A Structural Equation Model-I for Work-Life Balance of IT professionals in Chennai

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Abstract
The study developed and tested a model of work life balance of IT professionals employing structural equation modeling (SEM) as the primary statistical technique to analyze the relationship among the constructs used which consisted of work demand, family demand, work interference with personal life (WIPL), personal life interference with work (PLIW), satisfaction with work-life balance and improved effectiveness at work (IEW) on a total of 387 respondents working in IT organizations in Chennai. The model fit the data well and hypotheses are generally supported which leads to the assertion that IT employees experience WIPL more than they do PLIW, since the magnitude of impact of work demand is more on WIPL. There is a direct positive relationship between satisfaction with work-life balance and improved effectiveness at work indicating that as the satisfaction with WLB increases, so also the effectiveness at work increases.

Keywords: Work Life Balance, WLB Measurement, SEM model, IT Professionals.

1.0 Introduction
IT professionals encounter mercurial swings in both global and local cycles and events, almost on a daily basis and working under pressure, working across time zones and working on real time, indefinite and flexible work hours are the key differentiators (D'Mello, 2006). These IT professionals also enjoy considerable labor market power in recent years, a situation that has encouraged mobility across organizations rather than promoting loyalty to a single organization (D'Mello, 2005). Work life is highly complicated and highly demanding, with far too many pulls and pressures. There are too many commitments and deadlines to meet and unpredictable peaks and troughs. All these things make work hectic activity and strenuous. The combination of ever-increasing demands at the workplace and the demands at home are causing imbalances in work-life (Vasudha, 2010; Sujatha, 2010). Work life balance (WLB) is the separation between work life and personal life of an employee in the organization. WLB is advocated to achieve a more harmonious balance between their work responsibilities and their private responsibilities and personal interests and achieving balance needs to be considered from multiple perspectives (Hudson, 2005). As noted by Guest (2002), the decline of work as central life interest along with conflicting demands of work results in an imbalance between work and rest of life as the determinants of work life balance are located in the work and home contexts. Finding the balance between career and personal life has always been a challenge to IT professionals. A “good” work-life balance is defined as a situation in which workers feel that they are capable of balancing their work and non-work commitments, and, for the most part, do so (Moore, 2007). Workers' everyday experiences showed that work and family are both sources of growth and support as well as burdens and strains (Barnett, 1998; Barnett and Hyde, 2001; Crouter, 1984). In the recent years, it is being realized that life involves multiple domains and is not restricted to the domains of work and family only. All this is blurring the work life and personal life and IT professionals face problems of work life imbalance which prompted to identify the variables influencing the WLB of IT professionals in Chennai and measure their interrelationship, and develop a WLB model.

2.0 Literature Review
Scholars have produced a considerable body of theoretical approaches to WLB and its typologies (Johanna Rantanen et al., 2011) and review literature (Raisinghani and Goswami, 2014; Poulouse and Sudarsan, 2014; Frone, 2003; Walia, 2012 Chapters 1 & 2) in the domain of WLB and the conceptual relationship between various variables and constructs which affect the work life balance policies in the organization. Several models have been propounded to explain the work family linkage (Fisher-McAuley et al.; 2003, Jang, 2008). The most popular view of relationship between work and family was put forth by Spillover theory. Several researchers suggested that workers carry the emotions, attitudes, skills and behaviors that they establish at work into their family life and vice-versa. Spillover can be positive or negative. Positive spillover refers to fact that satisfaction and achievement in one domain may bring along satisfaction and achievement in another domain. Negative spillover refers to the fact that difficulties and depression in one domain may bring along the same emotion in another domain (Walia 2012, Chapter 1, p11). Haar and Bardoe (2007) provided support to assess the influence of positive and negative spillover on outcomes from both the work-family and family-work directions. A number of conceptual models of work life balance/work family conflict/work family enrichment have been proposed (Walia 2012, Chapter 1, p12; Anafarta 2011). Traditionally, one of the most studied concepts in the
work-personal life issues is work-family conflict and extensive research in WLB measurement is based on work family conflict (Michel et al. 2009; Boyar et al. 2008; Noor 2003). This study seeks to gain a better understanding of interrelationship of demographic, personality and work-and family-related variables included in our model.

3.0 Methodology

3.1 Conceptual definitions of model variables

Causes, resources and consequences are identified to be the aspects of work-life balance from the literature, relevant to this study. Therefore the study seeks to understand the aspects of work-life balance which include the causes (determinants) such as Work Demand (WD) and Family Demand (FD), resource such as Work Place Support (WPS) and consequences such as Work Interference with Personal Life (WIPL), Personal Life Interference with Work (PLIW), Satisfaction with Work-Life Balance (SWLB) and Improved Effectiveness at Work (IEW). Demands are defined as structural or psychological claims to which individuals must respond or adapt by exerting physical or mental effort. Work related demands contribute to work interference with personal life (WIPL) and family demand is positively related to personal life interference with work (PLIW). Causes contribute towards work-life balance or imbalance. Demands are generally seen as causing interferences and resource (Work Place Support) result in facilitation. Facilitation occurs when engagement in work and home roles contribute positively to and benefit each other. Alternatively, interferences occur when the demand of work and family roles are incompatible in some respect so that meeting the demands in one domain(work or family life) makes it difficult to meet the demands in the other domain. Further, lower levels of interferences and higher levels of resources are likely to be associated with higher levels of work-life satisfaction. Improved effectiveness at work (IEW) can thus considered to be the consequence of satisfaction with work-life balance(SWLB). SWLB is a newly developed construct adapted from Valcour, 2007, defined as an overall level of contentment resulting from assessment of one’s degree of success at meeting work and non-work role demands and it is most suitable construct in evaluating an employee’s work-life balance. Guest (2002) gave a model outlining the causes, nature and consequences of a work-life balance citing recent research to illustrate the various dimensions. The work-life balance construct can be measured in a variety of ways. This study seeks to assess the influence of exogenous variables on endogenous variables of work-life balance and purports to see how these variables interact to create an effect on work-life balance of IT professionals. The exogenous variables identified for this study are Work Demand (WD), Family Demand (FD) and Work Place Support (WPS). The endogenous variables include Work Interference with Personal Life (WIPL), Personal Life Interference with Work (PLIW), Satisfaction with Work-Life Balance(SWLB) and Improved Effectiveness at Work (IEW).

3.2 Data Collection/Measures

WLB was measured with an instrument reported elsewhere comprising of 46 statements with five factors developed and validated for the purpose of measuring the WLB of IT professionals in Chennai (Banu and Duraipandian, 2014). The data for this study was gathered through survey method. Out of the 600 questionnaires distributed, 387 duly filled up questionnaires were returned yielding a response rate of 64.5%. Non-random sampling method was adopted. To test the hypotheses, SEM using AMOS 16.0 was conducted. SEM is a confirmatory method providing “a comprehensive means for assessing and modifying theoretical models”. SEM was conducted using the two-stage approach recommended by Anderson 1988. The aim of the first stage (measurement model) is to specify the causal relationships between the observed variables (items) and the underlying theoretical constructs (composite and latent variables) and provide reliable and valid constructs, while the aim of the second stage is to test the hypotheses that reflect the relationships between these theoretical constructs. The model fit was determined through goodness-of-fit indices.

4.0 Findings and Discussion

4.1 Theoretical model

The initial theoretical model proposed in Figure 1 is constructed by taking all the exogenous and endogenous variables. Two of the exogenous variables, namely, work demand (WD) and family demand (FD) are found to be positively associated with the endogenous variables, namely, work interference with personal life (WIPL) and personal life interference with work (PLIW) whereas the other exogenous variable, namely, work place support (WPS) is found to be negatively associated with the endogenous variables, namely, work interference with personal life (WIPL) and personal life interference with work (PLIW). For this reason, further modification to the initially proposed theoretical model could not be done, and hence the initial theoretical model proposed in Figure 1 could not fit as a whole to the conceptual framework. There is no blue print for any specific model of work-life balance in the literature and work-life balance is the key mediating mechanism which has a positive relationship with improved effectiveness at work (IEW) in this study.
Figure 1: The proposed theoretical model of the variables

WD=work demand, q1=designation, q6=average annual income, q7=working hours, q8=travel outside location, q9=total experience.

FD=family demand, q2=marital status, q3=spouse employment, q4=children profile, q5=dependents other than children, q10=commuting time.

WPS=work place support, WIPL=work interference with personal life, PLIW=personal life interference with work, SWLB=satisfaction with work life balance, IEW=Improved effectiveness at work.

4.2 Variables
Yang et al., 2000 define work demand as ‘pressures arising from excessive work load and typical workplace time pressures such as rush jobs and deadlines’. Family demand is what one experiences in family life and what has effects on his/her life balance can be given as the demand of work load and time, role expectations in the family and support to be given to the spouse. Variances such as marriage, child-raising, caring of the elderly at home have effect on work-life balance since they demand more family responsibilities (Erdem and Karakose, 2007; Saltzstein et al., 2001). Work demand and family demand are foremost among the most important yet problematic factors surround work interference with family and family interference with work. Specifically, there has been inadequate conceptual work and measurement on these demand constructs, which has led to a lack of explicit consideration in work-family conflict models. Moreover, definitions of work demand or family demand have been ambiguous or too narrow. Researchers claimed to have measured work or family demand when they actually measured hours worked, or number of children (Boyar et al., 2008, p217). The demographic variables of age and marital status were chosen because they have been found to be related to well-being (Noor, 2003, p301). The work-related variables included were number of work hours, number of years in the present employment, total number of years worked which were objective and straightforward measures (Noor, 2003, p302). Despite its importance, work demand and family demand have been poorly conceptualized and rarely directly measured. Hence work demand and family demand are construed as categorical variables in this study and measured as either ‘binary’ or ‘ordinal’ or ‘continuous’ variables. The description of the variables (indicator) selected to analyze work demand and family demand is given in Table 1.
Out of the three exogenous variables—WD, FD, WPS, work demand (WD) and family demand (FD) are
categorical exogenous variables (or WD and FD are latent variables that are not directly measured but through a
set of observed variables also called indicators). Categorical variables are those with two values (i.e., binary,
dichotomous) or those with a few ordered categories. Examples might include gender or variables with few
response options like “never,” “sometimes,” or “always.” Continuous variables are variables measured on a ratio
or interval scale, such as income (Newsom, USP 655 SEM Winter 2012; Matuska, 2010). In structural equation
analysis, the term “categorical variable” usually means an ordinal variable, rather than a nominal or “truly
categorical” variable (e.g., Marital Status, with categories such as Single, Married, Divorced, etc.), and there is
no provision for truly categorical variables. In regression, a (truly) categorical variable is estimated using
“dummy” variables. This same approach might be used in SEM (Ping, 2008). Ten items or variables (or
observed variable or indicator variable) derived from the demographic data have been selected to inves-
tigate the relationships of work demand and family demand. The lack of additional meaningful WD and FD indicators
represents a limit of this analysis. However, SEM with categorical variables requires the use of specific
estimation methods and the theory is still under development (Bartolo, 1999).

4.3 Measurement model
The measurement model is “the portion of the model that specifies how categorical variable depends on the
indicator variables”, and aims to specify which indicator items correspond to each categorical variable.
Accordingly, the measurement model specifies the pattern by which each measure is loaded onto a particular
categorical variable. Thus, Work demand was measured by five questionnaire items, labeled q1, q6, q7, q8, q9
and the family demand was measured by five questionnaire items labeled q2, q3, q4, q5 and q10, the descrip-
tion of which is given in Table 1 and the standardized estimates presented in Table 1 are statistically significant and
positively associated with work demand and family demand.

Table 1: Estimates of Measurement Model

<table>
<thead>
<tr>
<th>Q.No.</th>
<th>Work Demand Indicators</th>
<th>Estimates</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Designation</td>
<td>0.810</td>
</tr>
<tr>
<td>6</td>
<td>Annual Income</td>
<td>0.670</td>
</tr>
<tr>
<td>7</td>
<td>Working hours</td>
<td>0.920</td>
</tr>
<tr>
<td>8</td>
<td>Travel outside home location</td>
<td>0.766</td>
</tr>
<tr>
<td>9</td>
<td>Total experience</td>
<td>0.534</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q.No.</th>
<th>Family Demand Indicators</th>
<th>Estimates</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Marital Status</td>
<td>0.828</td>
</tr>
<tr>
<td>3</td>
<td>Spouse Employment</td>
<td>0.767</td>
</tr>
<tr>
<td>4</td>
<td>Children profile</td>
<td>0.486</td>
</tr>
<tr>
<td>5</td>
<td>Dependents other than Children</td>
<td>0.670</td>
</tr>
<tr>
<td>10</td>
<td>Commuting time</td>
<td>0.608</td>
</tr>
</tbody>
</table>

The results of the goodness of fit of the measurement model are presented in Table 2. While RMSEA
is slightly over the threshold of 0.08 (MacCallum and Browne, 1993 suggest a value of up to 1.0), other indices
are within the recommended threshold levels, indicating an acceptable fit. The model fits the data adequately.
Reliability of the underlying variables was assessed using Cronbach’s (1951) coefficient alpha, one of the most
common methods in gauging reliability. Reliability is the degree to which measures are free from random error
and therefore yield consistent results. Constructs (variables) exceeded the suggested level of 0.7 (Nunnally
1978) for Cronbach’s coefficient alpha, indicating acceptable levels for the reliability of constructs.

Table 2: Goodness of Fit Statistics

<table>
<thead>
<tr>
<th>Name of Index</th>
<th>Value</th>
<th>Level of acceptance (Shammout, 2007)</th>
<th>Does it meet the acceptance?</th>
</tr>
</thead>
<tbody>
<tr>
<td>$X^2/df$</td>
<td>3.022</td>
<td>$1.0 \leq X^2/df \leq 5$, lower limit is 1.0, upper limit is 3.0 or as high as 5</td>
<td>yes</td>
</tr>
<tr>
<td>GFI</td>
<td>0.931</td>
<td>0.90 or greater, value close to 0 indicates a poor fit, while value close to 1 indicates a perfect fit</td>
<td>yes</td>
</tr>
<tr>
<td>RMSEA</td>
<td>0.089</td>
<td>between 0.05 and 0.080, should not exceed 0.10 (Bentler 1990)</td>
<td>yes</td>
</tr>
<tr>
<td>AGFI</td>
<td>0.889</td>
<td>value close to 0 indicates a poor fit, while value close to 1 indicates a perfect fit</td>
<td>yes</td>
</tr>
<tr>
<td>TLI</td>
<td>0.919</td>
<td>0.90 or greater</td>
<td>yes</td>
</tr>
<tr>
<td>NFI</td>
<td>0.912</td>
<td>0.90 or greater</td>
<td>yes</td>
</tr>
<tr>
<td>CFI</td>
<td>0.939</td>
<td>$&gt;0.90$</td>
<td>yes</td>
</tr>
</tbody>
</table>
The two-factor measurement model is presented in Figure 2. If a standard CFA model with a single factor (variable) has at least three indicators, the model is identified and if a standard model with two or more factors has at least two indicators per factor, the model is identified (Kline, 2005).

Figure 2: Two-factor Measurement Model

WD = work demand, q1 = designation, q6 = average annual income, q7 = working hours, q8 = travel outside location, q9 = total experience.

FD = family demand, q2 = marital status, q3 = spouse employment, q4 = children profile, q5 = dependents other than children, q10 = commuting time.

Figure 2 show that the indicator items have direct influence on the categorical variables, work demand and family demand. Working hours (long) appears to have more influence on work demand factor compared to other indicators and interestingly, marital status appears to have more influence on family demand factor compared to other indicators.

4.4 Testing of the Hypotheses of Structural Model

After achieving the satisfactory fit of the measurement model, a structural model is to be tested. The structural model is defined as the portion of the model that specifies how the variables are related to each other. The structural model aims to specify which variable directly or indirectly influences the values of other variables in the model. Hence, the purpose of the structural model is to test the underlying hypotheses. As mentioned in Table 3, the hypotheses are presented in five causal paths to determine the relationships between the variables under consideration. In the proposed structural model shown in Figure 3, the underlying variables are classified into two classes, namely, exogenous variables (WD and FD) and endogenous variables (WIPL, PLIW, SWLB and IEW). The analysis is conducted by specifying the causal relationships between the exogenous variables (WD and FD) and endogenous variables (WIPL, PLIW, SWLB and IEW) and specifies how the endogenous variables depend on the exogenous variables.
Table 3: Underlying Hypotheses of Structural Model

<table>
<thead>
<tr>
<th>Hypotheses No.</th>
<th>Hypotheses</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Work Demand→WIPL</td>
<td>H01=There is no significant relationship between Work Demand and Work Interference with Personal Life.</td>
</tr>
<tr>
<td></td>
<td>H1=Work Demand will positively affect Work Interference with Personal Life.</td>
</tr>
<tr>
<td>2. Family Demand→PLIW</td>
<td>H02=There is no significant relationship between Family Demand and Personal Life Interference with Work.</td>
</tr>
<tr>
<td></td>
<td>H2=Family Demand will positively affect Personal Life Interference with Work.</td>
</tr>
<tr>
<td>3. WIPL→SWLB</td>
<td>H03=There is no significant relationship between Work Interference with Personal Life and Satisfaction with Work-Life Balance.</td>
</tr>
<tr>
<td></td>
<td>H3=Work Interference with Personal Life will negatively affect Satisfaction with Work-Life Balance.</td>
</tr>
<tr>
<td>4. PLIW→SWLB</td>
<td>H04=There is no significant relationship between Personal Life Interference with Work and Satisfaction with Work-Life Balance.</td>
</tr>
<tr>
<td></td>
<td>H4=Personal Life Interference with Work will negatively affect Satisfaction with Work-Life Balance.</td>
</tr>
<tr>
<td>5. SWLB→IEW</td>
<td>H05=There is no significant relationship between Satisfaction with Work-Life Balance and Improved Effectiveness at Work.</td>
</tr>
<tr>
<td></td>
<td>H5=Satisfaction with Work-Life Balance will positively affect Improved Effectiveness at Work.</td>
</tr>
</tbody>
</table>

The results presented in Table 4 indicate that the hypotheses H1 to H5 are statistically significant and in the hypothesized direction. Thus these hypotheses are supported. Since there is significant relationship established in the hypothesized direction, the null hypotheses H01 to H05 are rejected.

Table 4: Testing of Hypotheses using β values

<table>
<thead>
<tr>
<th>Hypothesized path</th>
<th>β values</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1: Work Demand→WIPL</td>
<td>0.88</td>
</tr>
<tr>
<td>H2: Family Demand→PLIW</td>
<td>0.21</td>
</tr>
<tr>
<td>H3: WIPL→SWLB</td>
<td>-0.36</td>
</tr>
<tr>
<td>H4: PLIW→SWLB</td>
<td>-0.10</td>
</tr>
<tr>
<td>H5: SWLB→IEW</td>
<td>0.65</td>
</tr>
</tbody>
</table>

To evaluate the structural model, goodness-of-fit indices are examined to assess if the hypothesized structural model fits the data. Table 5 presents the model fit indices of structural model. The indices for goodness-of-fit demonstrate that this model fits the data adequately. It is common to display confirmatory factor models as path diagrams and accordingly, structural model one is presented in Figure 3.

Table 5: Model Fit Indices of Structural Model

<table>
<thead>
<tr>
<th>Name of Index</th>
<th>Value</th>
<th>Level of acceptance (Shammout 2007)</th>
<th>Does it meet the acceptance?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Χ²/df</td>
<td>2.373</td>
<td>1.0 ≤ Χ²/df ≤ 5, lower limit is 1.0, upper limit is 3.0 or as high as 5</td>
<td>yes</td>
</tr>
<tr>
<td>GFI</td>
<td>0.90</td>
<td>0.90 or greater, value close to 0 indicates a poor fit, while value close to 1 indicates a perfect fit</td>
<td>yes</td>
</tr>
<tr>
<td>RMSEA</td>
<td>0.073</td>
<td>between 0.05 and 0.080</td>
<td>yes</td>
</tr>
<tr>
<td>AGFI</td>
<td>0.89</td>
<td>value close to 0 indicates a poor fit, while value close to 1 indicates a perfect fit</td>
<td>yes</td>
</tr>
<tr>
<td>TLI</td>
<td>0.90</td>
<td>0.90 or greater</td>
<td>yes</td>
</tr>
<tr>
<td>NFI</td>
<td>0.90</td>
<td>&gt;0.90</td>
<td>yes</td>
</tr>
<tr>
<td>CFI</td>
<td>0.93</td>
<td>&gt;0.90</td>
<td>yes</td>
</tr>
</tbody>
</table>
The regression coefficient for the path from work demand to work interference with personal life (WIPL) is positive (β=0.88) which indicates that work demand contributes to work interference with personal life (WIPL). Similarly, the path from family demand to personal life interference with work (PLIW) is positive (β=0.21) which indicates that family demand contributes to personal life interference with work (PLIW). The paths each from work interference with personal life (WIPL) and personal life interference with work (PLIW) to satisfaction with work-life balance (SWLB) is negative (β= -0.36, β= -0.10 respectively), which indicates that when work interference with personal life (WIPL) increases, satisfaction with work-life balance (SWLB) declines; similarly, when personal life interference with work (PLIW) increases, satisfaction with work-life balance (SWLB) declines as the path from personal life interference with work (PLIW) to satisfaction with work-life balance (SWLB) is negative. There is a direct positive relationship between satisfaction with work-life balance and improved effectiveness at work (β=0.65) indicating that as the satisfaction with WLB increases, so also the effectiveness at work increases. Work-life balance is about developing practices to encourage a culture in which people are happy about being able to meet the demands of work and responsibilities of interests outside work. The employer recognizes that staff may need to change hours, require special leave or other forms of support to enable them to do this properly. Employers are willing to support this because they recognize that the key benefit is improved effectiveness at work (Working Families, 2004). One of the significant finding of the study based on β values (refer Table 4) is that IT employees experience WIPL more than they do PLIW, since the magnitude of impact of work demand is more on WIPL. Therefore, understanding of WD and WIPL is more important than understanding of family demand and PLIW, comparatively. Studies carried out show that continuous work demands create stress (Yang, 2000).

5.0 Conclusion
The purpose of the study was to test the relationship of different variables interrelated in the form of a model and
ultimately to test the effect of different variables on the WLB of IT professionals working in premier IT organizations in Chennai. The study was conducted with a cross-section of IT companies and examining relationships that occur over time is difficult since all the respondents may not have experienced multiple life roles at the same time. Using SEM, the study establishes the importance of including the constructs of work and family demand in theoretical models and measuring them directly in empirical model tests. The measurement model provides strong support for the separation of work-family and family-work dimensions regarding positive spillover, as well as the outcomes explored. Similarly, the prediction model yielded an acceptable degree of fit to the data providing strong support for the effects tested. The positive spillover literature is still in its early stages and no studies have utilized this approach for both measurement and prediction models in the targeted context of study. The study testified the mediating role of work-life balance construct adapted from the newly developed measures of satisfaction with work-family balance (Valcour, 2007) and contributed to our understanding of the association of SWLB’s relationship between Improved Effectiveness at Work and work life balance which is new. The study will contribute to the knowledge of work-life studies by identifying and assessing the impact of factors that lead to work-life balance of individuals. Additionally, this paper also attempts to explore possible scope for further research in the area for achieving better modeling and accurate estimations of WLB among IT professionals towards ensuring higher performance deliverance. Our next model will be reported elsewhere.

References


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