

Temporal dispersion separation and schedule flexibility impact on job satisfaction for Malaysian virtual teams

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Abstract: *Job satisfaction of Malaysian virtual teams supporting e-commerce and shared service support are constantly challenged from working long irregular hours fulfilling global supply chain management in a temporal dispersed virtual organization. The work time demand is felt even more as the temporal dispersion variance between parties in communication widens. This research was initiated to understand how satisfied employees are working under such conditions and whether having good management policies such as flexible work arrangement reduce the impact and restore job satisfaction. Findings from the quantitative survey of 301 ITO and BPO respondents located in the MSC flagship town of Cyberjaya reveal that Malaysian virtual teams are generally satisfied with their work condition. Whilst work time demand remains a temporal dispersion challenge, flexible work arrangement has no interaction effect to improving relation of work time demand and job satisfaction. It nevertheless is a predictor of job satisfaction.*

Keywords: Job satisfaction, Work Time Demand, Flexible Work Arrangement, Temporal Dispersion.

1. INTRODUCTION

The growth of e-commerce transforms a new generation of business where massive amount of retail and business transactions are exchanged daily at electronic speed (Evans & Wurster, 1999). However, linking both buyer and seller is just a starting point of supply chain where order fulfilment requires different stages of processing being intricately intertwined. In organizations such as ModusLink Global Solutions, Hewlett Packard, IBM, and Wal-Mart, the major portion of their supply chains are offshored and managed by thousands of employees as virtual teams spread across multiple countries and time zones around the globe. ModusLink for instance has 3,700 employees deployed across 30 facilities within North America, Europe and Asia (BSL Logistics, 2015).

For these teams, job satisfaction is constantly challenged from working long irregular hours to fulfil global orders and maintain effective communication in a temporal dispersed virtual organization (Idris, Dollard, & Winefield, 2011;

Wickramasinghe, 2010; Malhotra & Chadha, 2012). The work time demand is felt even more as the temporal dispersion variance between parties in communication widens (Klitmøller & Lauring, 2013). As Malaysia is located at GMT +8hrs, real time communication with both America (GMT -6hrs US Central Standard Time) and Europe (GMT) means either late evening or early morning Malaysian time. The work condition could lead to work stress and job dissatisfaction among virtual team members.

A survey conducted by JobStreet (2012) on employee job satisfaction in Malaysia, had reported that 78% of the 1,145 respondents claimed they were not satisfied with their current job. 9% of these respondents mentioned working hours as the cause of their dissatisfaction. Overall, 62% said they would seek alternatives to restore their satisfaction if their wellbeing especially career development and work-life balance were not taken care (JobStreet, 2012). MyWorklife (2013) reported an attrition rate of over 20% for Information Technology Outsourcing (ITO) industry and Towers Watson (2013) reported a 19% staff

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turnover rate for Business Process Outsourcing (BPO) compare to the general industry employee turnover rate of 13.2% in Malaysia.

Given these constraints, the probing questions are “*What influence does time demand of work has on employee job satisfaction?*” and “*Would flexible work arrangement policy bring positive impact on the time demand of work and employee job satisfaction?*” This research was initiated with the objective of understanding how satisfied employees are working under such conditions and whether having good management practices such as flexible work arrangement buffer the impact and restore job satisfaction.

2. LITERATURE REVIEW

Past studies (Idris *et al.*, 2011; Wickramasinghe, 2010; Gonzalez, Gasco, & Llopis, 2006; Malhotra & Chadha, 2012) have shown time factor demand attributed to temporal dispersion separation and spatial effect of working in different time zones as one of the main causes of job dissatisfaction among virtual teams. Klitmøller and Lauring (2013) asserted three main issues associated with this phenomenon. First, communication challenges among virtual teams increases exponentially with time zone differences. Second, difference in communication styles affecting effectiveness of virtual team. Third, collaborative devices used in communication are often problematic due to a range of technical related factors.

Although communication is perceived as a minor problem, studies have shown many enterprises look for supply chain providers in closer time zones that would allow remote members to work simultaneously (Rao, 2004). This was supported by Rottman and Lacity, 2008; Kotlarski, Van Fenema, and Willcocks, 2008 who suggested that firms offshoring their operations are increasingly dependent on virtual collaboration across time zones and culture. The effectiveness of collaboration requires real time communication among teams. This means optimizing overlapping work hours between regions in communication. To compensate for the lack of overlapping work hours, temporal dispersed teams are forced to work long irregular hours defined as the time demand of work.

In the study of temporal dispersion impact, Wickramasinghe (2010) used local work time demand measured by excessive work hours expended by the teams in fulfilling service level commitments. In another study carried out on

global networking and collaborative working time zone differential was used as a measure for work time demand on global distributed working (Stanoevska-Slabeva, Blijnsma, Gareis, Vartiainen, & Verburg, 2009). Although both measures are different, they are complementary in that one measuring local time demand and the other measuring global time demand. As studies have shown the effectiveness of using both global and specific job facets to better reflect changes in relevant situational factors (Witt & Nye, 1992), this study combines both the local and global work time demand as measures for its work time demand construct (WTD).

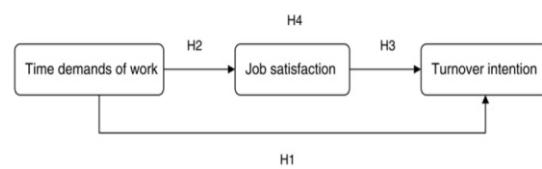
In global virtual organizations, many multi-national companies provide flexible work arrangement mainly to improve employee job satisfaction (JS). Studies such as Baltes., Briggs, Huff, Wright., and Neuman (1999), and Carlson, Grzywacz., and Kacmar (2010), have acknowledged positive effects of flexible work arrangements in mitigating role related stress and contributing towards improved job performance and job satisfaction (Tang, Chen, Xiang, & Inkpen, 2011; Kramer & Chung, 2014). However, Kelly, Kossek, Hammer, Durham, Bray, Chermack, Murphy, and Kaskubar (2008) disputed this finding that although flexible work arrangement brings relief, it does not eliminate job dissatisfaction. This is because affective and cognitive attitudes held by an employee are related to component facets rather than the whole job (Spector, 1997; Wong, Hui, & Law, 1998). This research intends to explore the inconsistent finding of schedule flexibility effect on job satisfaction using intrinsic motivation and extrinsic hygiene factors (Herzberg, 1966) as component facets of job satisfaction.

3. METHODOLOGY

3.1 Design of research framework

In the approach taken for the construction of the framework, this study attempts to setup the variables' relations by first leveraging on the framework developed by Wickramasinghe (2010) shown in Figure1.

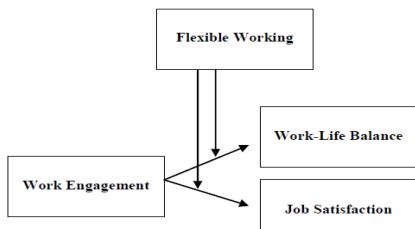
Fig 1. Impact of time demands of work on job satisfaction and turnover intention



In Wickramasinghe's study, temporal dispersion challenges and work time demand impact on job satisfaction were examined which is also the aim of the current study. Whilst Wickramasinghe focussed on local work demand on excessive work hours expended by the teams, the current study combined both the local and global work time demand used in global networking and collaborative working time zone study.

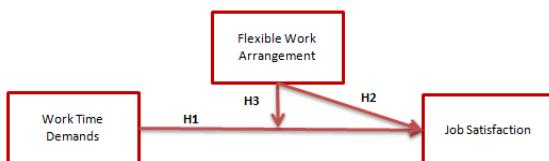
In exploring the interaction effect of flexible work arrangement on the relation of work time demand and employee job satisfaction, the researcher based on the model developed by Wessels (2012). In the model, Wessels used Flexible Work Arrangement construct (FWA) as moderator on the relation between Work Engagement (WE) and Job Satisfaction construct (JS) shown in Figure 2.

Fig 2. Work engagement and its influence on work-life balance and job satisfaction and the moderating role of flexible working



As the study involves work time demand of temporal dispersed teams, the researcher replaces WE with WTD as the framework's independent variable. Leveraging on both Wickramasinghe's and Wessels's models completes the building block for the conceptual framework shown in Figure 3.

Fig 3. Conceptual Framework



3.2 Hypotheses development

The hypotheses are formulated based on the research questions on the level of influence work time demand has on job satisfaction. Literature review have shown that temporal dispersion barrier affecting teams operating in different time zones have resulted in communication issues attributed to few overlapping work hours (Rao, 2004; Gonzalez *et al.*, 2006). In an attempt to improve the communication process, professionals work

extended hours either late in their evening or earlier morning to augment overlapping work hour window. This results in psychology, health and social problems (Raediker, Janssen, Schomann, & Nachreiner, 2006; Olsen & Dahl, 2010) that ultimately affect employee job satisfaction (Rottman & Lacity, 2008; Kotlarsky, Van Fenema, & Willcocks, 2008) leading to the formulation of the first hypothesis.

H1: There is an effect of work time demand on employee job satisfaction

Past studies have shown inconsistent findings of the effects of flexible work arrangements on job performance and job satisfaction. Whilst studies by Baltes et al. (1999) and Carlson et al. (2010) support the positive effect, Kelly et al. (2008), and Mcnall, Masuda, and Nicklin (2010) disputed the findings that there is lack of coherent theory of how flexitime arrangement influences productivity and job satisfaction. This study attempts to examine the inconsistency by looking at the influence of flexible work arrangement on job satisfaction as a whole in a virtual team environment setting which forms the second hypothesis (H2).

H2: The availability of flexible work arrangement relates to employee job satisfaction

JS is then expanded into the component facets of intrinsic staff motivation (IJS) and extrinsic hygiene factor (EJS) to facilitate the examination of these component facets as sub-constructs of job satisfaction (Hertzberg, 1966). In pursuance of the research question on the interaction effect of schedule flexibility on the relationship of work time demand and job satisfaction, a third hypothesis is formulated.

H3: Flexible work arrangement moderates the relation between work time demand and job satisfaction.

3.3 Population and sampling technique

The target population for this study comprised of fixed schedule knowledge workers providing e-commerce and shared service support in MSC-status companies located at Cyberjaya. The main study uses disproportionate stratified random sampling technique collecting a sample (n) of 301 from an online web survey from 14 firms. Of the 22 firms selected for the survey, 5 declined due to their companies' corporate confidentiality policy and 3 firms in the sampling frame could not be contacted.

4. RESULTS

SPSS version 21.0 was used for data screening, descriptive analysis and exploratory factor analysis. The confirmatory factor analysis and structural regression modelling were carried out using SEM Amos version 21.0.

Data screening was performed to determine the "worthiness" and fit of the data sample for use prior to statistical analyses. The method follows Hair, Black, Babin, and Andersons' (2010) advocated approach including analyzing for missing data, multivariate normality, outlier, data linearity, homogeneity of variance and testing for multicollinearity. The screening confirmed reliability, usability and validity of the main study sample data collected.

4.1 Descriptive analysis

The demographic profile (Table 1) shows the number of male respondent that took part in the survey was almost twice as many compared to female respondent with male making up 67% and female 33%. Of the total responses, 215 or 71% of the respondents were between the age group of 25 and 44. Most of the respondents (82%) were graduates. The working experience for those in the "5 to 7 years", "8 to 10 years" and those having "More than 10 years" groups were almost similar at 29%, 28% and 27% respectively. The remaining 15% were those "below 5 years" of working experience. Majority of the respondents have relatively short length of service with their company. Those in the "2 to 4 years" length of service range have the most respondents (32.2%) followed by "5 to 7 years" range at 27.9%. However, 16% of the respondents have "less than 2 years" of service with the company. This is quite significant as it may imply staff turnover of 16%. Whilst it is significant, the result is not surprising as the nation's staff attrition rate for ITO and BPO is 20% and 19% respectively compared to the general industry turnover rate of 13.2% (Towers Watson, 2013).

Table 1. Profile of respondents (n=301)

Category		Freq.	%
Gender	Male	201	66.78
	Female	100	33.22
Age	Below 25	29	9.635
	25 to 34 years	110	36.54
	35 to 44 years	105	34.88
	45 to 54 years	36	11.96
	55 and above	21	6.977
Education	Secondary	10	3.322
	Diploma	42	13.95
	Degree	202	67.11
	Master	46	15.28
	Doctorate	1	0.327

JobCat	Non-executive	40	13.29
	Executive	205	68.11
	Management	56	18.6
Work Exp	Below 2 years	11	3.654
	2 to 4 years	34	11.3
	5 to 7 years	89	29.57
	8 to 10 years	85	28.24
	More than 10 yrs	82	27.24
Service Length	Below 2 years	49	16.28
	2 to 4 years	97	32.23
	5 to 7 years	84	27.91
	8 to 10 years	50	16.61
	More than 10 yrs	21	6.977

The results of the mean scores of independent, moderator and dependent variables shown in Table 2 has established that highest mean score is Job Satisfaction ($\bar{x}=3.29$) followed by Flexible Work Arrangement ($\bar{x}=3.28$). The variable with the least mean score is Work Time Demand ($\bar{x}=2.85$).

Table 2 Mean, standard deviation, mode and variance

Variable	Mean	Std. Dev.	Mode	Min	Max
Job Satisfaction	3.2865	.72258	3.89	1.00	4.67
Work Time Demand	2.8538	.92817	2.20	1.20	4.80
Flexible Work Arrangement	3.2780	.92610	3.67	1.00	5.00

4.2 Inferential analysis

Prior to the main study, Exploratory Factor Analysis (EFA) was carried out in a pilot test on a sample size of 120 respondents. In addition to testing the strength of the instrument, the test allows the study to increase the likelihood of success in the main study. Outcome of EFA shows two items belonging to FWA were cross-loaded into JS. These two items were subsequently bundled with the rest of the items measuring JS.

For the main study, Pearson correlation matrix (Table 3) shows JS has a direct correlation with FWA and an inverse correlation with WTD. The significant correlation strength of these two relations implies that an increase in schedule flexibility would result in a corresponding increase in employee job satisfaction. Conversely, an increase in the time demand of work would result in a lower job satisfaction. The correlation is based on the observed trend and does not establish causal relationship between the predictors and their dependent variable. The low correlation coefficient

between the construct and other constructs in the model eliminates concern of multicollinearity among the predictors.

Table 3. Factor correlation

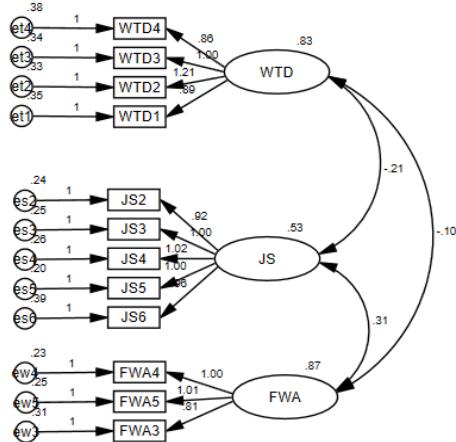
	JS	WTD	FWA
JS	1		
WTD	-.297	1	
FWA	.442	-.108	1

**. Correlation is significant at the 0.01 level (2-tailed).

4.3 Confirmatory factor analysis

For this study, SEM analysis was performed using a combination of Confirmatory Factor Analysis (CFA) and Structural Regression Analysis (SRA). For CFA, measurement model was carried out to assess the relation between the latent constructs and their corresponding indicators on the hypothesized model. The final respecified model (Fig. 4) after examining the model indicators' factor loading, performing unidimensionality testing and evaluating data set on the basis of theoretical ground (Mueller, 1996) was analyzed to have possessed all necessary good fit requirements.

Fig. 4 Respecified measurement Model



Measurement model fit indices

Fit Values	Score	Std	Fit
Chi Square	67.405		
Df	51		
Chi Sq/df	1.32	< 2.0	Good
p-value	0.06	> 0.05	Model is accepted
Goodness-of-fit index (GFI)	0.965	> 0.90	Good
Adjusted goodness-of-fit (AGFI)	0.946	> 0.80	Good

Table 5. Hypothesis Testing

Hypo No.	Regression Path	Path Coeff.	T-Value (CR)	P Value	Decision
H1	JS <-- WTD	-0.213	-4.628	***	Supported

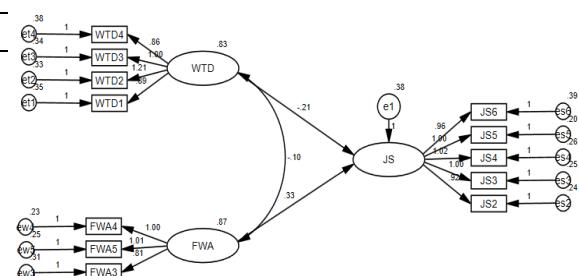
Tucker-Lewis index (TLI)	0.991	> 0.90	Good
Comparative fit index (CFI)	0.993	> 0.90	Good
Normed fit index (NFI)	0.971	> 0.90	Good
Root mean square residual (RMR)	0.028	< 0.05	Good
Root mean square error of approximation (RMSEA)	0.033	< 0.05	Good

Convergent validity shows all constructs have acceptable values that are greater than the threshold of 0.5 for AVE and 0.7 for composite reliability. The results indicate high reliability and internal consistency. Discriminant validity shows square root values of AVE for each of the constructs are greater than the value of the other correlated constructs in the regression model implying a high degree of association among the items measuring each of the constructs than the value of the other correlated constructs in the regression model.

4.4 Structural regression analysis

Structural regression modeling (Fig. 5) was conducted to examine the causal effect between theoretical variables in terms of their paths and variances of the disturbances of endogenous variables (Kenny, 2011). The outcome of the analysis (Table 5) shows a significant regression path (coeff = -0.213, CR = -4.628, p-value < 0.001) between JS and WTD which supports hypothesis (H1) that variability of WTD predicts the variance of JS. The negative path between the two constructs implies an inverse effect that aligns with observed trend of the two constructs in Pearson correlation matrix. Similarly, regression path analysis (coeff = 0.334, CR = 7.206, p-value < 0.001) shows FWA is a strong predictor of JS. The significant direct relation between the variables supports hypothesis (H2) that increase in FWA would cause a step up in Job Satisfaction.

Fig. 5 Structural Regression Modeling



H2 JS <-- FWA 0.334

7.206 *** Supported

4.5 Moderation testing

In testing the third hypothesis, SPSS regression was used following Baron and Kenny's (1986) suggestions that simple regression analyses were applied to test moderation effect to provide an initial set of preliminary results. If necessary, SEM will be applied for simultaneous fitting of paths that is more parsimonious and yield better results (Baron & Kenny, 1986). Prior to regression

analysis, all variables in the regression model were standardized to avoid issue of multicollinearity. The result from linear regression shows both WTD and FWA are strong predictors of JS. However, product term of WTD and FWA shows no interaction (ZJS \leftarrow ZWTDxZFWA) effect on JS (Table 6) indicating that hypothesis (H3) is not supported. To confirm this, a moderation graph was plotted with value of WTD and FWA recoded as 1 for low score (score = 1 or 2) and 2 for high score (score ranging from 3 to 5).

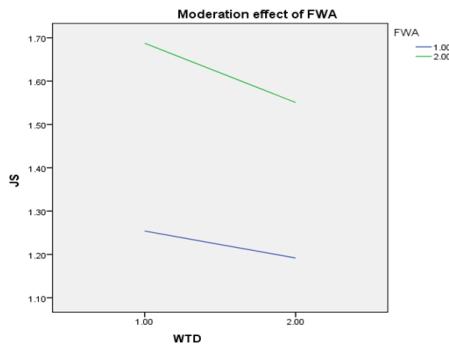
Table 6. SPSS Moderation Analysis

Regression Path	Unstd Coeff.		Std Coeff. Beta	t	Sig.	Decision
	B	Std. Error				
1 ZJS <--- ZWTD	-.294	.055	-.294	-5.326	.000	
2 ZJS <--- ZWTD	-.252	.051	-.252	-4.957	.000	
ZJS <--- ZFWA	.394	.051	.394	7.767	.000	
3 ZJS <--- ZWTD	-.253	.051	-.253	-4.977	.000	
ZJS <--- ZFWA	.388	.051	.388	7.569	.000	
ZJS <--- ZWTDxZFWA (Mod)	.043	.048	.046	.904	.367	H3 Not Supported

a. Dependent Variable: ZJS

The linear regression indicated by two linear lines in the moderation graph (Fig. 7) shows no significant change in strength or direction of JS \leftarrow WTD relation for both high and low FWA value.

Fig. 7 Moderation effect of FWA



The deduction is that FWA is a predictor of JS. It however, does not have an interaction effect significant enough to alter the relation of WTD and JS. Given that there is no interaction effect SEM path analysis is not required.

5. DISCUSSION

In general, the outcome of the research supports the problem statements that job satisfaction of virtual teams are constantly challenged by various demanding situations in fulfilling critical supply chain management. Nevertheless, there is still the question of whether satisfaction is related to component facets rather than the whole job. By expanding

JS into Intrinsic Job Satisfaction (IJS) made up of three items representing employee's feelings of satisfaction and Extrinsic Job Satisfaction (EJS) comprising of two items representing the employee's job environment and analyzing their relation through Pearson correlation matrix, it is found that both of these component facets are highly correlated (Table 7).

Table 7. Correlation of JS component facets

	WTD	FWA	IJS	EJS
WTD	1			
FWA	-.108	1		
IJS	-.289	.410	1	
EJS	-.275	.399	.847	1

**. Correlation is significant at the 0.01 level (2-tailed).

This shows that intrinsic staff motivation and extrinsic hygiene factors are tightly coupled. The finding aligns with Herzberg's Two Factor (1966) theory that job satisfaction is driven by the balance of these two components. A lack of one or the other would cause an imbalance between the intrinsic value of the role and the extrinsic value of the environment of which the individual is subjected to. It is for this reason that both WTD and FWA are significantly correlated and structurally related to the two components that measure JS. The implication suggests that although satisfaction can to a certain extent be related to component facets of the job, the effect is temporary and would not sustain in the absence of other component facets making up the job satisfaction equation. In JobStreet job satisfaction survey (2012),

several reasons ranging from poor management, low salary to working hours were cited for job dissatisfaction. This proves the point that job satisfaction is premised on the holistic aspects of an employee's work.

It is also interesting but not surprising to note that although FWA is a strong predictor of JS, it does not have interaction effect on JS \leftarrow WTD relation. This is because as temporal dispersion separation among regions is immutable, virtual teams located in Malaysia which is eight hours ahead of Western Europe (GMT) and fourteen hours ahead of USA Central time zone are expected to work long irregular work hours fulfilling global supply chain management as part of their job hazards. Having flexible work arrangement policy brings relief as it allows employees the flexibility of determining their core working hours. However, it cannot compensate for the lack of overlapping work hours between regions in communication forcing affected employees to sacrifice their evening social hours and family to work enrichment activities. Although schedule flexibility does not alleviate the negative impact of long irregular work hours, it promotes job satisfaction. The significant relation between JS \leftarrow FWA indicates that employees value the flexibility of shuffling their schedule around agreed core working hours in achieving work-life balance that is critical to maintaining job satisfaction.

Given its significance, this study suggests the use of flexible work arrangement policy in firms as resource strategy for improving work-life balance, especially those in industry affected

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6. LIMITATIONS AND SUGGESTION FOR FUTURE RESEARCH

The research design of the study uses cross sectional approach. Feedback received represents the perception of respondents at a particular point in time. This method limits the ability of respondents in providing feedback over a longer period that would be useful in gauging the fluctuation of job satisfaction following sequence of events. The feedback may be different in a longitudinal study that could provide an in depth understanding on change in job satisfaction over time.

7. CONCLUSION

Literature review has shown the importance of employee job satisfaction on staff retention. The revelation of the current study is that since temporal dispersion separation is immutable, having the right resource strategy and management practices can help buffer the negative impact and restore job satisfaction. In the context of e-Commerce or shared services, flexible work arrangement is a powerful tool that can be harnessed to reduce work stress, intensify quality of work life and improve work-life balance.

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