Psychometric Properties and Nomological Validity of Reduced Workplace Spirituality Scale in Malaysian School Setting

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Abstract

The goal of the present study is to conduct a comprehensive examination of realibility and validity of reduced Malay language 17-item version of workplace spirituality scales compare with the original scales developed by Ashmos and Duncon (2000) in Malaysian school setting. Therefore a translated version of established content and concurrent validity 17-item scale was used. Confirmatory factor analysis in two large Malaysian secondary school teachers sample (N=450 and N= 520) was conducted to examine convergent and discriminant validity of the original 20-item and 17-item (reduced) version of the workplace spirituality scales recently developed by Ashmos and Duncon (2000). Following this, the reliabilities and subscale intercorrelations of two version of the scale were compared in order to determine how faithfully the 17-item version represents the 20-item scale. Next, the reliabilities of both versions were compared, and their nomological validity was evaluated. The overall pattern of results indicated that reduced workplace spirituality scale versions were reasonably reliable and valid, and better than original scale in Malaysian School settings.

Keywords: validation, workplace spirituality, Malaysian school.

1.Introduction

The topic related to spirituality are always given prime emphasis by researchers, nevertheless the pivoting adversity of the topic is primarily focused on the defining the exact perimeter of defining the meaning of the word "spirituality" as it can be diversely approached and apprehended (Leigh, 2006; Smith, 2004; Kale & Shrivastava, 2002). For example, from the perspective of organization, spirituality are closely connected to the networking relationship within the members of an organization (Galen & West., 1995). In relation to this, Kinjerski et.al., (2004) assumes that spirituality is a culture of an organization that promotes autonomy, trust, "family bondage", helping nature, endorsing work, innovation and justice. Meanwhile from the perspective of an individual, spirituality are also linked with individuals that acculturizes noble values at workplace or the organizational structurizing that promotes the development of spirituality among workers (Kinjerski et.al., 2004; Cacioppe 2000; Neal, 1997). Hence, individuals and organizations are found to have close alliance worh spirituality.

Relatively, in the context is this study, spirituality at workplace are associated with delighting experiences at workplace and the mental cohesion of the workers towards their workscope. (Kamran et. al, 2011; Nasina & Koh, 2011; Petchsawang & Duchon 2009; Milliman, Czaplewski & Fergusan, 2002; Ashmos & Duncon, 2000). The delighting experiences at workplace eventually funnels the workers to conceptualize the workplace as not merely as a

place to work or make a living but are perceived as a place that provides and fulfils personal satisfaction in relation with Maslov theory of needs (Milliman, et. al., 2002).

Meanwhile the empherical evidences finds that the practice of spirituality at workplace acts as the catalyst in solving problems of human capital due to its special role in an organization (Kamran, Belal, Seid-Mehdi & Farideh 2011; Nasina & Koh, 2011; Petchsawang & Duchon 2009). The spirituality practices are corroborate with the ability to enhance the productivity of workers and oraganization (Fleming, 2003; Bowman, 2004; Dent, Higgins & Wharff, 2005); to aid and promote individual development of self potential above personal capability such as the aspects of creativity and ability (Krishnakumar et.al., 2002; Graber, 2001; Cash et.al., 2000; Harman et.al., 1990); initiates the delight and happiness at workplace (Krishnakumar et.al., 2002); to amplify trust and sincerity in all operations in an organizations (Fleming, 2003; Kriger et.al., 1999). Besides that, the practices of spirituality are also found to able to heighten the personal satisfaction and the zest of workers (Fleming, 2003; Yousef, 2000; Burrack, 1999; Tunner, 1999); increasing the work commitment by creating a work climate with high level of trust, *"Trustful Climate"* (Fleming, 2003; Burrack, 1999; Krishnakumar et.al., 2002; Ketchand et.al., 2001; Krigger & Hanson, 1999); organizational performance (Fleming, 2003; Thomson, 2000: Neck et.al., 1994; Turner, 1999; Krishnakumar et.al., 2002; Mitroff et.al, 1984; Turner, 1999; Thomson, 2000); and the personal development (Milliman, et.al, 2002; Ashmos et.al., 2000; Rhodes, 2002).

Even though, proven empherically, that the practices of spirituality at workplace as a solution towards over coming human capital development in an profit based organization, then this matter is not given prior attention by researchers in the context of educational organization particularly in Malaysia. Whereas, the scale utilised by the researchers are found to be less supportive with local situation as the varied dimension that was introduced by researchers.

2.Workplace Spirituality Scale Dimensions
There are few sets of dimensions introduced by some researches like Wong (2000), Ashmos and Duncon (2000), Milliman, et.al, (2002); and Twigg et.al., (2001). Nevertherless, for the purpose of this study. The dimensions of workplace spirituality by Wong (2000) and Ashmos and Duncon (2000), Milliman, et.al, (2002) described specifically as both of these dimensions noticed to have links with management, as comparatively with other dimensions the are inclined to focus on religious aspects (Wong, 2000; Ashmos et. al, 2000; Milliman, et.al, 2002).

2.1. Workplace Spirituality Scale Dimensions by Wong (2003)
Sprituality scale at workplace developed by Wong (2003) can be divided to seven dimensions such as creativity, communication, respect, vision, partnership, positive energy force and flexibility (Wong, 2003). The first dimension, creativity are directly related with additional elements like the use of colours, laughter or humor and freedom to utilized any available method to increase productivity. Substantially, if creativity is controlled excessively , then it will lead to violence as humans need to destroy their personal creativity and the repercussion would be destructive (Hall, et.al, 2002; Judge et.al, 2004; Kelly, 2003). The second dimension, communication, basically act as the tool that connects humans to work cooperatively. So, the ineffectiveness of communication leads to isolation, confusion,

uncontrolable anxiety, mistrust, doubts and others (Judge et. al., 2004; Kelly, 2003). Meanwhile the following dimension is respect towards one and another. Whereby conflict and confrontations will exist if lack of respect and the openness to accept other individuals exist (Hall et.al., 2002; Simic, 1998).

Meanwhile, the dimension of vision is basically the ability to be far-sighted dan this characteristic is essential for a leader to create cooperation to realise a vision (Barbuto, 2005; Hall, et.al, 2002). The dimension of *partnership* is the responsibility and trust towards other individuals during the undertaking of task based work commitments for a group or partners. The absence of partnership will prompts isolation and unhealthy competition that leads toward an unbeneficial situation to an organization (Hall et.al, 2002; Kelly 2003). The next dimension is related with *positive energy forces*. Customarily, negative energy forces will ignite violence in workplace, sexual harassment, discrimination, confrontations, lack of respect, loss in productivity and uncondusive work condition (Judge et. al., 2004; Kamran et. al., 2011). Finally, the last dimensions in spirituality workplace is flexibility, which is the ability of an individual to adapt in dynamic situations and allowing individual trust to change according to current demands. The strength that is possessed in an individual are used to assist and help others who are weak and allowing the stronger individuals to assist to overcome our weakness (Hall et.al., 2002).

2.2. Workplace Spirituality Scale Dimensions by Ashmos and Duncon (2000), and Milliman, Czaplewski and Fergusan (2002)

Ashmos et.al., (2000) carried out a study by using the seven spirituality dimension scale at workplace. These spirituality dimensions at workplace utilised by Ashmos were conditions of community, work meaningful dimension,personal life dimension, spirituality groups dimension, individual responsibility dimension, positive relationship with others dimension and self – reflective dimension.

Meanwhile, Milliman et. al., (2002) had exploited the scale of three dimensions adapted from Ashmos et.al., (2000) for their research. Milliman et.al., (2002) proposed three main reasons for the selection of this three dimensions. The first reason was that, these three dimensions was utilized in earlier researchers by Hawley (1999), Milliman (1999), and Mitroff et.al., (1999) which were on individuals, group and organization. The second reason, was that these three dimensions are based on complex topics and has varied divisions. Thirdly, the three proposed dimension can be administered with limited time space and focused. All the three proposed dimensions are meaningful work (individual phase), sense of community (group phase) and coherent with organizational values (organizational phase). The dimensions utilized by Milliman et.al., (2002) are as shown in Diagram 1 below:
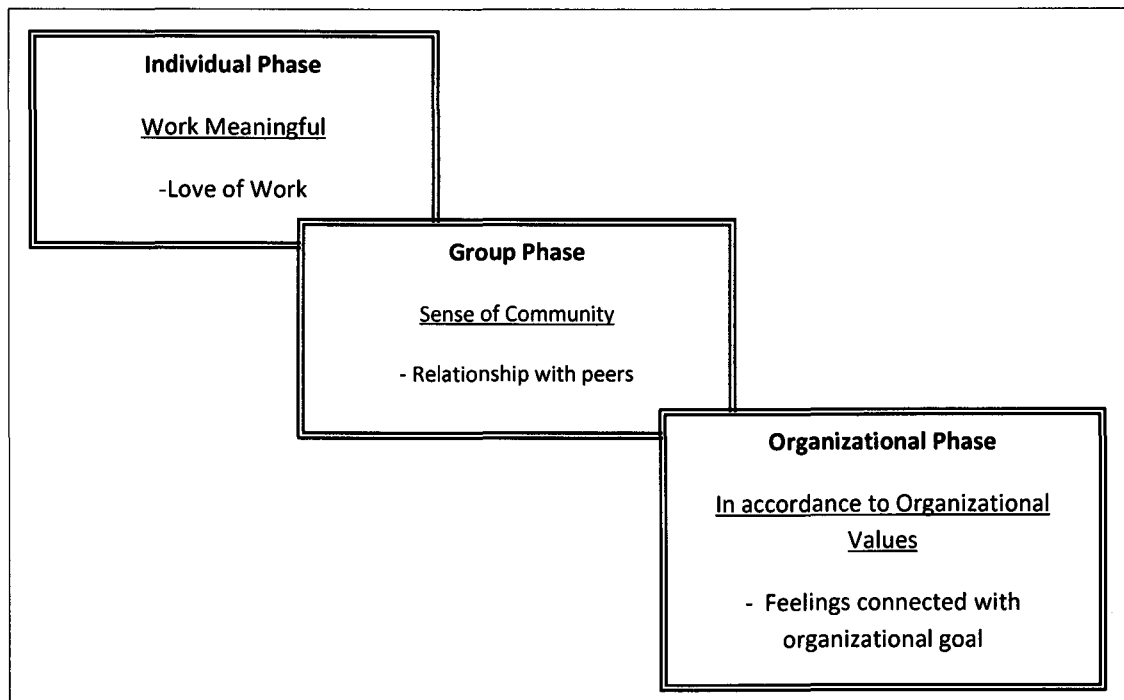
Diagram 1: Source of Work Place Spirituality Concept Model
(Milliman, Czaplewski and Fergusan, 2002, p.428)

The first dimension of the work place spirituality is meaningful work at individual phase and are related with daily work interaction. In the process of daily work interaction, individuals involved are self motivated and the effort to search for meaning of the work as perceived in the life of the particular worker. (Kamran et. al., 2011; Nasina et. al., 2011; Petchsawang et.al., 2009).

Then, the second dimension of work place spirituality are linked with sense of community at community phase. This dimension is the most critical dimension as it involves relationship with others that cultivates the communual sense. (Milliman et.al., 2002, Ashmos et.al., 2000). Meanwhile, Neal and Bennet (2000) uses the word *"espirit de corps"* that brings the meaning of relationship that involves the elements of mental, emotional and spiritual that linked between workers that refers to the meanings of the relationship.

He third dimension, is the practices that correlates with organizational values and exist at organizational stage. This dimension takes place when individual work experiences are able to be linked with individual values as it is , the mission and aim and purpose of the organization (Petchsawang et.al., 2009; Milliman, et.al., 2002, Ashmos, et.al., 2000).

Specifically, the conclusion that can be derived is that workplace spirituality are divided into three stages or phases or dimensions consist of the individual stage entailing work meaning, group stage of the community sense dimension and at the organization stage of the dimension

involving coherence with organizational values. The combination of these three stages produces workplace spirituality.

3. Aim the Study

However, in spite of these intriguing results, researchers especially in educational management contexts should be cautious in choosing and using the right version of the scale. Since there were varied scale of workplace spirituality by Wong (2000); Ashmos and Duncon (2000); Milliman, et.al., (2002); and Twigg et.al., (2001) does not proved through psychometric properties and construct validity in the context of Malaysian school settings. Therefore, within the context of this discussion, the goal of the present study is to conduct a more comprehensive examination of reliability and validility of revised 17-item version of workplace spirituality scales in Malay language from the original scales developed by Ashmos and Duncon (2000), and Milliman et. al., (2002) in Malaysian school setting. First, the convergent and discriminant validility of the revised and reduced scales will be independently assessed. Following this, the subscale reliabilities and intercorreraltions of reduced version of the scale will be compared with those of revised version in order to determine how faithfully the shorter 17-item version represents the full 20-item scale. Next, the psychometric properties of both the revised and reduced versions will be compared. The final objective is to assess the nomological validity of the revised and reduced scales.

4. Delimitation of the Research

To test the above objectives, several demographic characteristics, job attitudes (job satisfaction and organizational commitment), and role perception (role ambiguity) that, theoretically should be related to one or more of the workplace spirituality variables will be measured, and their hypothesized relationships will be empirically examined. It is our intention that if these variables are not related to the subscales in the expected manner. Thus, examining the relationships between these variables helps to test the nomological validity of the workplace spirituality.

5. Metodology

5.1.*Samples*

The data for this study were collected from trained teachers, whom were chosen randomly from public secondary schools in the Northern Region of West Malaysia. However, a few criteria were taken into consideration in choosing the appropriate respondents. Those with at least two years of experience serving in a particular school and not holding any definite posts in school were selected randomly.

The first sample (*N*=450) representing teachers from two states of North West Malaysia was used in the present study to examine the construct realiability and validity of reduced 17-item version of workplace spirituality scale. The other sample (*N*=520) was used to examine the construct realibility and validity of original 20-item version of workplace spirituality. Demographic characterics for these samples are provided in Table 1.

Table 1: Summary of Sample Characterics by Percentage

Demographic Characteristics		Sampel 1 (N=450)	Sampel 2 (N=520)
1.	Sex		
	Male	22	21.1
	Female	78	78.9
2.	Teaching Experiences		
	Less 5 Years	14	20.0
	6 -10 Years	30	33.0
	11 - 19 Years	44	19.0
	More than 20 Years	12	13.0
3.	Highest Academis Achievement		
	Teacher Diploma	6	2
	Undergraduate	82	85
	Masters	11	12
	Phd	1	1
4.	Total Period of Teaching in a Week		
	Less than 10 Period	3	3
	11-15 Period	6	7
	16-20 Period	12	14
	21-25 Period	66	65
	More than 26 Period	12	12

5.2.Measures

Survey questionnaires were administered to the respondents in their work settings during normal working hours.Included with each survey was a letter from the researchers indicating the general nature of the survey and assuring all respondents that their individual responses would remain anonymous. The sample sizes shown in Table 1 represent a return rate of 95% for Sample 1, and 94% for Sampel 2.

Before being translated to Malay language, the 17-item reduced from 20-item original version of workplace spirituality scale developed by Ashmos and Duncon (2000) and Milliman, et. al. (2002) was administered to respondents in Sampel 1 and 2, relevant steps were executed, such as the original questions from English language was translated to Malay language by the researchers themselves and then one English language teacher was asked to translate the Malay language version to English language. The purpose of this step was to compare the similarities in meaning between both the items in Malay language with the English language. In relation with this, the opinion and recommendation of the reliability and validity of the content are usually evaluated and referred to the expert or panel that have the expertise in the relevant fields of the research (Gay et al., 2006). Thus , as for this study the research instruments was consulted and referred with an Englis language expert teacher from the Language Centre, Universiti Sains Malaysia. Following this, three member panels from the School of Management, Univerisiti Sains Malaysia had sanctioned the content of the research instrument. Lastly, the scale was administrated both to sampels and the respondents were asked to indicate the extent of their agreement on the 17-item and 20-item questionnaires.

Table 2 shows the order of the items as they appeared on the 17-item and 20-item questionnaires.

The similar process was executed on other measures such as job satisfaction, which was assessed with 20-item of Minnesota Satisfaction Questionnaire (Weiss, Dawis, England, & Lofquist, 1967). Organizational commitment was measured through Porter, Steers, Mowday, and Boulian's (1974) 15-item scale. Role clarity were measured using 6-item scale taken from items developed by Rizzo,House, and Lirtzman (1970).

5.3.Analytical Procedures

The were four main objectives of the analysis. The first objective was done by conducting separate confirmatory factor analysis for each version of the scale using SPSS and examining the results. The convergent validity was then evaluated by examining whether, (a) the hypothesized 3 factor adequately accounted for the data; (b) each item had a statistically significant loading of substantial size on the hypothesized factor; and (c) there if were any substantial item cross-loadings on non-hypothesized factors. The realibility of each workplace spirituality dimensions was evaluated by calculating the internal consistency by reliability cronbach alpha for each scale. The discriminant validity was assessed by testing construct intercorrelations and the amount of variance accounted for by hypothesized construct as recommended by Fornell and Lacker (1981).

The second objective of the analysis was done by comparing the realibities and intercorrelations among the 3 dimensions of both versions of the scale was used to measure them.

The third objective was done by comparing internal consistency estimates of realibility of the reduced scale with the original version scales. Finally the last objective was to empirically examining whether the subscale scores correlated with other variables in their nomological net in the manner expected.

5. Results
5.1. Assessment of Validity and Reliability
a. Convergent Validity

The covergent validity of the reduced 17–item, by using Sampel 1, the data eventually produced encouraging results. The findings from conformatory analysis found that the presence of 3 factors vividly and describes in approximity of 63.86 percent from the overall variance for the research samples. In addition to this, the chi-square statis values of Bartlett Sphericity Test was 6719.56, with the degree of freedom valued at 190, the value of Kaiser-Meyer-Olkin test was .94, and the Eigen value was found to exceed value of 1. All these are indicators that hypothesized 3-factor confirmatory model accounted for the co-variation among reduced 17-items very well in an absolute sense. In addition, each of the hypothesized reduced 17-item factor loadings was large and statistically significant at level .01 (the avarage standard loadings was ranged from .58 to .90), the average variance accounted for by the factors in their indicators was substantial, ranging from 25% to 50% (see column 4 of the Table 3).

Table 2: Comfirmatory Factor Analysis of "Reduced" and "Original" Workplace Sprituality Scale
(The findings of the analysis of the reduced 17-item Sampel 1 is not shown in bracket and the findings of the Analysis of the Original 20-item Sampel 2 is illustrated in brackets.)

Item		Component		
		1	2	3
Factor One – Work Meaningful Dimension				
1.	To feel joyful with work.			.63 (.51)
2.	To be high spirited through work.			.71 (.68)
3.	Impatient to come to work			.74 (.49)
4.	Good relationship between work and community			.75(.74)
5.	Work is an essential feature in life.			- (.64)
Factor Two – Community Sense Dimension				
6.	Working is crucially important .		.61(.45)	
7.	Appreciate the cooperation with others		.76 (.74)	
8.	Partially related with school community.		.58 (.60)	
9.	Workplace peers should support each other		.81 (.78)	
10.	Working colleagues are connected between each other due to the existence of shared responsibility.		.79 (.76)	
11.	Should be emptatic with each other.		.78 (.34)	
12.	The existence of family based emotions at workplace		- (.43)	
Factor Three – Coherent of Organizational Value Dimension				
13.	I am positive towards values in an organization	- (.44)		
14.	The school cares towards staff who are facing problems.	.85(.83)		
15.	School takes care of the welfare of the workers	.90(.90)		
16.	School understands teachers	.87(.86)		
17.	Connected with the aims of the school.	.68(.67)		
18.	School gives emphasis towards the welfare of the workers	.89(.87)		
19.	The school mission is my mission.	.67(.62)		
20.	School gives emphasis towards the condition of my spirituality..	.81(.76)		
Eigen Value		8.65 (8.48)	2.51 (2.38)	1.34 (1.30)
% Varians		*43.26 (42.42)*	*12.93(11.55)*	*6.69 (6.51)*
Total Varians	*63.86(61.71)*			
Kaiser-Meyer-Olin	*.94(.93)*			
Sphericity Bartlett Test	*6719.56 (5584.45)*			
df	190 (190)			
Sig.	.00			

Note: Trigulated Values from the factor analysis rounded to two digit meaningful value

Similar analyses of the convergent validity of the 20-item scale using Sample 2 data, was found to have produced data that is lesst encouraging. Eventhough the conformatory analysis

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produces 3 factor and exhibits a substantial 61.71 percent variance but the value if chi-quare statistic were found to be at 5584.45, and the value of *Kaiser-Meyer-Olkin* test at .93. In additions, each of the hypothesized 20-item factor loadings was significantly at the .01 level and reasonably small in size (the average standardized factor loadings was ranging from .34 to .78), and the average amount of variance each factor accounted for its indicators was moderately large, ranging from 27% to 42% (see last column in Table 3).

As a conclusion, it can be concluded that an examination of the modification indices revealed that there is no any challenge to the proposed therotical structure and there for the was no significant cross-loadings on nonhypothesized factors than were observed in the analysis of the 20-item scale.

b. Reliability

The reliability indices for the reduced 17-item scale are based on the Sample 1 data and shown in column 3 of Table 3. The alphas are ranging from .83 to a high of .93, which is above level of .70 as recommended by Nunnally (1988). While the realibility indices for the original 20-item scale are based on the Sample 2 data dan can be found in column 10 of the same table (the next to last column). These relibilities ranged from .77 to .86. All if realibilities estimate exceeded Nunnally's recommended level.

Table 3: Means, Standard Deviations, reliabilities, and Subscale Intercorrelations for the "reduced" 17-item) and Original (20-item) Workplace Sprituality

Sub-scale	Revised 17-item (N=450)							Original 20-item (N=520)			
	Min	SD	α	$\rho_{vc(\eta)}$	1	2	3	Min	SD	α	$\rho_{vc(\eta)}$
1.Work meaningful	3.99	.65	.83	.43	-	.36**	.32**	4.06	.54	.84	.29
2. Community Sense	4.37	.49	.84	.25	.31**	-	.31**	4.39	.52	.77	.27
3. Coherent of Organizational Value	3.67	..71	.93	.50	.30**	.24**	-	3.76	.64	.86	.42

Note: The means, standard deviation (SD), Cronbach alphas (α), and Fornell and Lacker,s (1981) average variance indices $\rho_{vc(\eta)}$ reported in the four columns on the left, and the correlations below the diagonal are for revised 18-item version if the scale (N-450).
** sig. at $p<.01$

In addition, the average estimates of variance indices $\rho_{vc(\eta)}$ in Table 3 represents the average proportion of variance in the items accounted for by their underlying factors and was .39 for the reduced 17-item scale, and .33 for the 20-item scale. This means that there was a more than 1.3 % improvement for both items on 17-items scale by their underlying factors(.50/.39 = 1.28%) and 20-item scale (.42/.33 =1.27%).

Thus taken together, these results suggest that although the average alpha for the reduced 17-item scale is slightly larger than average alpha for 20-item scale, the interitem correlactions

and the average $\rho_{vc(\eta)}$ for both scake indicate that the reduced version of the scale is slightly more realiable.

c. *Discriminant Validity*

Although the 3 workplace spirituality factors are conceptually distinct but for some good reasons some of workplace spirituality dimensions to be correlected with each other. Therefore, when evaluating the discriminant validity of the 3 dimensions in reduced adn original version of scales, significant relationship were expected among at least some the workplace spirituality dimensions. The results indicated that every on of the construct/factors intercorrelations shown in Table 3 was significantly less than .32. perhaps it was not too suprising in view of the fact that average construct intercorrelation was only ranging .24 to .31 between and within 17-item scale and 20-item scale. The results showed that in every single instance, the square of the interconstruct correlations was always less than the average variance in the items explained by the construct. This is strong evidence of discrimeinant validity of the workplace spirituality dimensions as measured by both versions of the scale.

5.2. *Assessment of Nomological Validity.*

To test the nomological validity of thr reduced 17-item and original 20-items versions of the scale, several demographic characteristics, job attitudes, and role perceptions that theoretically should be related to one or more of workplace spirituality variables were measured, and their hypothesized relationships with the workplace spirualty subscales were empirically examined. The results of these analyses are summarized in Table 4. As shown in the table, there is evidence of the nomological validity of each scale (the correlation r values are ranging from .15 to .65 and significant at .05 p level), regadless which versions of the scale was used to measure them. The evidence (in terms of the number of correalted factors and/or the magnitudes of the correlaltion) is strong for all of the dimensions of both workplace spirituality scales.

6. Discussion and Implications.

The results of the comfirmatory factor analyses of the scale provide adequate evidence of the convergent and discriminant validity of reduced 17-item and original 20-item version of the scale. In both samples of data, all the item loaded on their hypothesized factors, accounted for substantial proportion of the variance in their indicators. Taken together, these findings demonstrate that both versions of the scale possess an adequate level of convergent and discriminant validility.

Both versions of the scale were also found to be relatively reliable. The Cronbach's alpa internal consistency reliabilities for the 3 dimensions of the reduced 17-item and original 20-item version of the scale were all larger tha Nunnally (1988) recommended level of .70.

In addition, chi-squares difference tests indicated that the intercorrelations among the 3 dimensions were identical, regardless of whether they were measured with the 17-item or 20-item versions of the scale.

Finally, an empirical examnination of nomological validity of the 17-item and 20-item versions of the scale showed that both appear to measure what they claim to be measuring. Hence conclusively, the overall pattern of the results indicates that the reduced workplace spirituality scale version was reasonably reliable and valid, and considerably better than the original scale from the setting of the Malaysian Schools.

Table 4: Summary of Nomological Validity Assessements

Sub skala	17-item Scale (Sampel1)	20-item Scale (Sampel 2)
Work Meaningfun		
Teaching Experiences	.31	.18
Highest Academic Achievement	.28	.15
Total Teaching Periods in a Week	.35	.17
Overall Job Satisfaction	.61	.54
Commitment	.60	.61
Sense of Community		
Teaching Experiences	.28	.27
Highest Academic Achievement	.23	.30
Total Teaching Periods in a Week	.21	.22
Overall Job Satisfaction	.65	.57
Commitment	.55	.49
Coherent of Organizational Value Dimension		
Teaching Experiences	.32	.36
Highest Academic Achievement	.19	.31
Total Teaching Periods in a Week	.35	.23
Overall Job Satisfaction	.65	.61
Commitment	.50	.41

Note: All correlation reported in this table are significant at $p<.05$. Pearson correlations are reported except in instances where one of the variables was categorical. In these instances, Spearmen correlations are reported.

From the view of the research implication, it was found that eventhough the variable of workplace spirituality has been a focus of research, nevertheless , it is a new area of exploration as concerned from the context of school spirituality in the field of education. The research instruments used for school based spirituality, were the translated and adapted version from Milliman et. al (2003) dan Ashmos et.al. (2000). Mainly these instrumnts were originally devised for profit based organization. Thus, it is crucially important and appropriate in timing for researching teams in Malaysia to merge the expertise and effort to built a more reliable and suitable instruments that is comprehensive and reflects the local culture.

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