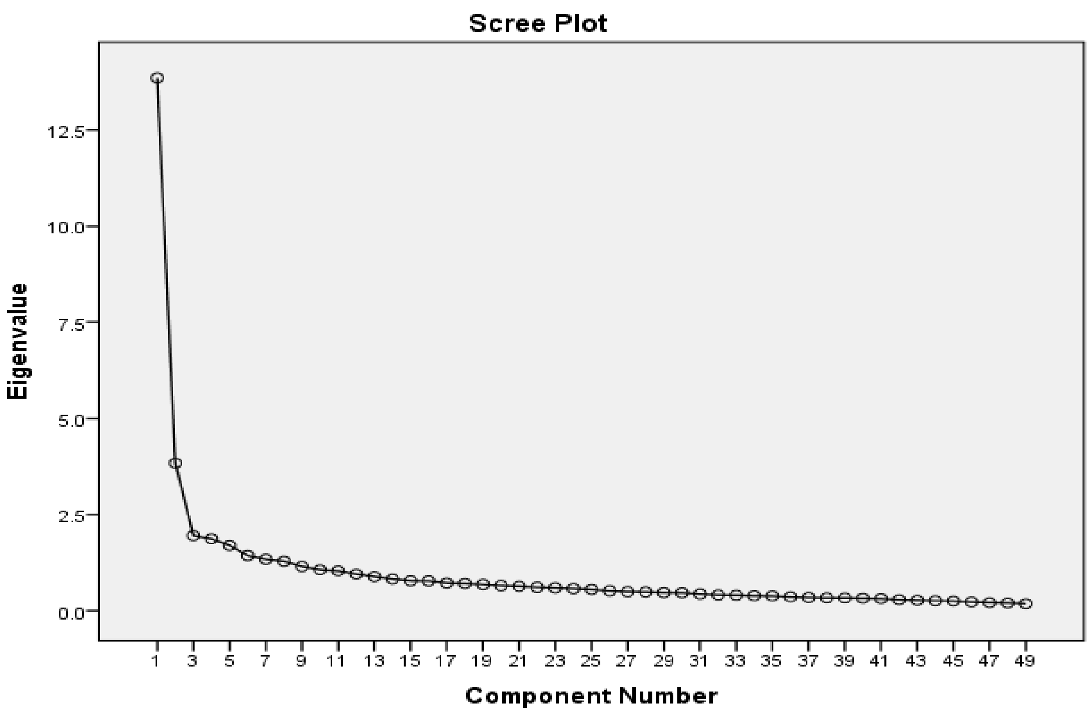


Fig 1: Scree Plot of Quality of Work Life Scale

The analysis revealed that nine factors identified from the factor analysis together explained 58.047 % of the total variance. The Scree plot represented that by laying a straight edge across the bottom portion of the roots, there were nine factors before the curve becomes approximately a straight line. Based on the principal component analysis, the most important nine components of quality of work life identified based on the Eigen values were

1. Employee Development,

2. Autonomy of Work,

3. Total Life Space,
4. Fair Treatment,
5. Attitude of Management,
6. Adequate and Fair Compensation,
7. Work Environment,
8. Organizational Communication, and
9. Job Security.

The communalities derived from the factor analysis were reviewed for assessing the importance of the data through questionnaire for factor analysis. If the factor loadings were greater than 0.5, the data set was considered as appropriate (Stewart 1981); (D R Swamy, 2015). The statements having the factor loading greater than 0.5 were finalized for the scale. In general, higher factor loadings were considered as better, and loadings below 0.3 were not interpreted. As a rule of thumb, loadings above 0.71 are excellent, 0.63 very good, 0.55 good, 0.45 fair, and 0.32 poor (Tabachnick and Fidell 2007), (Kumar G, 2011).

Out of the 49 items in quality of work life questionnaire, eight items having factor loading less than 0.5 were removed from the final scale and thus the Quality of work life scale was finalized with 41 statements under nine components.

The following table 2 shows the Eigen values with respect to the nine components derived.

Table 2 Summary of Factor Analysis of Quality of Work Life Scale

Factors	**Measurable Statements**	**Weights**	**Eigen Values**	**% of Variance**	**Cumulative Variance**
Employee Development	My career is developed. Facilities for self improvement. Opportunities to improve job. Opportunities to develop new skills. Different approaches to work. Work enhances the creativity. Opportunities for career advancement. Satisfied with growth chances. Proper training is given.	0.709 0.686 0.681 0.637 0.628 0.611 0.578 0.550 0.533	5.940	12.122	12.122

Autonomy of Work	Receive adequate freedom in work. Encouraged to experiment with new methods. Freedom to take decisions about job. Opportunities to try innovative ideas. Ideas to make new changes appreciated. Opportunities to express the views in decision making. Periodic changes in duties.	0.824 0.787 0.765 0.695 0.592 0.534 0.521	5.381	10.982	23.104
Total Life Space	Happy with my family life. Time to fulfill my family commitments. Enough time to spend with family Leave for my personal purposes.	0.825 0.801 0.761 0.691	4.020	8.204	31.308
Fair Treatment	Members identified based on skill. Performance appraisal. Freedom to speak and voice opinions frankly. Receive equal treatment.	0.600 0.582 0.570 0.535	2.946	6.012	37.319
Attitude of Management	Treats the employees humanly. Organization is a socially responsible unit. Supports the employees. Policies of the organization are fair, employee oriented.	0.732 0.651 0.577 0.549	2.775	5.663	42.983
Adequate and Fair Compensation	Satisfied with current income. Satisfied with the chances of salary hike in job. Income justified cost of	0.675 0.556 0.520 0.519	2.546	5.197	48.180

	living. Income does not match with the effort taken in job.				
Work Environment	Physically safe in work area. Comfortable work space. Physical work environment enables to work effectively.	0.822 0.783 0.503	1.725	3.521	51.701
Organizational Communication	Clarification about the duties and responsibilities. Adequate clarity and transparency in communication. Correct information about work process and results.	0.633 0.562 0.517	1.558	3.180	54.881
Job Security	Satisfied with the job security. Strive hard to achieve the organization's objectives. Organization enhances social prestige.	0.526 0.514 0.511	1.551	3.166	58.047

Source: SPSS FA Output

After the exploratory factor analysis, the researcher modified the quality of work life scale based on the analysis results. A Confirmatory factor analysis was then done to confirm the components of the Quality of work life scale through Structural Equation Modeling using the Warp PLS 4.0.

Confirmatory Factor Analysis (CFA)

The main objective of conducting the confirmatory factor analysis was to determine the ability of a predefined factor model to fit an observed set of data. It helps to determine the significance of the specific factor loadings and evaluates the convergent and discriminant validity of the data set. The confirmatory factor analysis was done using the Warp PLS 4.0 in the study.

Structural Equation Modelling (SEM)

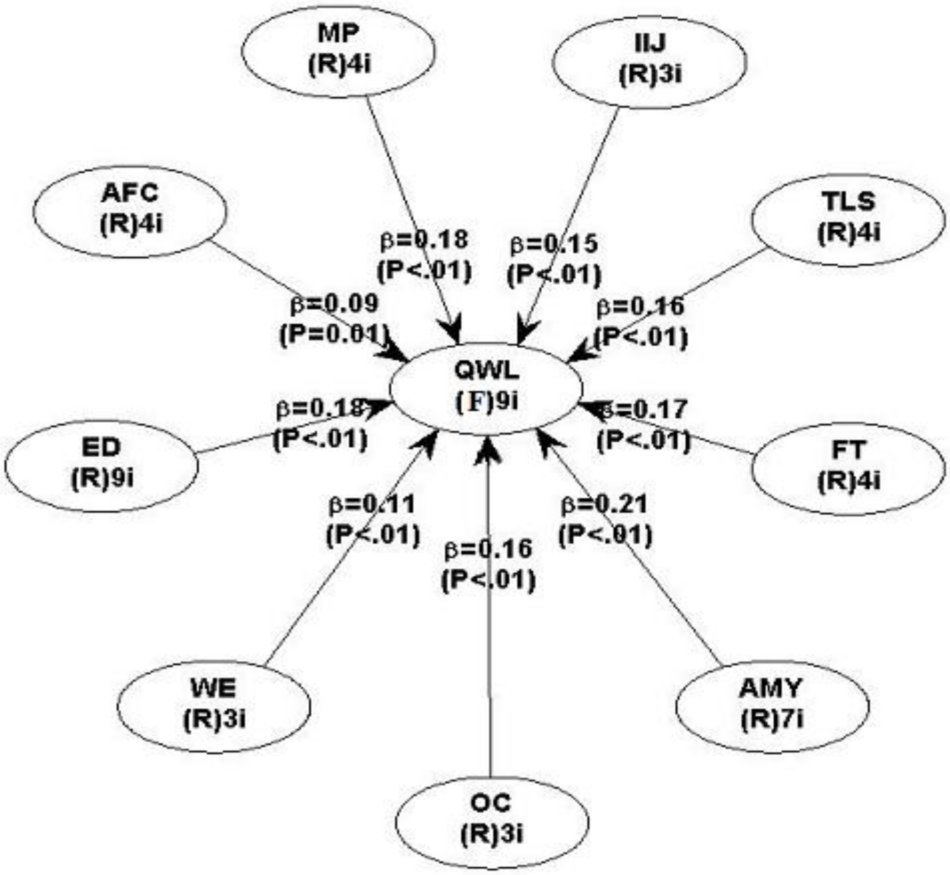
Structural equation modelling is a confirmatory technique used to determine whether the model developed for the study is valid for data and is considered as the appropriate method for testing the hypothesized model for the best fit of the data. It combines both the confirmatory factor analysis and the path analysis. Structural equation modelling involves a number of statistical methodologies to measure a network of causal relationships framed in accordance to a theoretical model, which relates two or more latent complex concepts and each measured through a number of observable indicators. In structural equation modelling, the inner or structural model describes the relationships between the latent variables identified in the study while the outer or measurement model explains the relationships between the latent variables and their indicators. The estimation of both the structural model and measurement model can be done through the Warp PLS 4.0

Partial Least Square Approach

Warp PLS is a powerful Partial Least Squares based SEM software that examines the nonlinear or 'warped' relationships among the latent variables and thereby estimates the path coefficients. Partial least square approach or variance-based approach was adopted in this study, which focuses on maximizing the variance of the dependent variables identified by the independent variables instead of reproducing the empirical co-variance matrix (Haenlein and Kaplan 2004). The PLS based structural equation modelling explains the residual variance of the latent variables and of the manifest variables (indicators) at best in any regression run on the model (Fornell and Bookstein 1982), (Eappan, 2014). The PLS based SEM has two main stages: a PLS regression analysis, whereby weights and loadings are calculated and a path analysis (Kock, 2014).

The Warp PLS 4.0 software standardizes the raw data before proceeding for analysis. Standardized data usually range from -4 to 4 with outliers assuming values towards the right or left of those extremes or sometimes beyond thus ensuring the normal distribution of the data set.

The following figure 2 shows the results of the confirmatory factor analysis:



1. Fig 2: Confirmatory Factor Analysis of Quality of Work Life

The statistical significance of the Quality of work life and its dimensions were important in this study. The path coefficients (β) and the p-values of the relationships were shown in the Figure 2. Since the p-value was less than 0.01, all the paths were significant and all the path coefficients (β) were positive which indicated that any increase in these dimensions will result in an increase in the Quality of work life.

Table 3 The Model Fit Indices of Quality of Work Life Scale

Model Fit indices and P values
APC= 0.156, P value < 0.001
ARS= 0.992, P value < 0.001
AVIF= 1.773, Acceptable <= 5

Source: Warp PLS 4.0 Output

It is suggested that the p-values for the Average Path Coefficient (APC) and Average R Squared (ARS) be lower than 0.05 to assess a model to be fit. Moreover, the Average Variance Inflation Factor (AVIF) should be lower than 5 (Ned Kock, 2014)(Eappan, 2014). All the three criteria were met in this model and hence assumed that the model represented the data.

Validation of Quality of Work Life Scale

Validity refers to the ability of an instrument to measure what it is supposed to measure. Face validity indicated that the questionnaire included a representative set of items that measured the concept and, in its appearance, adequate coverage of the concepts was ensured thus establishing the face validity of the questionnaire. The questionnaire drafted for the study was reviewed by a panel of experts and their suggestions were incorporated thus establishing the content validity.

Criterion validity can be established by the predictive or the concurrent validity. Churchill (1979) viewed predictive validity as an essential measure, but Rossiter (2011) argued that it can be desirable but not essential for validity, by definition, is internal to the measure and hence validity need not be established externally by revealing that scores on the measure predict those from another measure. During the data analysis and model testing, the predictive validity was established in the study. The Q squared coefficient of the QWL in the above model was 0.992 (this value was provided for the endogenous or dependent variable). The Q squared coefficient also known as Stone-Geisser Q squared coefficient, reflects the predictive validity associated with the latent variable. The accepted predictive validity suggested by a Q squared coefficient should be greater than zero (Ned Kock, 2014)(Kock, 2014). Since the value (0.992) was greater than zero, the predictive validity of the model was established. Another form of predictive validity is Nomological validity, which is not essential, though merely desirable in a measure (Rossiter 2011) (Eappan, 2014).

Construct validity indicated the effectiveness of the operationalization of theoretical concepts in the measurement of the construct. It expresses how well the results obtained from the use of the measures fit in the theories around which the test was designed. The convergent validity and discriminant validity are a measure of this validity (Kumar G, 2011).

Convergent validity ensures whether the scale was correlated with other known measures of the concept. It was used to establish that the responses to the questions were sufficiently correlated with the respective latent variables. A measurement instrument was considered to have good convergent validity if the question- statements associated with each latent variable were understood by the respondents in the same way as they were intended by the designers of the question- statement (Kock, 2014). The measurement model has acceptable convergent validity if it satisfies two criteria: p-values associated with the loadings should be lower than 0.05 and loadings for indicators of all respective latent variables must be 0.5 or above (Hair et al 2009) (Eappan, 2014). In the QWLS, the loadings related to each latent variables were higher while the cross loadings were low (shown in Appendix). Moreover, the factor loadings related to the latent variables were above 0.5 and the p-values were lower than 0.01 and hence the scale has acceptable convergent validity.

Discriminant validity checks whether the scale is sufficiently different from other similar concepts to be distinct. It verifies whether the responses given by the respondents were correlated with the other latent variables. The square root of the Average Variance Extracted

(AVE) for each latent variable should be higher than any of the correlations between the latent variables under study and any other latent variables in the measurement model to establish the discriminant validity (Fornell and Larcker 1981), (Eappan, 2014). The square roots of the average variance extracted were shown on the diagonal of the latent variable correlation table 4. Since the value of the average variance extracted was higher than any other values above or below or to its right or left, the discriminant validity of the model was ensured.

Table 4. Correlations among Latent Variables with the Square roots of AVEs

Items	**WE**	**OC**	**AMY**	**ED**	**FT**	**TLS**	**JS**	**AM**	**AFC**
WE	**0.801**	0.338	0.452	0.426	0.132	0.197	0.254	0.353	0.337
OC	0.338	**0.777**	0.487	0.352	0.398	0.400	0.403	0.431	0.271
AMY	0.452	0.487	**0.708**	0.428	0.362	0.429	0.433	0.244	0.319
ED	0.426	0.352	0.428	**0.702**	0.466	0.383	0.450	0.490	0.366
FT	0.132	0.398	0.362	0.466	**0.835**	0.425	0.300	0.475	0.158
TLS	0.197	0.400	0.429	0.383	0.425	**0.833**	0.471	0.374	0.104
JS	0.254	0.403	0.433	0.450	0.300	0.471	**0.747**	0.456	0.148
AM	0.353	0.431	0.244	0.490	0.475	0.374	0.456	**0.757**	0.342
AFC	0.337	0.271	0.319	0.366	0.158	0.104	0.148	0.342	**0.693**

Source: Warp PLS 4.0 Output

Thus, it can be understood that the validity of the quality of work life scale is established. The model indicated that all the path coefficients significantly contributed to the variable quality of work life and thus confirms the factors contributing to the quality of work life.

Reliability Test

The reliability of an instrument indicates the extent to which the instrument yields the same results on repeated trials. If a tendency of consistency was found on repeated measurements, it can be referred to as reliability. External reliability was measured using the test-retest method. If the two tests produce the same results, which mean the studied variable does not fluctuate greatly overtime, the scale is said to be reliable. Internal reliability was used to indicate the homogeneity of the items in the scale to measure the construct. The Cronbach's alpha coefficient and the composite reliability (which was used to measure the overall reliability of a collection of heterogeneous but similar items) were used in the study to assess the reliability of the scale. The Cronbach's alpha is an index used for measuring reliability associated with the variation accounted for by the true score of the underlying construct. The following table 5 shows the reliability of the scale developed for the study:

Table 5. Reliability analysis of the Scale

Scale	Variables	Cronbach's Alpha Value	Composite Reliability Value	No: of Item
Quality of Work Life Scale	Employee Development	0.869	0.896	9
	Fair Treatment	0.855	0.902	4
	Total Life Space	0.852	0.901	4
	Autonomy of Work	0.830	0.874	7
	Attitude of Management	0.752	0.843	4
	Working Environment	0.717	0.840	3
	Organizational Communication	0.669	0.820	3
	Job Security	0.643	0.791	3
	Adequate and Fair Compensation	0.603	0.766	4
Quality of Work Life Scale (Overall)		**0.849**	**0.883**	**41**

Source: primary Data

The composite reliability ranged from 0.751 to 0.902 and the Cronbach's alpha coefficient was ranged from 0.603 to 0.869 as seen in the table 5. According to Field (2005) the values between 0.7 and 0.8 of Cronbach's alpha are acceptable values of consistency. The generally agreed upon lower limit for Cronbach's alpha value is 0.7 (Straub, Boudreau and Gefen 2004), though it may decrease to 0.6 (Hair et al 2009) in the case of exploratory research. Here the Cronbach's alpha values were all above 0.6 and hence conclude that the scale is reliable. The generally accepted threshold of the composite reliability was above 0.7 (Fornell and Larcker 1981) and here all the values were above 0.7. A more conservative approach to verify reliability was that one of the two coefficients should be equal or greater than 0.7 (Eappan, 2014). The reliability of the scale was thus ensured since the above criterion was met.

CONCLUSION

The scale for measuring quality of work life among the employees working in the IT sector in Kerala was thus validated. The scale had 41 items under 9 constructs for assessing the work life quality of the IT employees. The validity and reliability criteria were met by the qwl scale and hence it can be used for measuring the quality of work life of the IT employees. Using the warp PLS, structural equation modelling was done which indicated that the model represented the data set. Thus, it can be concluded that the quality of work life scale is appropriate for determining work life quality of the IT employees.

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Appendix

1. Results of Exploratory Factor Analysis through SPSS 20:

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.929
Bartlett's Test of Sphericity	Approx. Chi-Square	12911.251
	Df	1176
	Sig.	.000

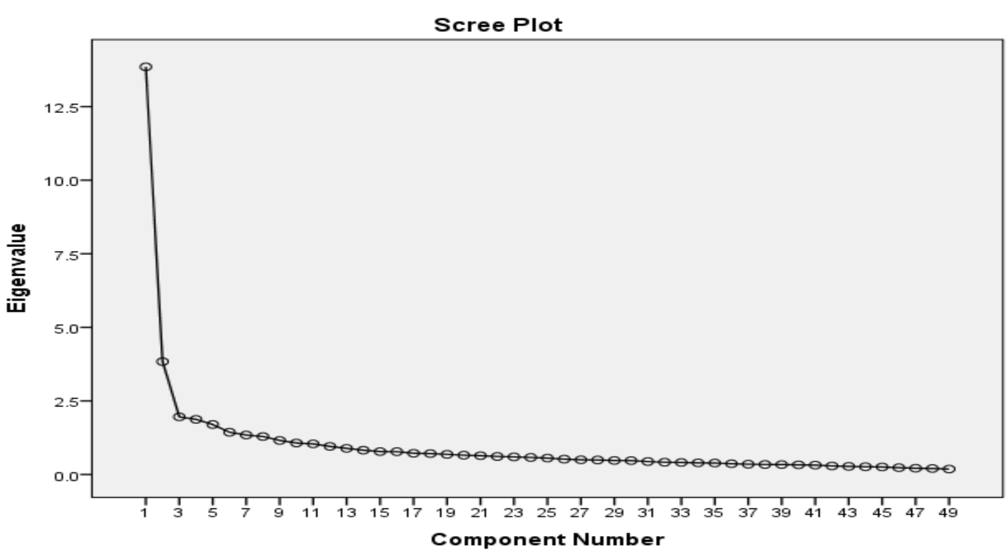
Source: SPSS FA Output

Table Total Variance Explained - QWL

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	13.852	28.269	28.269	13.852	28.269	28.269	5.940	12.122	12.122
2	3.837	7.830	36.099	3.837	7.830	36.099	5.381	10.982	23.104
3	1.959	3.997	40.096	1.959	3.997	40.096	4.020	8.204	31.308
4	1.874	3.824	43.920	1.874	3.824	43.920	2.946	6.012	37.319
5	1.698	3.466	47.386	1.698	3.466	47.386	2.775	5.663	42.983
6	1.435	2.930	50.315	1.435	2.930	50.315	2.546	5.197	48.180
7	1.341	2.737	53.053	1.341	2.737	53.053	1.725	3.521	51.701
8	1.291	2.635	55.687	1.291	2.635	55.687	1.558	3.180	54.881
9	1.086	2.360	58.047	1.156	2.360	58.047	1.551	3.166	58.047
10	1.071	2.185	60.232						
11	.941	2.024	62.355						
12	.915	1.950	64.305						
13	.888	1.813	66.117						
14	.825	1.684	67.801						
15	.779	1.590	69.391						
16	.776	1.583	70.974						
17	.721	1.472	72.446						
18	.710	1.449	73.895						
19	.685	1.398	75.293						
20	.656	1.339	76.632						
21	.640	1.306	77.938						
22	.612	1.249	79.187						
23	.598	1.220	80.408						
24	.578	1.180	81.588						
25	.558	1.138	82.726						
26	.522	1.066	83.792						
27	.499	1.018	84.810						
28	.493	1.006	85.816						
29	.476	.971	86.786						

30	.470	.959	87.745						
31	.440	.897	88.643						
32	.417	.851	89.493						
33	.408	.832	90.326						
34	.396	.808	91.133						
35	.389	.794	91.927						
36	.366	.746	92.673						
37	.349	.713	93.386						
38	.341	.695	94.081						
39	.337	.688	94.769						
40	.328	.670	95.439						
41	.317	.648	96.087						
42	.291	.594	96.681						
43	.275	.561	97.242						
44	.264	.538	97.780						
45	.256	.523	98.303						
46	.231	.471	98.773						
47	.212	.432	99.205						
48	.205	.418	99.623						
49	.185	.377	100.000						

Extraction Method: Principal Component Analysis. Source: SPSS FA Output



Scree Plot of Quality of work life

2. Results of Confirmatory Factor Analysis through Warp PLS 4.0:

2.1 Model fit and quality indices: Quality of Work Life Scale

Average path coefficient (APC) =0.156, P<0.001

Average R-squared (ARS) =0.992, P<0.001

Average adjusted R-squared (AARS) =0.992, P<0.001

Average block VIF (AVIF) =1.773, acceptable if <= 5, ideally <= 3.3

Tenenhaus GoF (GoF) =0.753, small >= 0.1, medium >= 0.25, large >= 0.36

Sympson's paradox ratio (SPR) =1.000, acceptable if >= 0.7, ideally = 1

R-squared contribution ratio (RSCR) =1.000, acceptable if >= 0.9, ideally = 1

Statistical suppression ratio (SSR) =1.000, acceptable if >= 0.7

Nonlinear bivariate causality direction ratio (NLBCDR) =1.000, acceptable if >= 0.

2.2 Path coefficients

	WE	OC	AW	ED	FT	TLS	JS	AM	AFC	QWL
WE										
OC										
AW										
ED										
FT										
TLS										
JS										
AM										
AFC										
QWL	0.107	0.164	0.206	0.179	0.168	0.162	0.151	0.180	0.085	

2.3 P values

	WE	OC	AW	ED	FT	TLS	JS	AM	AFC	QWL
WE										
OC										
AW										
ED										
FT										
TLS										
JS										
AM										
AFC										
QWL	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.012	

2.4 Standard errors for path coefficients

	WE	OC	AW	ED	FT	TLS	JS	AM	AFC	QWL
WE										
OC										
AW										
ED										

FT										
TLS										
JS										
AM										
AFC										
QWL	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	

2.5 Combined Loadings and Cross Loadings – Quality of Work Life Scale

Items	**AFC**	**WE**	**OC**	**AW**	**ED**	**FT**	**TLS**	**JS**	**AM**	**P Value**
AFC 1	**(0.857)**	0.524	0.306	0.556	0.417	0.226	0.346	0.572	0.631	**<0.001**
AFC 2	**(0.524)**	-0.489	-0.531	-0.348	-0.285	-0.353	-0.327	-0.194	-0.358	**<0.001**
AFC 3	**(0.745)**	0.179	0.248	0.264	0.423	0.465	0.215	0.212	0.169	**<0.001**
AFC 4	**(0.755)**	0.405	0.367	0.408	0.268	0.252	0.513	0.328	0.414	**<0.001**
WE1	-0.024	**(0.876)**	-0.123	-0.017	-0.036	-0.186	-0.170	-0.084	-0.171	**<0.001**
WE2	0.165	**(0.881)**	0.220	0.216	0.147	0.135	0.090	0.204	0.196	**<0.001**
WE3	-0.201	**(0.618)**	-0.139	-0.283	-0.158	0.070	0.113	-0.173	-0.037	**<0.001**
OC1	0.190	0.517	**(0.826)**	0.612	0.512	0.705	0.519	0.514	0.590	**<0.001**
OC2	0.552	0.811	**(0.818)**	0.156	0.199	0.118	0.058	0.132	0.203	**<0.001**
OC3	-0.896	-0.606	**(0.679)**	-0.097	-0.159	-0.205	-0.905	-0.188	-0.046	**<0.001**
AW1	-0.701	-0.037	0.129	**(0.549)**	-0.594	-0.220	-0.302	-0.215	-0.665	**<0.001**
AW2	-0.337	-0.426	-0.695	**(0.668)**	-0.136	-0.563	-0.595	-0.589	-0.385	**<0.001**
AW3	0.005	-0.303	-0.335	**(0.730)**	-0.413	-0.577	-0.389	-0.318	-0.403	**<0.001**
AW4	0.080	0.265	0.309	**(0.785)**	0.447	-0.508	0.391	0.341	0.511	**<0.001**
AW5	0.104	0.184	0.215	**(0.802)**	0.348	0.413	0.154	0.235	0.226	**<0.001**
AW6	0.244	0.383	0.606	**(0.755)**	0.676	0.046	0.581	0.704	0.509	**<0.001**

AW7	0.436	0.279	0.367	**(0.632)**	0.255	0.068	0.331	0.226	0.076	**<0.001**
ED1	-0.274	-0.077	-0.247	-0.116	**(0.633)**	-0.086	-0.063	-0.178	-0.166	**<0.001**
ED2	-0.104	-0.035	-0.170	-0.098	**(0.747)**	-0.141	-0.229	-0.156	0.018	**<0.001**
ED3	-0.005	0.240	0.238	0.459	**(0.721)**	0.472	0.280	0.246	0.408	**<0.001**
ED4	0.280	0.156	0.236	0.226	**(0.789)**	0.264	0.326	0.213	0.267	**<0.001**
ED5	-0.062	0.319	0.135	0.108	**(0.773)**	0.133	0.228	0.018	0.069	**<0.001**
ED6	0.390	0.357	0.492	0.432	**(0.673)**	0.345	0.422	0.516	0.249	**<0.001**
ED7	-0.035	-0.050	0.146	-0.085	**(0.670)**	0.002	-0.082	0.010	-0.045	**<0.001**
ED8	-0.400	-0.206	-0.173	-0.476	**(0.573)**	-0.384	-0.241	-0.044	-0.179	**<0.001**
ED9	0.262	0.023	0.089	0.231	**(0.712)**	0.188	0.080	0.161	0.099	**<0.001**
FT1	0.087	0.050	0.131	0.193	0.258	**(0.857)**	0.091	0.138	0.176	**<0.001**
FT2	0.018	-0.083	-0.068	0.056	-0.088	**(0.854)**	-0.085	-0.030	-0.165	**<0.001**
FT3	-0.160	-0.213	-0.388	-0.419	-0.390	**(0.829)**	-0.304	-0.333	-0.291	**<0.001**
FT4	0.053	0.256	0.355	0.168	0.222	**(0.799)**	0.310	0.229	0.289	**<0.001**
TLS1	0.115	0.533	0.642	0.593	0.562	0.604	**(0.815)**	0.566	0.645	**<0.001**
TLS2	0.078	-0.061	0.025	0.042	0.129	-0.008	**(0.887)**	0.002	-0.022	**<0.001**
TLS3	0.044	-0.186	-0.149	-0.114	-0.079	-0.044	**(0.869)**	-0.175	-0.203	**<0.001**
TLS4	-0.267	-0.288	-0.551	-0.559	-0.667	-0.591	**(0.756)**	-0.411	-0.437	**<0.001**
JS1	0.255	0.171	0.448	0.385	0.539	0.157	0.299	**(0.742)**	0.430	**<0.001**
JS2	0.356	0.516	0.666	0.546	0.622	0.194	0.296	**(0.783)**	0.511	**<0.001**
JS3	-0.655	-0.592	-0.721	-0.175	-0.649	-0.161	-0.134	**(0.715)**	-0.168	**<0.001**
AM1	0.019	0.056	0.078	0.117	-0.105	0.335	0.196	0.221	**(0.731)**	**<0.001**

AM2	0.082	0.211	0.285	0.205	0.193	0.285	0.049	0.278	**(0.765)**	**<0.001**
AM3	-0.066	-0.309	-0.345	-0.386	-0.123	-0.584	-0.309	0.394	**(0.768)**	**<0.001**
AM4	-0.034	0.046	-0.012	0.070	0.031	-0.017	0.074	-0.093	**(0.765)**	**<0.001**

2.6 Structure loadings and cross-loadings

	WE	OC	AW	ED	FT	TLS	JS	AM	QWL	AFC
WE1	0.876	0.236	0.377	0.363	0.010	0.065	0.160	0.235	0.399	0.301
WE2	0.881	0.224	0.309	0.274	-0.031	0.028	0.134	0.239	0.353	0.315
WE3	0.618	0.399	0.434	0.422	0.441	0.482	0.375	0.426	0.618	0.175
OC1	0.257	0.826	0.363	0.382	0.423	0.325	0.298	0.328	0.553	0.136
OC2	0.251	0.818	0.396	0.469	0.441	0.383	0.398	0.382	0.619	0.226
OC3	0.286	0.679	0.382	0.443	0.283	0.211	0.234	0.291	0.513	0.285
AW1	0.427	0.421	0.549	0.442	0.255	0.287	0.217	0.294	0.520	0.280
AW2	0.343	0.350	0.668	0.313	0.443	0.403	0.369	0.330	0.567	0.186
AW3	0.364	0.346	0.730	0.449	0.289	0.233	0.288	0.383	0.558	0.357
AW4	0.310	0.354	0.785	0.482	0.428	0.367	0.353	0.476	0.624	0.178
AW5	0.390	0.336	0.802	0.499	0.263	0.229	0.288	0.392	0.568	0.250
AW6	0.208	0.368	0.755	0.451	0.527	0.396	0.402	0.442	0.624	0.154
AW7	0.227	0.262	0.632	0.441	0.313	0.217	0.212	0.359	0.476	0.196
ED1	0.297	0.389	0.473	0.633	0.423	0.399	0.373	0.361	0.585	0.130
ED2	0.375	0.391	0.489	0.747	0.312	0.219	0.319	0.433	0.588	0.290
ED3	0.301	0.439	0.553	0.721	0.481	0.386	0.395	0.464	0.657	0.181
ED4	0.304	0.416	0.460	0.789	0.363	0.314	0.329	0.385	0.609	0.382
ED5	0.430	0.429	0.472	0.773	0.332	0.327	0.300	0.327	0.596	0.211
ED6	0.303	0.351	0.360	0.673	0.217	0.197	0.277	0.220	0.472	0.330
ED7	0.232	0.398	0.353	0.670	0.283	0.190	0.268	0.270	0.476	0.198
ED8	0.147	0.314	0.280	0.573	0.202	0.149	0.295	0.281	0.410	0.198
ED9	0.261	0.352	0.450	0.712	0.317	0.223	0.297	0.335	0.539	0.366
FT1	0.117	0.444	0.477	0.467	0.857	0.518	0.438	0.446	0.662	0.167
FT2	0.117	0.430	0.485	0.408	0.854	0.523	0.440	0.376	0.640	0.168
FT3	0.107	0.374	0.388	0.354	0.829	0.515	0.396	0.395	0.590	0.126
FT4	0.098	0.413	0.349	0.323	0.799	0.532	0.392	0.367	0.566	0.062
TLS1	0.179	0.347	0.335	0.276	0.516	0.815	0.403	0.324	0.534	-0.032
TLS2	0.161	0.376	0.407	0.404	0.554	0.887	0.414	0.330	0.612	0.152
TLS3	0.085	0.306	0.337	0.312	0.554	0.869	0.350	0.258	0.533	0.122
TLS4	0.243	0.302	0.351	0.278	0.451	0.756	0.407	0.342	0.538	0.100
IIJ1	0.207	0.355	0.360	0.429	0.318	0.302	0.742	0.399	0.544	0.204
IIJ2	0.229	0.361	0.380	0.325	0.478	0.411	0.783	0.394	0.577	0.119
IIJ3	0.130	0.181	0.225	0.254	0.317	0.339	0.715	0.225	0.407	0.003
AM1	0.171	0.309	0.384	0.268	0.485	0.408	0.427	0.731	0.559	0.171
AM2	0.283	0.347	0.392	0.354	0.344	0.214	0.356	0.765	0.540	0.246
AM3	0.328	0.346	0.442	0.496	0.270	0.228	0.304	0.768	0.575	0.379

AM4	0.283	0.302	0.429	0.360	0.346	0.289	0.300	0.765	0.543	0.236
AFC1	0.213	0.179	0.207	0.246	0.046	-0.011	0.077	0.265	0.275	0.857
AFC2	-0.003	-0.155	-0.140	-0.084	-0.209	-0.266	-0.160	-0.129	-0.156	0.524
AFC3	0.256	0.291	0.324	0.399	0.276	0.175	0.184	0.292	0.436	0.745
AFC4	0.367	0.252	0.305	0.287	0.149	0.196	0.161	0.325	0.404	0.755

2.7 R-squared coefficients

WE	OC	AW	ED	FT	TLS	JS	AM	QWL	AFC
								0.992	

2.8 Adjusted R-squared coefficients

WE	OC	AW	ED	FT	TLS	JS	AM	QWL	AFC
								0.992	

2.9 Average variances extracted

WE	OC	AW	ED	FT	TLS	JS	AM	AFC	QWL
0.642	0.604	0.501	0.493	0.698	0.694	0.558	0.574	0.481	0.466

2.10 Q-squared coefficients

WE	OC	AW	ED	FT	TLS	JS	AM	QWL	AFC
								0.992	