Analysis

Construction and Validation of HRM-Strategy Integration Scale: A Structural Equation Modelling Approach

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Abstract

Human Resource Management (HRM) in organizations has often appeared to be disjointed and haphazard, giving little consideration to the organization's strategy. Debates in the 1980s and early 1990s, however, suggested the need to explore the relationship between HRM and corporate strategy more extensively. Researchers now emphasize that HR practices need to be integrated with firm strategy.Despite the increasing importance of HRM-strategy integration, there is a paucity of valid instruments for measuring such integration in the Indian context. Keeping in mind the fact that India is one of the fastest growing markets today, such a study is expected to be both timely and pertinent. Thus, a need was felt to develop and validate an instrument for measuring HRM-strategy integration in the Indian context. On the basis of an extensive literature review, two constructs of HRM-strategy integration were identified. The scales were empirically tested for unidimensionality, reliability and validity using Structural Equation Modeling (SEM) capabilities of LISREL 8.50. The study is pioneering in the sense that it provides a reliable and valid instrument for measuring HRM-strategy integration that has been empirically tested in the Indian context.

Key Words: HRM-Strategy Integration, Indicator Reliability, Scale Reliability, Convergent Validity, Discriminant Validity, Predictive Validity, Structural Equation Modelling

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Conceptual Background

With the daunting challenges of the business environment, the corporate world is realizing the worth of Human Resource (HR) as an invincible strength for long-lasting competitive advantage. This has given place to the ideology that Human Resource Management (HRM) needs to be aligned to Strategic Management (SM). From this perspective, HR practices need to be integrated with overall firm strategy.

The concept of HRM-strategy integration or *vertical fit* endorses the belief that an organization's effectiveness is enhanced if HR considerations are taken into account when selecting business strategy. Huselid *et al.* (1997) have opined that investment in HR is a potential source of competitive advantage. "Of late, HR specialists have begun to stake a claim on the strategic planning process, arguing that participation in the front end of business planning is essential to meeting the long-run needs of the enterprise" (Miles & Snow, 1984:36). It is interesting to note that HR Department is now considered to be a potent powerhouse for strategic management. Recent developments have provided HR managers with the opportunity to move from their typecast role of picnic organizers to becoming strategic partners (Azmi, 2008). Dealing with people is now acknowledged to be one of the major challenges for organizations in the 21st century.

Starting roughly from the late 1980s, the literature shows an increasing emphasis on HRM-strategy integration (Budhwar & Sparrow, 1997; Brewster & Larsen, 1992; Hendry & Pettigrew, 1992; Lengnick-Hall & Lengnick-Hall, 1988; Schuler & Jackson, 1987; Storey, 1992; Wright & McMahan, 1992). Debates in the early 1990s suggested the need to explore the relationship between strategic management and HRM more extensively (Guest, 1991; Lengnick-Hall & Lengnick-Hall, 1988; Schuler, 1992) and the possibility of changing the HR function from being reactive to being

proactive (Boxall, 1994). Despite differences in definitions, most authors (e.g., Huselid *et al.*, 1997; Schuler, 1992; Wright, 1998) agree that the essence of the HRM-strategy integration lies in viewing employees as valuable assets. It is concerned with the contribution of HRM to firm performance (Wright *et al.*, 2005).

Talking about HRM-strategy integration or vertical fit, most scholars (e.g. Becker & Gerhart, 1996; Bennett *et al.*, 1998; Cook & Ferris, 1986; Delery & Doty, 1996; Gerhart & Milkovich, 1990; Guest, 1997; Lengnick-Hall & Lengnick-Hall, 1988) have emphasized one or both of the following important dimensions:

- the inter-linkage between HRM function and corporate strategy and
- the status and strategic importance of HRM function in the organization.

A number of studies have focused on the HRM-strategy integration or *vertical fit* (Dyer, 1985; Golden & Ramanujam, 1985; Truss & Gratton, 1994). However, these relationships are predominantly theoretical in nature, with efforts generally focusing on normative frameworks on how HRM should be integrated with business management processes (Baird & Meshoulam, 1988; Lengnick-Hall & Lengnick-Hall, 1988; Miles & Snow, 1984; Schuler, 1992). Surprisingly, there are few studies that look beyond what the 'fit' actually comprises (Bennett *et al.*, 1998; Golden & Ramanujam, 1985; Truss & Gratton, 1994; Wright *et al.*, 1998). Thus, we know relatively little about what factors affect the degree of vertical fit or integration. There have been no significant efforts to develop a reliable and valid instrument to measure the various dimensions of this fit.

Despite the importance of HRM-strategy integration or vertical fit, there is still a paucity of empirical researches on the subject in the Indian context. Indian research (e.g. Amba-Rao, 1994; Bordia & Blau, 1998; Mathur *et al.*, 1996) has

focused more on HRM rather than on the interaction between HRM and strategy. The volatile and changing business environment of India offers a good testing field for measuring HRM-strategy integration. Although a few instruments have been developed in the Western world to measure HRM-strategy vertical fit, a need was felt to develop a reliable and valid instrument in the Indian context. This research is a response to calls for developing theoretically and methodologically rigorous and managerially relevant scales for measuring HRM-strategy integration or vertical fit.

Keeping in mind the increasingly vital role that HR plays, a need was felt to develop and validate an instrument for measuring HRM-strategy integration in the Indian context**.** On the basis of an extensive literature review, two constructs of HRM-strategy integration were identified. The scales were empirically tested for unidimensionality, reliability and validity using LISREL version 8.50.

Measures

Linking HRM and business strategy requires HR departments' providing appropriate input into strategic decisions, HR managers' participation in strategic planning and decision-making processes (Fombrun *et al.*, 1984), integrating HRM with business strategy by means of forming and implementing HRM strategies and policies (Schuler, 1992; Sheehan, 2005).

Becker and Huselid (1998) measured HRM-strategy integration by the extent of alignment between business and HR strategies, and involvement of HR department in the strategic planning process. Teo and Crawford (2005) used indicators like involvement of HR unit in strategic decision making and alignment of HR strategies with corporate strategies. In Teo's (2000) study, measures of HR-strategy integration included integration of HR with strategy and issues related to role and position of the HR function/department.

Baron and Kreps (1999) pointed out the importance of HR-strategy link, multidisciplinary approach to HRM, general managers' involvement in HR and role of HR executives in strategy building. Wood (1995) measured such a fit through two dimensions viz. integration of HR issues with business planning and role/position of HR executives.

Budhwar & Boyne (2004) measured strategic nature of HRM through items like existence of personnel dept/manager, HR manager on board of directors, contribution of HR department in managing change, presence of written HR strategy, HRM considerations built into organization strategy, HR involved in formation of corporate strategy etc.

Budhwar & Sparrow (1997) derived items to measure level of integration based on Brewster and Larsen's (1992) four measures of integration: a) representation of personnel on the board b) presence of a written personnel strategy c) consultation of personnel (from the outset) in the development of corporate strategy d) translation of personnel/HR strategy into a clear set of work programmes.

From the above discussion, it can be concluded that researchers in the area have primarily focused on two broad issues viz. integration of HR in the strategic management process and role/position of HR department. Even the Cranet-G 1999-2000 Survey (Cranfield Network on Strategic International Human Resource Management) which has been the basis of study by authors e.g. Ozcelik & Aydýnlý (2006), has used two dimensions: the status of the HR department and the strategic integration of the HR function to measure strategic HRM .

Thus, two major constructs of HRM-strategy vertical fit and their corresponding items were identified from the existing literature: one measuring the degree of HRM-strategy linkage (depicted by **VFL**) and the other measuring the status of HRM function in the organization (depicted by **VFS**):

- ***HRM-Strategy Link (VFL):*** This construct measures whether HRM is integrated with corporate strategy. Several authors e.g. Becker and Huselid (1998), Baron and Kreps (1999), Gratton's (1996), Wood (1995), Khatri 2000, Schuler and Jackson 1987, Huselid *et al.* (1997) etc. have pointed out the need for a conscious effort to align business and HR strategies. Budhwar and Boyne (2004), and Green *et al.* (2006) suggest that HR issues be taken up in corporate strategy formulation by top managers for establishing HR-strategy link. Teo and Crawford (2005) point out that HR activities and plans be consistent with organizational vision.

  Brewster and Larsen (1992) propose that strategic integration of HRM is characterized by the extent the HRM function is integrated with corporate strategy. Khatri (2000) included items like alignment of HR activities with overall corporate strategy and the extent of information flow. Sheehan (2005) too pointed out the need for formal or informal information sharing between the HR manager and the CEO.

  Chang and Huang (2005) measured HRM-strategy integration through consideration of HR issues in business strategy. Importance of human resource as an asset is considered vital to HR-strategy link (Schuler & Jackson, 1987; Teo, 2000). When human resource is seen as important and as a source of competitive advantage, it tends to support HR-strategy integration (Bae & Lawler, 2000; Bennett *et al.*, 1998). The level of HR-strategy integration was found to be stronger when employees were viewed as a strategic resource (Finegold & Frenkel, 2006). Huselid *et al.* (1997) too concur with this view.

  Researchers (e.g. Green *et al.* 2006; Valverde *et al.*, 2006) have opined that some form of training of top managers in HR is vital for establishing linkage between HRM and strategy. When top executives are sensitized to human resource issues, it tends to support HR-strategy integration (Bae & Lawler, 2000; Bennett *et al.,* 1998).

Based on the above discussion, the **VFL** was designed focusing on how integrated the HR function was with the overall strategic management process. It focused on issues like importance given to HR, explicit efforts to align business and HR strategies, consistency of HR activities with organizational vision, HR inputs forming an integral part of corporate strategy, top management's role in HR issues etc.

- ***Strategic status of HRM (VFS):*** Status of HRM function measures whether the HR function has an important place in strategic affairs. Truss (2003) pointed out the need for HR staff's involvement in overall strategic direction, presence of an HR strategy and HR director on board, perceived role of HR. Karami *et al.*, (2004) stated that HR position was measured by HR manager's involvement and contribution in strategy formulation.

  Interestingly, a number of researchers (Hope-Hailey *et al.* 1997; Kelly & Gennard, 1996; Sisson, 2001; Truss, 2003; Wood 1995) have used board-level representation as a measure of status of HR department and to examine its role in the strategic decision-making process. It has been argued that representation on the board of directors is critical if HR managers are to have appropriate input into strategic decisions (Kelly and Gennard, 1996; Poole and Jenkins, 1997). Budhwar & Boyne (2004) too have used board-level representation to study the structure of HR department. They suggest that companies in order "to make their HR function more strategic have HR representation at the board level" (Budhwar & Boyne, 2004:355). Ozcelik & Aydýnlý (2006) have used the **Cranet-G** 1999-2000 Survey (Cranfield Network) to collect the data. In their study too, the status of HR department is measured by representation of HR department on the board of directors.

  Several authors have talked about changing role of HR managers. This re-definition of the HR role requires that the HR manager adopt more of a business partner role (Beer,

1997; Ulrich, 1997; Bowen *et al.*, 2002 and Sheehan, 2005). This warrants developing general skills and capabilities among HR managers to enable them to examine and understand the business context (Brockbank, 1999). Developing such capabilities is indicative of the importance given to HR managers to participate in strategic affairs.

Khatri (2000) included items like HR managers' participation in executive/steering committee meetings, HR being accorded an important role in the company, HR's say in corporate matters like other departments, and the treatment of HR function as a strategically important function. Sheehan (2005) pointed out the need for HR manager to be part of the senior decision-making processes and HR representation at the senior committee level. Bowen *et al*. (2002) in their study measured the status of the HRM department through four items: it is viewed as an important department; it works closely with senior management group on strategic issues; it keeps informed about best human resource management practices; it is viewed as an effective department.

Based on the above, the **VFS** scale was designed . It focused on issues like position of HR departments, representation of HR department at board, position and responsibility of HR executives, HR executives' role in strategic decisions, relationship of HR executives with CEO, general managerial training to HR executives etc.

Methodology

The research is conclusive, descriptive and based on single cross-sectional design. In order to empirically test the scales in the Indian context, primary data was obtained from companies in India.

Sample Element

The respondents were senior HR managers (one from each firm). These are the 'subject matter experts' and believed to be in a good position to provide the required information (Chan *et al*., 2004). Senior HR executives have been used as

respondents in other studies too (e.g. Budhwar & Sparrow, 1997; Chand & Katou, 2007; Fisher & Dowling, 1999; Huselid *et al*., 1997; Jones, 1996; Karami *et al*., 2004; Teo, 2000). Huselid and Becker (2000) concluded that choosing a knowledgeable informant provides researchers more valid and reliable data than that gathered from multiple respondents. Arthur and Boyles (2007) and Becker and Huselid (2006) also support this view.

Sample Frame

Following the footsteps of other researchers in the area (e.g. Chan *et al.*, 2004; Kydd & Oppenheim, 1990), top ranking companies were considered in the present study. The sampling frame for the study was derived from the ranking of Top 450 companies in India published in *Business World.* Being top-ranked organizations, these organizations are supposed to be at the leading edge of HR practices. Taking such organizations that were high performing, researchers could assume that HRM is at least nominally supported (Sheehan, 2005). Wan *et al*. (2002) studied top performing companies in Singapore because these companies were supposed to have some HR system in place and thus fulfilled the requirements for a study on HRM-strategy integration.

With respect to spread of the study, Cook and Ferris (1986: 445) have opined, "we must examine organizations which operate under different environmental conditions and have different strategies". Use of multiple industries can help extend the generalizability of the findings (Dyer & Reeves, 1995; Othman, 1996; Purcell, 1999). Since the present study was conducted on top 450 organizations, it covered a wide range of business sectors.

Chang and Huang (2005), in a study in Taiwan on strategic HRM, excluded firms with fewer than 100 employees from the analysis because they were believed to have immature HRM practices. Similar methodology was adopted in other related studies (e.g. Chan *et al*., 2004; Lau & Ngo, 2001; Wan

et al., 2002). Large organizations tend to follow more formal and structured HR practices (Jackson *et al*., 1989; Huselid, 1995; Youndt *et al*., 1996). Research suggests that firms having over 200 employees are more likely to have a formal HRM function (Brewster & Hegewisch, 1994). Green *et al.* (2006) who studied organizations with more than 250 employees also suggested that large organizations are likely to have well-established HR functions. In the present research too, responding organization had more than 250 employees, thus they were found fit for inclusion.

Sampling Procedure and Sample Size

All companies in the sampling frame (i.e. 450) were contacted. Addresses of the companies were obtained from directories and databases made available to the researcher by different organizations and professional bodies in India.

Development of Research Instrument

The survey instrument contained the following items to measure HRM-strategy vertical fit:

- HRM-Strategy Linkage (VFL) scale: Twelve-items
- Status of HRM (VFS) scale: Eleven-items

The instrument utilized a 5-point Likert scale anchored with end points labeled as strongly agree (5) and strongly disagree (1). Five-point scale has been commonly used in strategic HR research (e.g. Ahmad & Schroeder, 2003; Budhwar & Sparrow, 1997; Khandekar & Sharma, 2005; Khilji & Wang, 2007). Several authors have noted that ambiguous question wording can create confusion or even shift the meaning of the HR component (Huselid & Becker, 2000). Researchers should design questionnaire items that capture the specific substantive focus of the HR component being assessed (Arthur & Boyles, 2007). Hence, efforts were made to keep the items as simple, specific and objective as possible.

The research instrument was developed in three stages:

Stage 1: Identification of constructs from literature and development of draft questionnaire
Stage 2: Modification in draft questionnaire on the basis of inputs and suggestions from academicians and practitioners
Stage 3: Pilot testing and finalization of questionnaire items
During the process of instrument development, face and content validity were ensured.

Face and Content Validity
A scale is said to have face validity if it 'looks like' it is going to measure what it is supposed to measure (Ahmad & Schroeder, 2003). On the basis of extensive literature review, a preliminary draft questionnaire was prepared. Face validity of the questionnaire was insured by having two researchers suggest items for the questionnaire, as suggested by Ahmad and Schroeder (2003). The same were then compared with the items in the draft questionnaire and some modifications were made. Thereafter, two other researchers in the area were then asked to review the questionnaire and guess what the items were intended to measure in order to ensure that the questionnaire appeared reasonable and acceptable.
An instrument has content validity if its items representatively sample the domain of the concept i.e. the items sufficiently span the scope of the construct. Since there is no statistical test for content validity, judgment and insight must be applied (Garver & Mentzer, 1999). If items of a construct are derived from a comprehensive analysis of literature and discussed with experts, content validity can be ensured (Shin *et al.*, 2000).
The VFL and VFS scales were developed by the researcher on the basis of an extensive literature review. The questionnaire was administered for pilot testing on a panel of HR practitioners who were asked not only to give their responses but also provide their comments on the instrument and its items. The respondents were asked to critique the

questionnaire in general, and the items, in particular. In all fifteen HR managers were targeted at this stage. After the pilot testing, some of the items were redefined or re-worded to be more representative of the constructs, thus enhancing the content validity.

Final data was collected from the sample organizations primarily through mail. This methodology has been used by other researchers in the area too e.g. Budhwar and Sparrow (1997), Takeuchi *et al.* (2003), Wood (1995).

Analysis

Structural Equation Modeling (SEM) capabilities of LISREL 8.50 were deployed in order to test the scales. SEM offers many distinct advantages over traditional statistical techniques (Bagozzi, 1981). SEM takes into account measurement error by estimating measurement error variances from the data, whereas traditional techniques do not (Ahire *et al*., 1996). It is ideal for refining scales and testing validity (Garver & Mentzer, 1999; Medsker *et al.*, 1994). Since very few studies in the strategic HR area so far have deployed SEM techniques (e.g. Green *et al.* 2006; Takeuchi *et al*., 2003; Wan *et al*., 2000), hence it was felt that constructing vertical fit scales using SEM would be pioneering in itself.

Analysis was carried out according to the approach recommended by Anderson and Gerbing (1988) and Gerbing and Anderson (1988). For determining the measurement model, we used conventional methods such as exploratory factor analysis, as well as the more advanced approach of confirmatory factor analysis. Separate measurement models were specified for each scale as suggested by Jöreskog and Sörbom (2002). The scales were assessed for dimensionality, reliability and validity.

For proceeding with SEM with LISREL 8.50, the suggested sample size is a minimum of 50. However, the recommended size range is 100–200. A principal component factor analysis

also requires that the sample size must be greater than 50 and preferably 100 (Lindquist *et al.* 2001). In our study, since we had a sample of 108 companies, principal component factor analysis and SEM procedure using LISREL 8.50 could be conveniently adopted.

Before proceeding with a discussion on the measurement model, it will be appropriate to highlight issues pertaining to response rate, non-response bias and common method bias.

Response Rate

The study received a 24% response rate, which is relatively high as compared to similar researches. The response rates in similar studies have generally been low (mean rate 17.4%) as reported by Becker and Huselid (1998). In several other studies, the response rates have been as low as 5.7 per cent (Chan *et al.*, 2004), 6.7 per cent (Tan *et al.*, 2002), 10 per cent (Wan *et al.*, 2000), 15.4 per cent (Green *et al.*, 2006), 15.9 per cent (Takeuchi *et al.*, 2003). Harmon *et al.* (2002) note that low response rates are not untypical in industrial research and report a 10.8% response rate from a mail methodology. It should also be noted that, given the Indian cultural context, postal surveys result in poor response rates (Budhwar & Sparrow, 1997). Keeping in mind the sample frame, a 24% response rate for the present study provided a satisfactory number of respondents, in absolute terms, for reliable statistical outcomes.

In addition to the survey response rate, item completion rate can be used as another measure of survey effectiveness (Klassen & Jacobs. 2001). Klassen and Jacobs (2001: 717) define item completion rate as "the proportion of survey items answered relative to all applicable items." The item completion rate was 99%, suggesting high survey effectiveness. In case of only one questionnaire, responses

were found to be incomplete, thus meriting rejection. The final number of usable questionnaires was 108.

Non-response Bias

Testing for non-response bias helps identify any potential bias due to the failure of elements in the sample to respond. Non-respondents have been found to descriptively resemble late respondents (Armstrong & Overton 1977). Lambert and Harrington (1990) describe a common approach to assessment by comparing early and late respondents and assuming that "non-response bias is non-existent if no differences exist on the survey variables" (p. 21).

Following this approach, respondents were categorized as responding to either the initial or the two follow-up requests sent subsequently. Those responding to the initial requests were classified as early responders (55.5%) while those responding to the follow-up requests were classified as late responders (44.5%). A comparison of the means of the descriptive variables and the scale-item responses for the two groups was conducted for each construct using independent sample T-test. It was found that the two groups exhibited responses that did not have statistically significant differences. Since non-respondents have been found to descriptively resemble late respondents (Armstrong & Overton, 1977), it lends support to the conclusion that non-response bias has not negatively affected the data.

Estimation of Measurement Model

Measurement model estimates the unidimensionality, reliability and validity of each construct (Green *et al.*, 2006). Measurement model helps describe how well the observed indicators serve as a measurement instrument for the latent variables. Specifying the measurement model consists of assigning indicators (e.g., actual measures or questionnaire items) to a latent variable or construct (Garver & Mentzer, 1999). A thorough measurement analysis on research instruments provides confidence that the findings accurately

reflect the proposed constructs. Empirically validated scales can then be used directly in other studies. They also yield valid tools to practitioners.

The first step is to test constructs in the measurement model for unidimensionality. Once each scale is established as unidimensional and reliable; the researcher can test for convergent, discriminant and predictive validity (Anderson & Gerbing, 1991; Steenkamp & Van Trijp, 1991). Measurement analysis was performed on both scales viz. HRM-Strategy Link (VFL) scale and Status of HRM (VFS) scale.

Confirmatory Factor Analysis

CFA was performed on the scales with the objective of determining the fit of the one-factor model. To conduct CFA, a measurement model consisting of the scales, each defined according to a weighted linear combination of the items was specified. For that purpose, a measurement model was specified to have one factor (latent variable) and each item was prescribed to load on one specific latent variable. Recent researches in the area have increasingly preferred this approach over the conventional EFA approach due to its conceptual strengths. CFA is believed to be a more rigorous test of construct validity (e.g. Gowen III *et al*., 2006; Takeuchi *et al*., 2003; Whitener, 2001).

The concept of unidimensionality checks the extent to which items on a scale estimate one construct. Lack of unidimensionality can lead to artificial correlations among constructs. This may warrant purifying the scale by removing those items that reduce unidimensionality. The primary approach for scale purification, when theory guides survey development, is to rely on CFA followed by scale reliability and validity assessments (Mentzer *et al*., 1999). Unidimensionality is a necessary condition for reliability analysis and validation (Anderson & Gerbing, 1991).

When using LISREL, a goodness of fit index (GFI) of 0.90 or higher for the model suggests that unidimensionality exists (Jöreskog & Sörbom, 2002). The fit for the model can also be determined based on the following indices: Adjusted Goodness of Fit Index (AGFI) - greater than 0.9; Bentler's Comparative Fit Index (CFI)- greater than 0.9; Bentler and Bonett's Non-Normed Fit Index (NNFI)- greater than 0.9; Normed Fit Index (NFI)- greater than 0.9; standardized residuals- ideally less than 2.58 (Jöreskog & Sörbom, 2002), zero or few in number are acceptable; value of <0.08 for Root Mean Square Error of Approximation (RMSEA) or even <0.1 is acceptable (Schumacker & Lomax, 2004); and factor loadings should be statistically significant. The chi-square/d.f. ratio value of 3 or 2 or less has been advocated as an acceptable level of fit (Carmines & McIver, 1981). Another aspect of the measurement model is to examine the direction (positive), magnitude (standard loadings of >0.70 or even 0.50) and statistical significance (t>1.96) of the parameter estimates between indicators and latent variables (Garver & Mentzer, 1999; Steenkamp & van Trijp, 1991).

When examining measurement model, theoretical considerations should always be primary. Not all indices are important. It is not possible to achieve perfect values for all indices (Garver & Mentzer, 1999). Thus, as suggested by Garver and Mentzer, (1999), Jöreskog and Sörbom (2002) and Lindquist *et al*. (2001) the areas of greater focus were GFI, AGFI, CFI, NFI, NNFI, RMSEA, and standardized residuals.

The measurement model was estimated based on standardized solutions. None of the scales viz. VFL and VFS were found to be unidimensional. Hence, it was decided to obtain purified scales with the help of item reduction. This is a well documented practice in business research (Bawa, 2004; Goodwin *et al.*, 1985).

CFA was performed repeatedly to get a unidimensional model. The method of standardized residuals was used to

purify the scale and achieve unidimensionality of the construct, as recommended by Anderson and Gerbing (1988); Mentzer *et al*. (1999) and Yelkur *et al.* (2006). Standardized residuals provide a 'statistical' metric for judging the size of a residual. The iterative process helped obtain stronger fitting single-factor model. During each iteration, one item was reduced based on highest standardized residuals till p value was greater than 0.05 i.e. there was no statistically significant difference between items.

When developing a scale, it is best to begin with a very large item pool. Upon completion, the final scale may contain lesser, even one-fourth or one-fifth of the original items (Mentzer *et al*., 1999). In the present study, although the final scales possibly could have been developed in fewer runs, this would have required eliminating a larger number of items in each run. As each item deleted affects all others, a very cautious approach was taken, deleting only one item per run. Items were chosen for being dropped based on largest standardized residuals, significant p value and overall poor fit statistics (especially when GFI <0.90).

VFL Scale: When the measurement model was estimated for the original 12-item VFL scale, the fit indices were not satisfactory. The AGFI and GFI values were less than the desired minimum of 0.9 although NFI, NNFI and CFI values were acceptable. The highest standardized residual had value greater than 2.58. The RMSEA was more than 0.08. In other words, the 12-item VFL scale was not found to be unidimensional, and therefore it was decided to obtain a better scale.

Items with highest standardized residual value were deleted in each iteration. The process of scale purification continued till the fit indices became acceptable and value of p was more than 0.05. This signalled that significant differences no longer existed amongst the items on the scale and unidimensionality

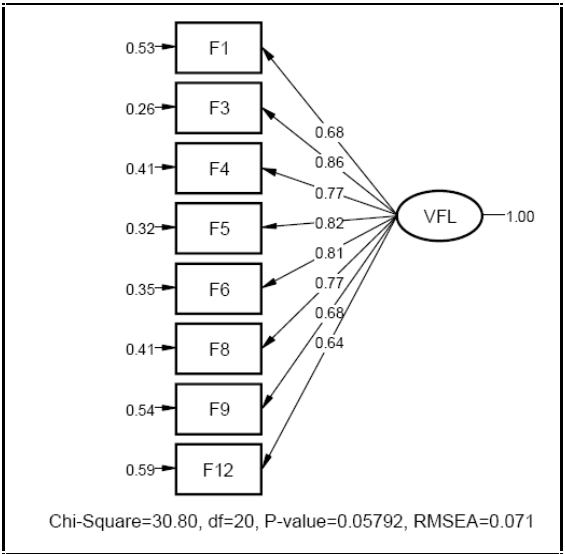
existed. The purified scale had 8 items. The fit indices for the original and purified scale are given in Table 1.

Table 1: CFA Model Fit Indicators for VFL Scale

FIT INDICATORS	Original VFL Scale (12 Items)	Refined VFL Scale (8 Items)
Goodness of Fit Index (GFI)	0.826	0.933
Adjusted Goodness of Fit Index (AGFI)	0.748	0.879
Normed Fit Index (NFI)	0.931	0.965
Non-Normed Fit Index (NNFI)	0.946	0.979
Comparative Fit Index (CFI)	0.956	0.985
Chi-Square /Degrees of Freedom	135.576/54=2.51	30.80/20=1.54
Root Mean Square Error of Approximation (RMSEA)	0.119	0.0710
Standardized Residuals > 2.58	Largest = 5.41	Largest = 2.48

The indices improved after scale refinement in light of the recommended values, thus indicating a better fitting measurement model. The measurement model based on standardized solution for the refined VFL scale is shown in Exhibit 1.

Exhibit 1: Measurement Model with Standardized Solutions for VFL



VFS Scale: When the measurement model was estimated for the original 11-item VFS scale, the fit indices obtained did not give satisfactory values. The AGFI, GFI, NFI, NNFI and CFI values are less than the desired minimum of 0.9. The highest standardized residuals had value greater than 2.58. RMSEA was more than 0.08. In other words, the 11-item VFS scale was not unidimensional, and therefore it was decided to obtain a better scale with the help of item reduction. Finally, the purified scale had 5 items. The fit indices for the original and purified scale are given in Table 2.

Table 2: CFA Model Fit Indicators for VFS Scale

FIT INDICATORS	Original VFS Scale (11 Items)	Refined VFS Scale (5 Items)
Goodness of Fit Index (GFI)	0.751	0.973
Adjusted Goodness of Fit Index (AGFI)	0.627	0.919

Normed Fit Index (NFI)	0.854	0.967
Non-Normed Fit Index (NNFI)	0.852	0.979
Comparative Fit Index (CFI)	0.882	0.989
Chi-Square /Degrees of Freedom	194.667/44=4.42	7.394/5 =1.47
Root Mean Square Error of Approximation (RMSEA)	0.179	0.0669
Standardized Residuals > 2.58	Largest = 7.01	Largest = 2.47

The indices improved after scale refinement in light of the recommended values, thus indicating a better fitting measurement model. The measurement model based on standardized solution for the refined VFS scale is depicted in Exhibit 2.

Exhibit 2: Measurement Model with Standardized Solutions for VFS

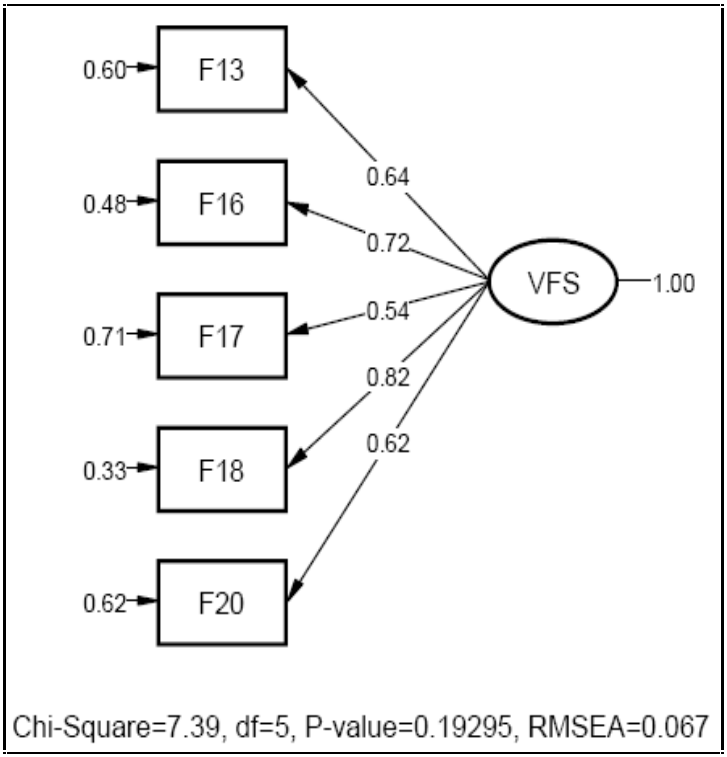


Table 3 depicts the standardized residuals and p values for the scales arrived at during each iteration. The last iteration for each scale is where the standardized residual is less than 2.58 and p value is no longer significant, thus denoting unidimensionality.

Table 3: Standardized Residuals and p Values for Scales

No. of Iterations	S.R. & p Values	VFL	VFS
I Iteration	Largest S.R.	5.41	7.01
	p value	0.00	0.00
II Iteration	Largest S.R.	5.26	4.04
	p value	0.00	0.00
III Iteration	Largest S.R.	2.94	3.93

	p value	0.00	0.00
IV Iteration	Largest S.R.	2.58	3.37
	p value	0.00	0.00
V Iteration	Largest S.R.	2.48	3.19
	p value	0.05	0.00
VI Iteration	Largest S.R.	-	2.91
	p value	-	0.00
VII Iteration	Largest S.R.	-	2.47
	p value	-	0.19
VIII Iteration	Largest S.R.	-	-
	p value	-	-

S.R=Standardized Residual

A goodness of fit index (GFI) of 0.90 or higher for the model suggests that evidence for unidimensionality existed (Jöreskog & Sörbom, 2002). The GFI indices for the refined scales were above 0.90, indicating that scales were unidimensional (see Tables 1 & 2). Appendix 1 provides a list of the retained statements/items in both the scales. After purifying the scales, tests of reliability and validity were performed.

Assessment of Reliability

Once the unidimensionality of the scales is established, an assessment of the statistical reliability is necessary before further validation analysis is performed (Anderson & Gerbing, 1991; Mentzer *et al.*, 1999; Steenkamp & Van Trijp, 1991). Peterson (1994) opines that there is virtual consensus among researchers that for a scale to be valid, it must first be reliable. Two types of reliability estimates were calculated in this study: (1) Indicator reliability and (2) Scale reliability.

Indicator Reliability

Indicators are items used to measure a particular latent variable or construct. Indicator reliability refers to the reliability of individual indicators. It is measured for every single indicator (Wu, 2005). In SEM terms, the reliability of an indicator is defined as the variance in that indicator that is not accounted for by measurement error. It usually ranges from 0 to 1 (Jöreskog & Sörbom, 2002). By convention, the indicators should preferably have loadings of 0.7 or more on the latent variable and indicator reliability should preferably be 0.5 or greater (Schumacker & Lomax, 2004). Even values close to the recommended are considered acceptable (Wu, 2005).

In the present case, except for a few indicators, most indicators had loadings on the latent variable of more than 0.7 or close to it in both scales (see Exhibits 1 & 2). Indicator reliability was also more than 0.5 or close to it in most cases. Table 4 illustrates indicator reliability for indicators in each scale.

Table 4: Indicator Reliability of the Scales

Indicators	VFL	VFS
1	0.46	0.40
2	0.73	0.51
3	0.59	0.49
4	0.67	0.67
5	0.65	0.38
6	0.59	-
7	0.46	-
8	0.40	-

Note: Shaded boxes represent indicator with highest reliability

Scale Reliability

Scale reliability is operationalized as internal consistency, which is the degree of inter-correlations among the items that constitute the scale (Nunnally & Bernstein, 1994). The most popular method to assess the reliability of a construct is by computing the alpha coefficient of internal consistency

(Cronbach, 1951). A value of Cronbach's alpha of 0.7 or more is used as a criterion for a reliable scale (Nunnally & Bernstein, 1994). Even an alpha value greater than 0.60 is considered to be reliable (Hair *et al.*, 1998). Reliability assessment of the two refined scales returned high Cronbach alpha values that suggested high reliability.

However, coefficient alpha tends to underestimate and sometimes overestimate scale reliability (Garver & Mentzer, 1999). Thus, apart from Cronbach's coefficient alpha, Garver and Mentzer (1999) and Wu (2005) recommend computing the SEM construct-reliability and variance-extracted measures to assess scale reliability. SEM construct reliability values do not assume that the individual items have equal reliabilities. Fornell and Larcker (1981), Fornell and Bookstein (1982), Garver and Mentzer (1999) have described construct-reliability and variance-extracted measures as:

- **Construct Reliability (CR)**: Construct reliability is a LISREL-generated estimate of internal consistency analogous to Cronbach's alpha. It is calculated by a formula. Let sl_i be the standardized loadings for the indicators for a latent variable. Let e_i be the corresponding error terms, where error is 1 minus the reliability of the indicator. The formula for CR is:

$$CR = \frac{\left[\sum_{i=1}^{n} sl_i\right]^2}{\left[\sum_{i=1}^{n} sl_i\right]^2 + \sum_{i=1}^{n} e_i}$$

- **Variance Extracted (VE):** A complementary measure of construct reliability is the variance extraction measure.

Variance extracted estimates assess the amount of variance captured by a construct's measure in relation to variance due to random measurement error. Its formula, which is a variation of construct reliability, is:

$$VE = \frac{\sum_{i=1}^{n} sl_i^{\,2}}{\sum_{i=1}^{n} sl_i^{\,2} + \sum_{i=1}^{n} e_i}$$

Fornell and Bookstein (1982) stated that CR value higher than 0.6 implies that there is high internal consistency. Variance extracted at 0.5 or higher is generally considered acceptable (Fornell & Larcker, 1981). In the study, the CR and VE values exceeded or were close to the recommended values. The Cronbach alpha, CR and VE values are given in Table 5.

Table 5: Scale Reliability Estimates

Scale	Cronbach alpha	Construct Reliability	Variance Extracted
VFL	0.90	0.91	0.57
VFS	0.82	0.80	0.55

Assessment of Validity

A scale has validity if it is measuring the concept that it was intended to measure (Bagozzi, 1981). While face and content validity are established at the time of questionnaire development, the remaining types of validity need to be tested from a statistical perspective (Garver & Mentzer, 1999). Various forms of construct validity i.e. convergent, discriminant and predictive validity were assessed.

Construct Validity

Construct validity addresses the question of what construct or characteristic the scale is, in fact, measuring. Assessing construct validity, a term standardized by Cronbach & Meehl, (1955) is a complex process. It included ascertaining various types of validity such as convergent, discriminant and predictive validity.

- **Convergent Validity**

Convergent validity is the extent to which items in a scale correlate positively with each other. A construct is said to possess convergent validity if measures/items of a construct converge or highly correlate (Kaplan & Sacuzzo, 1993). It determines whether the items intended to measure a latent variable statistically converge together (Garver & Mentzer, 1999).

An interesting aspect is that internal consistency is a type of convergent validity which seeks to assure there is at least moderate correlation among the indicators (Kaplan & Sacuzzo, 1993). Since unidimensionality and high internal consistency of the two scales had already been established, evidence of moderate convergent validity already existed.

For a convergent validity check, Bagozzi *et al*. (1991) suggested that all items should load on their hypothesized dimensions and the estimates are positive and significant. Study results indicated that in case of both scales, the condition applied well.

Garver and Mentzer (1999) recommend parameter estimates for the individual measurement items to assess convergent validity. At the basic level, if item loading values within each construct are relatively high (i.e., greater than 0.50) one has a basic comfort level for convergent validity (Mentzer *et al*., 1999). All parameter estimates in case of VFL and VFS scales had standardized loadings of more than 0.50 (see Exhibits 1 and 2), thus indicative of high convergent validity.

Anderson and Gerbing (1988) stated that convergent validity is assessed through *t*-values for the factor loadings. If all *t*-values are over 2 (p=0.001) then this is viewed as evidence supporting convergent validity (Anderson & Gerbing, 1988). Exhibits 3 and 4 depict the measurement model for the two scales based on t-values. It is to be noted that in both cases, t-values were more than 2, thus also indicating that convergent validity was high.

Exhibit 3: Measurement Model with T-values for VFL

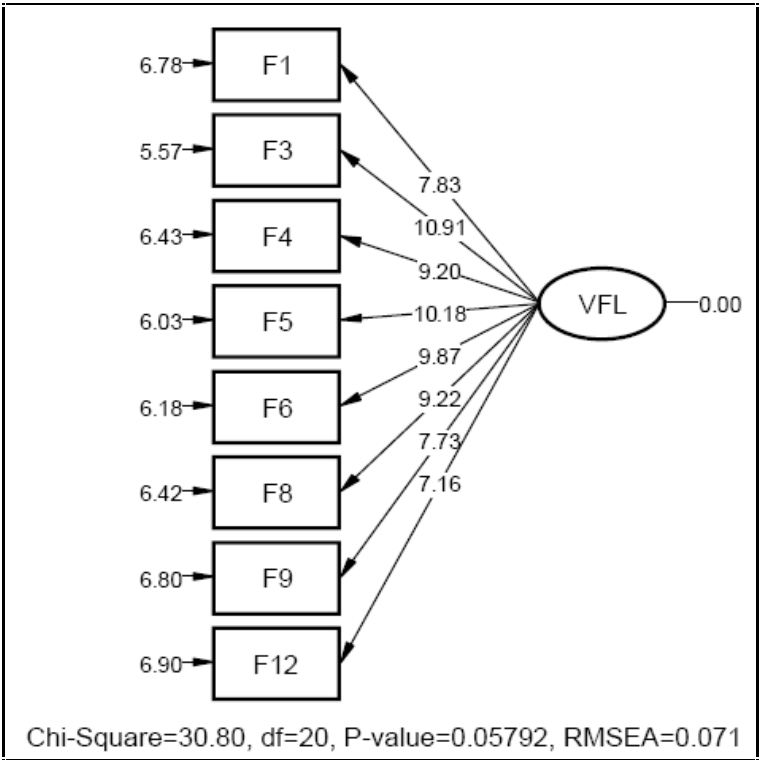
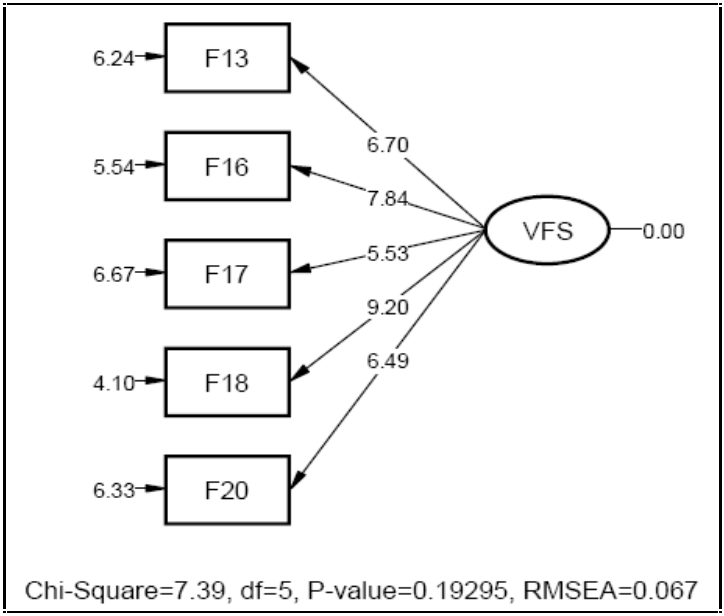


Exhibit 4: Measurement Model with T-values for VFS



The convergent validity of a scale can also be measured using the Bentler-Bonett coefficient (Bentler & Bonett, 1980) in LISREL. Ahire *et al.* (1996) and Green *et al.* (2006) recommend assessing convergent validity using the Bentler-Bonett coefficient with values greater than 0.9 indicating strong validity. In the present case, refined scales have a Bentler-Bonett coefficient (i.e. NFI and NNFI) of greater than 0.9 as can be seen from Tables 3 & 4, thus indicative of strong convergent validity.

- **Discriminant Validity**

Discriminant validity is the extent to which the items representing a latent variable discriminate that construct from other items representing other latent variables (Mentzer *et al.*, 1999). A scale exhibits discriminant validity if its constituent

items estimate only one construct (Bagozzi *et al*., 1991). In essence, items from one scale should not load on a different scale (Garver & Mentzer, 1999). That is, despite correlation, each scale represents a distinct concept.

CFA is first run on the pair of scales fixing the correlation to one and then run a second time allowing for correlation between the constructs. The difference between chi-squares from the two factor analyses is computed and tested for significance (Ahire *et al.*, 1996). This suggests that in model 1 (MI), the estimated correlation parameter between the two constructs should be constrained (fixed) to 1.0. In model 2 (M2), the correlation should be unconstrained (freely estimated). Then, a chi-square difference test for these two models should be performed. A statistically significant difference in chi-squares indicates discriminant validity (Ahire *et al*., 1996) and the latent variables are said to be distinct. A significant chi-square difference implies that the model in which the correlation is set at 1 does not fit the data i,e. the indicators of both dimensions do not measure one single factor and show discriminant validity (Garver & Mentzer, 1999).

Chi-square difference tests were run on the pair of scales (VFL and VFS). A statistically significant difference in chi-squares was found. All differences were significant at the .05 level, thus suggesting existence of discriminant validity. Table 6 shows the results of discriminant validity.

Table 6: Discriminant Validity of Scales

Scales	Chi Square	Df	P value
VFL- VFS (M1)	118.60	65	0.00006
VFL –VFS (M2)	114.40	64	0.00011
Difference	4.20	1	<0.05

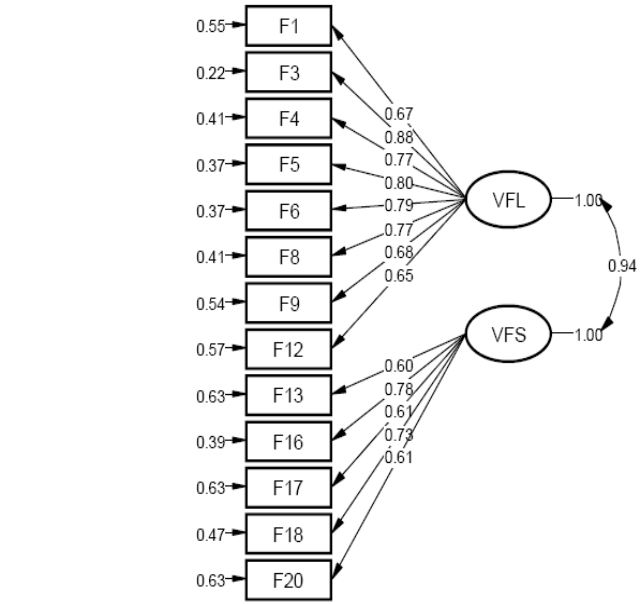
M1: Correlation constrained (fixed) to 1.0.

M2: Correlation unconstrained (freely estimated)

- **Nomological Validity**

Ahire *et al*. (1996) and Garver and Mentzer (1999) recommend assessing nomological validity by determining whether the scales of interest correlate as expected. Since, VFL and VFS are constructs depicting HRM-strategy vertical fit; theoretically they are expected to correlate. The correlation value between VFL and VFS was positive and significant (0.94) thus giving proof of nomological validity as presented in Exhibit 5.

Exhibit 5: Measurement Model with Correlations



Chi-Square=114.40, df=64, P-value=0.00011, RMSEA=0.086

Conclusions

When the measurement model was assessed for the scales viz. HRM-Strategy Link (VFL) scale and Status of HRM (VFS)

scale, the results obtained showed that the scales were not unidimensional in nature. Scale refinement was carried out to obtain better fitting scales with the help of CFA. The purified scales had fit indices in the recommended range.

Reliability and validity of refined scales ware then assessed. Indicator reliability for most indicators was found to be satisfactory. Scale reliability was measured in three ways i.e. Cronbach's alpha, construct reliability and variance extracted measures. Both scales exhibited acceptable scale reliability. Evidences of various forms of validity i.e. convergent, discriminant and predictive were also found in the study scales.

Managerial Implications and Future Directions

The study has implications for both academicians and practitioners. An outcome of the study is the development of a reliable and valid instrument for measuring the various dimensions of HRM-strategy vertical fit. Since a majority of scales in the area have been produced in developed countries, the present research contributes by drawing its sample from India.

The discipline is often criticized for taking a 'black box' approach because it is difficult to demonstrate causality (Wright *et al.*, 2005). The present study uncovers the dimensions of HRM-strategy integration and empirically establishes reliability and validity of the scales through a rigorous research methodology by deploying SEM, which is a rather less touched upon methodology in the area. Since SEM is said to be superior to traditional techniques (Anderson & Gerbing, 1988; Garver & Mentzer, 1999), the scales can be used effectively for understanding HRM-strategy dynamics in India.

The present study was intended at developing a reliable and valid instrument for measuring HRM-strategy integration dimensions. However, the instrument has been tested in the

Indian context only. Such scale modifications, which are empirically generated, must be cross-validated on other samples. Thus, it calls for more studies in different settings, cultures and countries to further test its unidimensionality, reliability and validity.

The survey methodology yielded a 24% response rate. Although the response rate is relatively high as compared to similar researches, additional data collection methods would strengthen the study. The present study is based on responses provided by key informants i.e. HR managers. Future researchers may adopt a multi constituency approach to reduce bias, if any, of key informants. The present study was based on a limited sample. Future researches on bigger and more diverse samples may help generate more generalizable results.

References

Ahire, S., Golhar, D. & Waller, M. (1996). Development and validation of TQM implementation constructs. *Decision Sciences*, 27 (1), 23-56.

Ahmad, S. & Schroeder, R. G. (2003). The impact of human resource management practices on operational performance: Recognizing country and industry differences. *Journal of Operations Management*, 21, 19–43.

Amba-Rao, S. (1994). US HRM principles: Cross-country comparisons and two case applications in India. *International Journal of Human Resource Management*, 5(3), 755–78.

Anderson, J. C. & Gerbing, D. W. (1991). Predicting the performance of measures in a confirmatory factor analysis with a pretest assessment of their substantive validities. *Journal of Applied Psychology*, 76(5), 732-740.

Anderson, J. C., & Gerbing, D. W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. *Psychological Bulletin*, 103(3), 411-423.

Armstrong, J. S. & Overton. T. S. (1977). Estimating nonresponse bias in mail surveys. *Journal of Marketing Research,* 14(3), 396-402.
Arthur, J. B. & Boyles, T. (2007). Validating the human resource system structure: A levels-based strategic HRM approach. *Human Resource Management Review*, 17, 77–92.
Azmi, F. T. (2008). From Picnic Organizers to Strategists: Turn of the Wheel for Human Resource Managers. *Eurasian Journal of Business & Economics,* 1 (1), 37-60.
Bae, J. & Lawler. J. J. (2000). Organizational and HRM strategies in Korea: Impact on firm performance in an emerging economy. *Academy of Management Journal*, 43 (3), 502-517.

Bagozzi, R. P (1981). An examination of the validity of two models of attitude. *Multivariate Behavioral Research*, 18, 133-145.
Bagozzi, R. P., Yi, Y. & Phillips, L. W. (1991). Assessing construct validity in organizational research. *Administrative Science Quarterly*, 36, 421-458.
Baird, L. & Meshoulam, I. (1988). Managing the two fits of strategic human resource management. *Academy of Management Review*, 13, 116-128.

Baron, J. N. & Kreps, D. N. (1999). *Strategic human resource management: Framework for general managers.* New York: John Wiley & Sons.
Bawa, M.A. (2004). Consumer ethnocentrism: CETSCALE validation and measurement of extent. *Vikalpa*, 29(3), 43-57.
Becker, B. E. & Gerhart, B. (1996). The impact of human resource management on organizational performance: progress and prospects. *Academy of Management Journal*, 39 (4), 779-801.

Becker, B. E. & Huselid, M. A. (2006). Strategic human resources management: where do we go from here? *Journal of Management*, 32 (6) 898-925.
Becker, B. E., & Huselid, M. A. (1998). High performance work systems and firm performance: A synthesis of research and managerial applications. In G. R. Ferris (Ed.), *Research in Personnel and Human Resource Management*, 53-101, Greenwich: CT JAI Press.
Beer, M. (1997). The transformation of the human resource function: Resolving the tension between a traditional administrative and a new strategic role. *Human Resource Management*, 36(1), 49-56
Bennett, N., Ketchen, D. J. & Schultz, E. B. (1998). An examination of factors associated with the integration of human resource management and strategic decision-making. *Human Resource Management*, 37 (1), 3-16.
Bentler, P. M. & Bonett, D. G. (1980). Significance tests and goodness of fit in the analysis of covariance structures. *Psychological Bulletin*, 88(5), 588-606.
Bordia, P. & Blau, G. (1998). Pay referent comparison and pay level satisfaction in private versus public sector organizations in India. *International Journal of Human Resource Management*, 9(1), 155–67.
Bowen, D. E., Galang, C. & Pillai, R. (2002). The role of human resource management: An exploratory study of cross-country variance. *Human Resource Management,* 41(1), 103-127.
Boxall, P. F. (1994). Placing HR strategy at the heart of business success. *Personnel Management* , 4(3), 32–35.
Brewster, C. & Larsen, H. H. (1992). Human resource management in Europe: evidence from ten countries. *International Journal of Human Resource Management,* 3 (3), 409-434.

Brewster. C. & Hegewisch. A. (1994). *Policy and practice in European human resource management*. London and New York: Routledge.
Brockbank, W. (1999). If HR were really strategically proactive: Present and future directions in HR's contribution to competitive advantage. *Human Resource Management*, 38(4), 337-352.
Budhwar, P. S. & Boyne, G. (2004). Human resource management in the Indian public and private sectors: an empirical comparison. *The International Journal of Human Resource Management*, 15 (2), 346–370.
Budhwar, P. S. & Sparrow, P. R. (1997). Evaluating levels of strategic integration and devolvement of human resource management in India. *The International Journal of Human Resource Management*, 8(4), 476-494.
Carmines, E. & McIver, J. (1981). Analyzing Models with Unobservable Variables: Analysis of Covariance Structures. In G. Bohrnstedt & E. Borgatta, (Eds.) *Social measurement: Current issues*. Beverly Hills, CA: Sage Publications.
Chan, L. L. M., Shaffer, M. A. & Snape, E. (2004). In search of sustained competitive advantage: the impact of organizational culture, competitive strategy and human resource management practices on firm performance. *International Journal of Human Resource Management*, 15(1), 17–35.
Chand, M. & Katou, A. A. (2007). The impact of HRM practices on organisational performance in the Indian hotel industry. *Employee Relations*, 29 (6), 576-594.
Chang, W. A. & Huang, T. C. (2005). Relationship between strategic human resource management and firm performance: A contingency perspective. *International Journal of Manpower*, 26 (5), 434-449.
Cook, D. S., & Ferris, G. R. (1986). Strategic human resource management and firm effectiveness in industries experiencing decline, *Human Resource Management*, 25 (3), 441-458.

Cronbach, L. J. & Meehl, P. E. (1955). Construct validity in psychological tests. *Psychological Bulletin*, 52, July, 281-302.
Cronbach, L. J. (1951). Coefficient alpha and internal structure of tests. *Psychometrika,* 16(3), 297-333.

Delery, J. E. & Doty, D. H. (1996). Modes of theorizing in strategic human resource management: Tests of universalistic, contingency, and configurational performance predictions. *The Academy of Management Journal*, 39 (4), 802-835.

Delery, J. E. (1998). Issues of fit in strategic human resource management: Implications for research. *Human Resource Management Review***,** 8(3), 289-309.
Dyer, L. & Reeves, T. (1995). Human resource strategies and firm performance: what do we know and where do we need to go? *The International Journal of Human Resource Management*, 6 (3), 656–670.
Dyer, L. (1985). Strategic human resource management and planning. In *Research and Practice in Personnel and Human Resource Management*, 3, (1-30). Greenwich, CT: JAI Press.
Finegold, D. & Frenkel, S. (2006). Managing people where people really matter: the management of human resources in biotech companies. *International Journal of Human Resource Managemen*t, 17 (1), 1–24.
Fisher, C. D. & Dowling, P. (1999). Support for an HR approach in Australia: the perspective of senior HR managers. *Asia Pacific Journal of Human Res*ources, 37(1), 1-19.
Fombrun, C. J., Tichy, N. M. & Devanna, M. A. (1984). *Strategic human resource management*. New York: John Wiley.

Fornell, C. & Bookstein, F. L. (1982). Two structural equation models: LISREL and PLS applied to consumer exit-voice theory. *Journal of Marketing Research*, 19(4), 440-453.

Fornell, C. & Larcker, D. F. (1981). Structural equation models with unobservable variable and measurement error: algebra and statistics. *Journal of Marketing Research*, 18(3), 382-388.

Garver, M. S. & Mentzer, J. T. (1999). *Logistics research methods: employing structural equation modeling to test for construct validity.* Journal of Business Logistics, *20(1), 33-57.*

Gerbing, D. W. & Anderson, J. C. (1988). An updated paradigm for scale development incorporating unidimensionality and its assessment. *Journal of Marketing Research*, 25 (May), 186-192.

Gerhart, B. & Milkovich, G. T. (1990). Organizational differences in managerial compensation and firm performance. *Academy of Management Journal*, 33, 663–691.

Golden, K., & Ramanujam, V. (1985). Between a dream and a nightmare: On the integration of the human resource management and strategic business planning processes. *Human Resource Management*, 24, 429-452.

Goodwin, S. A., Purwar, P. C. & Rogers, M. (1985). An experimental investigation of the communication effectiveness of interrogative versus declaration headlines for print advertisements. *Decision,* Oct- Dec, 163-170.

Gowen III, C. R., McFadden, K. L. & Tallon, W. L. (2006). On the centrality of strategic human resource management for healthcare quality results and competitive advantage. *Journal of Management Development*, 25 (8), 806-826.

Green, K. W., Cindy W. H, Whitten, D. & Medlin, B. (2006). The impact of strategic human resource management on firm performance and HR professionals' work attitude and work performance. *International Journal of Human Resource Management*, 17(4), 559-579.

Gratton, L. (1996). Implementing a strategic vision: Key factors for success. *Long Range Planning*, 29(3), 290–303.

Guest, D. (1991). Personnel management: the end of orthodoxy?, *British Journal of Industrial Relations*, 29 (2), 149-75.
Hair, Jr. J. F, Anderson, R. E., Tatham, R. L. & Black, W. C. (1998). *Multivariate data analysis*. Prentice Hall, Upper Saddle River, NJ.
Harmon. H. A., Brown. G., Widing, R.E. II & Hammond. K.L. (2002). Exploring the sales manager's feedback to a failed sales effort. *Journal of Business and Industrial Marketing*, 17(1), 43-55.
Hendry C. & Pettigrew, A. (1992). Patterns of strategic change in the development of human resource management, *British Journal of Management*, 3 (3), 137-156.
Hope-Hailey, V., Gratton, L., McGovern, P., Stiles, P. & Truss, C. (1997). A chameleon function? HRM in the 1990s. *Human Resource Management Journal*, 7(3), 5-18.
Huselid, M. A. (1995). The impact of human resource management practices on turnover, productivity, and corporate financial performance. *Academy of Management Journal*, 38 (3), 635-72.
Huselid, M. A. & Becker, B. E. (2000). Comment on "Measurement error in research on human resource and firm performance: how much error is there and how does it influence effect size estimates?" by Gerhart, B., Wright, P. M., McMahan, G. C. and Snell, S. A.", *Personnel Psychology*, 5(4), 835-54.
Huselid, M.A., Jackson, S. E. & Schuler, R.S. (1997). Technical and strategic human resource management effectiveness as determinants of firm performance. *Academy of Management Journal*, 40 (1), 171-88.
Jackson, S. E., Schuler, R. & Rivero, (1989). Organizational characteristics as predictors of personnel practices. *Personnel Psychology*, 42, 727-786.

Jackson, S. E., Schuler, R. & Rivero, (1989). Organizational characteristics as predictors of personnel practices. *Personnel Psychology*, 42, 727-786.
Jones, O. (1996). Strategic HRM: The implications for pharmaceutical R&D. *Technovation*, 16(1), 21-32
Jöreskog, K. & Sörbom, D. (2002), *LISREL 8.53: User's Reference Guide*. Chicago: Scientific Software International Inc (SSI).
Kaplan, R. M., & Sacuzzo, D. P. (1993). *Psychological testing: Principles, applications and issues.* Pacific Grove CA: Brooks Cole.
Karami, A., Analoui, F. & Cusworth, J. (2004). Strategic human resource management and resource-based approach: the evidence from the British manufacturing industry. *Management Research News*, 27(6), 50-67.
Kelly, J. & Gennard, J. (1996). The role of personnel directors on the board of directors. *Personnel Review*, 25(1), 7-24
Khandekar, A. & Sharma, A. (2005). Managing human resource capabilities for sustainable competitive advantage: An empirical analysis from Indian global organizations. *Education & Training*, 47 (8/9), 628-639.
Khatri, N. (2000). Managing human resource for competitive advantage: a study of companies in Singapore. *International Journal of Human Resource Management*, 11 (2), 336-365
Khilji, S. E., & Wang, X. (2007). New evidence in an old debate: Investigating the relationship between HR satisfaction and turnover. *International Business Review* (In Press).
Klassen, R. D. & Jacobs. J. (2001). Experimental comparison of web, electronic and mail survey technologies in operations management. *Journal of Operations Management*, 19(6), 713-28.
Kydd, C. T. & Oppenheim, L. (1990). Using human resource management to enhance competitiveness: Lessons from four excellent companies. *Human Resource Management*, 29 (2), 145-166.

Lambert. D. M. & Harrington. T.C. (1990). Measuring nonresponse bias in customer service mail surveys. *Journal of Business Logistics,* 1(2), 5-25.
Lau, C.M. & Ngo, H.Y. (2001). Organization development and firm performance: a comparison of multinational and local firms. *Journal of International Business Studies*, 32(1), 95-114.
Lengnick-Hall, C. A. & Lengnick-Hall, M. L. (1988). Strategic human resource management: a review of the literature and a proposed typology. *Academy of Management Review*, 13 (3), 454-70.
Lindquist, J. D., Vida, I., Plank, R. E. & Fairhurst, A. (2001). The modified CETSCALE: Validity Tests in the Czech Republic, Hungary, and Poland. *International Business Review* 10, 505–516.
Mathur, P., Aycan, Z. & Kanungo, R. N. (1996). Work cultures in Indian organisations: A comparison between public and private sector. *Psychology and Developing Society,* 8(2), 199–222.
Medsker, G. J., Williams, L. J. & Holahan, P. J. (1994). A review of current practices for evaluating causal models in organizational behavior and human resources management research. *Journal of Management*, 20 (2), 439-464.

Mentzer, J. T., Flint, D. J. & Kent, J. L. (1999). Developing a logistics service quality scale. *Journal of Business Logistics,* 20 (1), 9–32.

Miles, R. E. & Snow, C. C. (1984), Designing strategic human resource systems. *Organizational Dynamics*, 13(1), 36-52.
Nunnally, J. C. & Bernstein, I. H. (1994). *Psychometric Theory*. New York: McGraw-Hill.
Othman, R. B. (1996). Strategic HRM: evidence from the Irish food industry. *Personnel Review*, 25 (1), 40-58.

Ozcelik, A. O. & Aydýnlý , F. (2006). Strategic role of HRM in Turkey: a three-country comparative analysis. *Journal of European Industrial Training*, 30 (4), 310-327.
Peterson, R. A. (1994). A meta-analysis of Cronbach's coefficient alpha. *Journal of Consumer Research*, 21(2), 381-391.
Poole, M. J. F. & Jenkins, G. (1997). Responsibilities for human resource management practices in the modern enterprise: Evidence from Britain. *Personnel Review*, 26 (5), 333-356.
Purcell, J. (1999). Best practice and best fit: Chimera or Cul-De-Sac'. *Human Resource Management Journal*, 3(9): 26–41.
Schuler, R. S. (1992). Strategic human resources management: Linking the people with the strategic needs of the business. *Organizational Dynamics*, 21 (1), 18-32.
Schuler, R. S. & Jackson, S. E. (1987). Linking competitive strategies with human resource management practices. *Academy of Management Executive*, 1 (3), 207–219.
Schumacker, R. E. & Lomax, R. G. (2004). *A beginner's guide to structural. equation modeling*, (2nd Ed.). Mahwah, NJ: Erlbaum and Associates.
Sheehan, C. (2005). A model for HRM strategic integration. *Personnel Review*, 34 (2), 192-209.
Shin, H., Collier, D. A. & Wilson. D. D. (2000). Supply management orientation and supplier/buyer performance. *Journal of Operations Management*,18 (3), 317-33.
Steenkamp, B. & van Trijp, H. (1991). The use of LISREL in validating marketing constructs. *International Journal of Research in Marketing*, 8, 283-299.
Storey, J. (1992). The part played by senior and middle line managers in the management of human resources. In J. Storey (Ed.) *Developments in the management of human resources.* Oxford: Blackwell Publishers.
Takeuchi, N., Wakabayashi, M. & Chen, Z. (2003). The strategic HRM configuration for competitive advantage:

evidence from Japanese firms in China and Taiwan. *Asia Pacific Journal of Management*, 20, 447-80.
Tan. K. C., Lyman. S. B. & Wisncr. J. D. (2002). Supply chain management: A strategic perspective. *International Journal of Operations and Productions Management*, 22 (6), 614-631.
Teo, S. T. T. (2000). Evidence of strategic HRM linkages in eleven Australian corporatized public sector organizations. *Public Personnel Management*, 29 (4), 557-574.
Teo, S. T. T. & Crawford, J. (2005). Indicators of strategic HRM effectiveness: A case study of an Australian public sector agency during commercialization. *Public Personnel Management*, 34(1), 1-16.
Truss, C. & Gratton, L. (1994). Strategic human resource management: a conceptual approach. *The International Journal of Human Resource Management*, 5(3), 663-86.
Truss, C. (2003). Strategic HRM: Enablers and constraints in the NHS. *The International Journal of Public Sector Management*, 16 (1), 48-60.
Ulrich, D. (1997). *Human resource champions*. Boston, MA: Harvard Business School Press.
Valverde, M., Ryan, G. & Soler, C. (2006). Distributing HRM responsibilities: a classification of organizations. *Personnel Review*, 35 (6), 618-636
Wan, D., Kok, V. and Ong, C.H. (2002). Strategic human resource management and organizational performance in Singapore. *Compensation and Benefits Review*, 34(4), 33-42.
Wan, D., Ong, C. H. & Kok, V. (2000). Organisational strategy, Strategic HRM and firm performance: A structural equation modelling (SEM) approach. *Working Paper. The National University of Singapore*. Retrieved on May 2, 2006 from http://www.fba.nus.edu.sg/fba/mscphd/Index0018.htm
Whitener, E.M. (2001). Do high commitment human resource practices affect employee commitment?: A cross-level

analysis using hierarchical linear modeling. *Journal of Management*. 27, 515-535.
Wood, S. J. (1995). The four pillars of HRM: are they connected?' *Human Resource Management Journa*l, 5(5), 49-59.
Wright, P. M. & McMahan, G. C. (1992). Theoretical perspectives for strategic human resource management. *Journal of Management*, 18 (2), 295-320.
Wright, P. M. (1998). Introduction: Strategic human resource management research in the 21st century. *Human Resource Management Review*, 8 (3), 187-191.
Wright, P. M., Gardner, T. M., Moynihan, L. M. & Allen, M. R. (2005). The relationship between HR practices and firm performance: Examining causal order. *Personnel Psychology*, 58, 409-446.
Wright, P. M., McMahan, G. C., McCormick, B., & Sherman, S. (1998). Strategy, competence and hr involvement as determinants of refinery performance. *Human Resource Management*, 37, 17-29.
Wu, S. (2005). Employability and effective learning systems in higher education. Paper presented at *Ninth Quality in Higher Education International Seminar* in collaboration with ESECT and The Independent, Birmingham 27th-28th January 2005. Retrieved on October 5, 2007 from www.qualityresearchinternational.com/ese/papers/wufv.doc.
Yelkur, R., Chakrabarty, S. & Bandyopadhyay, S. (2006). Ethnocentrism and buying intentions: Does economic development matter? *The Marketing Management Journal*, 16 (2), 26 – 37.
Youndt, M. A., Snell, S. A., Dean, J. W. & Lepak, D. P. (1996). Human resource management: manufacturing strategy and firm performance. *Academy of Management Journal*, 39 (4), 836–866.

Appendix 1: Retained Items in the Scales

Item	Construct	Description
F1	VFL	Human resource considered as a vital asset
F3	VFL	Conscious effort to align business with HR issues
F4	VFL	HRM activities designed keeping in mind organizational strategy
F5	VFL	Inputs about HR considered integral part of organizational strategy
F6	VFL	HR activities are consistent with organizational vision
F8	VFL	Top management take special interest in HR issues
F9	VFL	Top management are trained in handling HR issues
F12	VFL	Information sharing mechanism between HR and senior managers
F13	VFS	HRM is viewed as a strategically important function
F16	VFS	Top-level strategic teams include HR head/executive
F17	VFS	HR executives are provided training in general managerial skills
F18	VFS	Status of HR departments is at par with other departments
F20	VFS	HR function is represented at the board level