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## **Strategic Use of Employee Opinion Surveys: Using a Quasi-Linkage Approach to Model the Drivers of Organisational Effectiveness**

*by*

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### ***Abstract:***

*Traditionally, organisations use benchmarking to evaluate their employee opinion survey data. This approach is useful for identifying strengths and weaknesses in organisational performance, but it does not tell us how to bring about improvements on those indicators. Although linkage research (whereby survey data are linked with other organisational measures of performance) can provide this information, this approach is often not feasible. The ‘quasi-linkage’ approach described in this paper represents a practical compromise. We illustrate this approach using survey data collected from 1246 employees, demonstrating how it can be used to derive strategic information from employee opinion data.*

### ***Keywords:***

*EMPLOYEE OPINION SURVEYS; LINKAGE ANALYSES.*

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## 1. Introduction

Increasingly, organisations are integrating data from employee opinion surveys with other organisational data systems. For example, strategic planning can be enhanced by linking survey data and systems such as sales data, absenteeism data, or client service ratings. The purpose of linking survey data with other measures of organisational effectiveness is to determine which of the work environment factors assessed by an employee survey are actually related to organisational outcomes. This information is used by organisations to determine how to select organisational development activities that achieve the greatest improvement in organisational effectiveness (Schneider, Ashworth & Higgs 1996; Wiley & Brooks 2000). Ittner and Larcker (2003) reported that up to 23% of US companies used modelling procedures to link different types of performance data.

Research based on the integration of data systems is increasing (Church, Margiloff, & Coruzzi 1995; Schiemann 1996; Schneider, Ashworth & Higgs 1996; Wiley 1996; Wiley & Brooks 2000). We refer to this type of analysis as 'linkage research'. Unfortunately, linkage research is not feasible for all organisations. For example, specific measures of effectiveness may not be available at a particular point in time.

In this paper, we present an alternative approach, termed the 'quasi-linkage approach' that uses only employee survey data. A key advantage of this approach is that organisations need invest fewer resources to conduct analyses. We first describe the benchmarking approach that is typically adopted in organisations, and discuss the advantages of linkage research compared to benchmarking. We then introduce 'quasi-linkage analysis' and discuss its benefits and limitations.

The quasi-linkage approach uses only a single source of data: employees of the organisation. One of the main concerns when analysing data from a single sources is that relationships between the work environment factors and effectiveness outcomes might be inflated. That is, common method variance might spuriously increase the link among key measures and bias organisational decision making. We examine ways to reduce common method variance and, therefore, enhance the utility of analyses.

We then discuss other considerations when conducting quasi-linkage analysis. First, it is important to show that the criteria measure has external validity and is related to measures that might be used in a more fully developed linkage analysis. Second, the level of analysis should be considered when determining what kind of processes and outcomes should be linked.

## 2. The Benchmarking Approach

One of the most common uses of employee survey data is benchmarking: the comparison of survey results within and between organisations. Benchmarking provides comparative data, from which it is possible to determine whether a given mean score or percentage of agreement represents a good, average or bad result. The key strength of benchmark comparisons is that they provide a standard from which to evaluate the organisation's performance, and identify critical issues, sources of concern and areas of success in the workplace (Griffin, Hart & Wilson-Evered 2000).

Although benchmarking is useful for identifying strengths and weaknesses, it is limited to providing static or structural information about the state of an organisation. It does not provide dynamic information about how the organisation functions. However, when the benchmark process is conducted in isolation, managers might easily assume that organisational resources should be directed towards improving those measures with the lowest scores were obtained. This approach assumes that each organisational attribute measured in the survey is equally important for organisational effectiveness, an assumption that needs to be tested. Benchmarking is particularly useful for comparing effectiveness outcomes rather than determining what are the factors that underpin effectiveness.

### **3. Linkage Research**

Linkage research supplements the benchmarking process. Ideally, if strengths and weaknesses in organisational performance have been identified from the benchmarking process, linkage research can guide strategies for improvement. Specifically, survey data is matched to other organisational databases, such as the Human Resources information system, finance records, and sales data. Then, analyses are conducted to determine which of the work environment factors measured in the survey are statistically related to the effectiveness measures that the organisation wishes to target. By identifying which work environment factors are related to organisational effectiveness, these analyses indicate where organisational resources should be directed in order to bring about improvement (Griffin, Rafferty, & Simons 2003). Because these analyses are based on actual data collected from the organisation, rather than a theoretical model of how things ought to be, they provide a more meaningful and accurate model of organisational effectiveness (Church, Margiloff & Coruzzi 1995).

However, there are several barriers to the linkage research process. First, due to the need to protect confidentiality, it is usually not possible to link individual responses to the survey with organisational records for individuals. At best, the data linkage process can only be carried out at the work group level, which significantly reduces the number of observations, and thus, the power of the analyses to detect relationships. This issue is most relevant for small organisations.

Second, linkage research requires that there is a common field that can be used to match survey data with data from other organisational measurement systems (Wiley 1996). Unfortunately, this kind of common field does not always exist. For example, survey responses tend to be identified according to work group membership, or respondents' location in the organisation, whereas financial data (including measures of absenteeism and turnover) tend to be grouped according to cost centres.

In our experience, it is unusual for cost centres to map consistently to the work group structure in the organisation. Some work groups will be associated with multiple cost centres, whereas in other instances there will only be one cost centre associated with an entire division of the organisation. If financial data only exists at the divisional level, it will be necessary to also aggregate survey data to the divisional level, which again results in a loss of power for the analyses (Wiley 1996). The alternative is to manually create a new common field, determining on a case-by-case basis, how work group data and cost centre data should be aggregated

in order to link the two databases. This process is time consuming and demands a high level of expertise in both statistical methods and organisational structure. Consequently, this process may be beyond the reach of some organisations.

Third, it may not be possible to find non-survey measures for each of the relevant dimensions of organisational effectiveness. For example, some organisations do not have systems in place to record when employees have been absent from work. Other organisations do not have measures of client satisfaction. Nevertheless, these organisations might still want to know how to reduce absenteeism or improve client satisfaction. Even when the organisation does have these data, it might be difficult to access it, either because the data holder is protective of his or her turf (Schiemann 1996), or because of concerns about breaching confidentiality.

#### **4. Quasi-Linkage—The Alternative**

The quasi-linkage approach provides the same strategic information as that provided through linkage research, namely, which work environment factors are most closely related to organisational effectiveness. It does so by building self-report measures of organisational effectiveness into the employee opinion survey. It is then possible to analyse the relationship between the work environment factors assessed in the survey, and self-report measures of organisational outcomes, to identify which work environment factors are most closely related to the self-reported organisational outcomes.

The issue of common method variance is a major concern for the quasi-linkage approach. Common method variance is a summary term that refers to biases in relationships that are due to the variables being measured with the same method (Campbell & Fiske 1959). When both work environment factors and effectiveness measures are measured from employee ratings, the relationship between these measures will be inflated if raters tend to respond to survey items in a consistent way. For example, some respondents exhibit an acquiescence bias, which is a tendency to agree with items, regardless of content (Spector 1987). The effect of such a bias is to inflate the relationship between survey measures.

There are a number of techniques that can be used to minimise common method variance (see Podsakoff & Organ 1986 for a review of these methods). One of the simplest is to have two different versions of the survey, one measuring the work environment factors, and the other containing the effectiveness measures (Rousseau 1985). Half of the employees in each work unit provide ratings on work environment factors, and the other employees in the work unit rate the effectiveness measures. When this approach is adopted, the data have to be aggregated to the work unit level as it is not possible to link ratings at the individual level. Although this approach is feasible in larger organisations, the reduction in statistical power for smaller organisations with fewer than thirty or forty work units, means that relationships between work environment factors and effectiveness measures might not be detected. Under these circumstances it is necessary to employ some of the alternative procedures for dealing with common method variance (Podsakoff & Organ 1986).

## 5. Illustrating the Quasi-linkage Approach

In this next section, we describe a case study where we used the quasi-linkage approach to increase the value of information derived from a staff survey. We conceptualise the quasi-linkage approach in terms of three stages. Stage one is concerned with survey content. Stage two involves comparing organisational scores on the effectiveness measures to benchmark data, with the goal of identifying areas for improvement. Stage three involves analysing the data to determine the relationship between work environment factors and effectiveness measures. We describe how each of these stages were carried out, after first providing some background on the organisational context.

The organisation was a government agency, consisting of approximately 1,300 staff, working across ten business units. The organisation is responsible for policy development and service delivery to the public. The organisation conducted an employee opinion survey annually, with the dual goals of developing and monitoring their people management strategies, and investigating workplace issues impacting on employees, such as leadership, communication, and performance management. Since the survey was intended to develop and monitor people management strategies, senior management were keen to obtain strategic information from the survey that could be used to guide organisational improvement efforts. The quasi-linkage approach was therefore relevant to their needs, and they were enthusiastic about adopting it.

## 6. Stage One: Determining Survey Content

The first stage of our process, determining the survey content, reflects a focus on obtaining strategic information to guide organisational improvement efforts. Decisions about survey content should reflect the purpose of the survey (Burke, Coruzzi & Church 1996). When the purpose of the survey is to identify the work environment factors that are linked to organisational effectiveness, the survey should include both measures of effectiveness outcomes, and measures of work environment characteristics identified in the research literature as predictors of these outcomes. In our preliminary meetings with representatives from the organisation, we sought to understand how the organisation defined effectiveness. As stakeholder groups may define effectiveness differently, it is important to ensure that the perspective of each stakeholder group in the organisation is represented when devising the self-report effectiveness measures.

In collaboration with the organisation, we identified the following effectiveness measures for the survey: workplace morale (an outcome of importance to the employee stakeholder group), understanding client needs (to represent the client stakeholder group), innovation (identified by the senior management as a critical organisational capability) and turnover intentions (because turnover was an important human resources issue for the organisation). To obtain self-report measures relating to each of these aspects of effectiveness, we included items in the survey to elicit employees' reports of the level of morale in their workplace, the extent to which they sought to understand and respond to clients' needs, the extent to which they instituted innovative work practices, and whether or not they intended to leave the organisation in the near future.

In addition to the effectiveness measures, we drew from a wide range of potential 'predictor' measures. These predictor measures were identified on the basis of theoretical and empirical research that identifies which work environment factors are related to organisational effectiveness. Because research studies have been conducted within many different organisations, from a variety of different perspectives, the literature identifies a wide range of factors that are potentially linked to effectiveness. The quasi-linkage analyses are then used to determine which of these factors is most important within the specific context of the organisation conducting the survey.

It is important that all of the potentially important predictors are included in the survey, because the linkage analyses cannot identify predictors that have not been measured. Although self-evident, this point is often missed in survey design. So, for example, because innovation was identified as a component of organisational effectiveness for this organisation, we included measures of supportive leadership, participative decision making, professional interaction, goal congruence (that is, congruence between individual and organisational goals), work group communication, work group conflict, job satisfaction, affective commitment and openness to change in the survey. Each of these factors has been linked with innovation in the research literature (Unsworth & Parker 2003).

The survey was distributed to participants in work groups, and completed in work time. Survey respondents were asked to provide some demographic information and to identify which work area they came from, but they were informed that individuals would not be able to be identified from the feedback given to the organisation. Respondents mailed their completed survey directly to the University, where the data analysis and reporting was carried out. Completed surveys were returned by 1246 employees, representing a return rate of 96%.

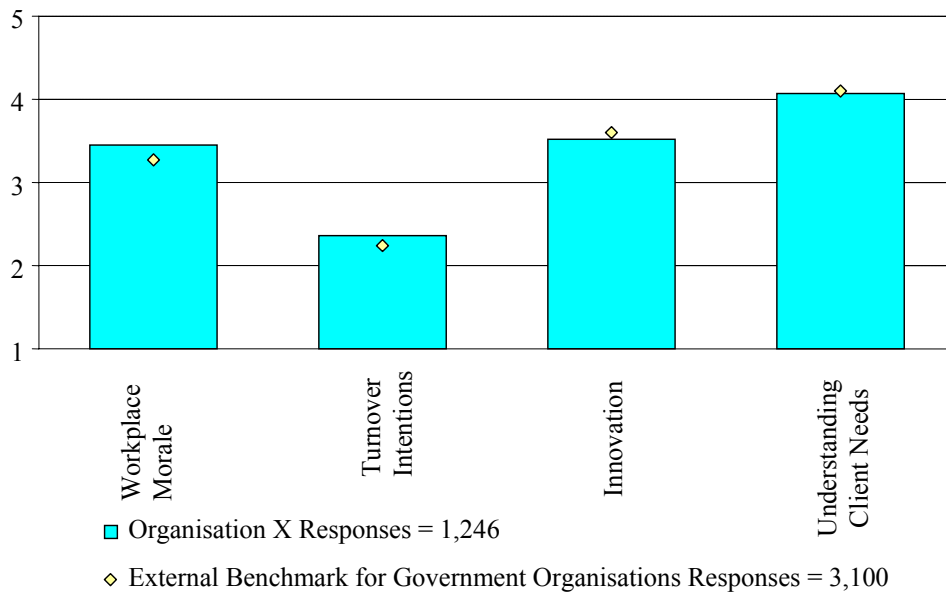
## **7. Stage Two: Benchmarking Effectiveness Measures**

Our benchmark information was based on data collected from a large number of surveys conducted in similar organisations. The organisations that contributed to the benchmark represented a comparable sample, being organisations of similar size, operating in the same geographic location, and in the same industry sector. Because we choose survey measures to reflect the priorities of each organisation, the sample size for our benchmarks varies from measure to measure. However, we had responses from over 12,000 employees for most of our measures.

Figure 1 shows the organisation's scores on the effectiveness measures (represented by the bars in the bar graph), compared against the average score for the benchmark organisations on the same measures (represented by the diamonds). The scale ranges from 1 to 5, which generally corresponds to the Likert rating scale from the survey. For the turnover intentions measure, low scores are indicative of high organisational effectiveness. For all other measures represented on this graph, high scores are indicative of high organisational effectiveness.

Examination of the mean scores for the whole organisation reveals that employees' responses were, generally, fairly positive. On average, employees reported that workplace morale was at an acceptable level, they did not intend to leave the organisation in the near future, they sought to institute innovative work practices, and they strove to understand clients' needs.

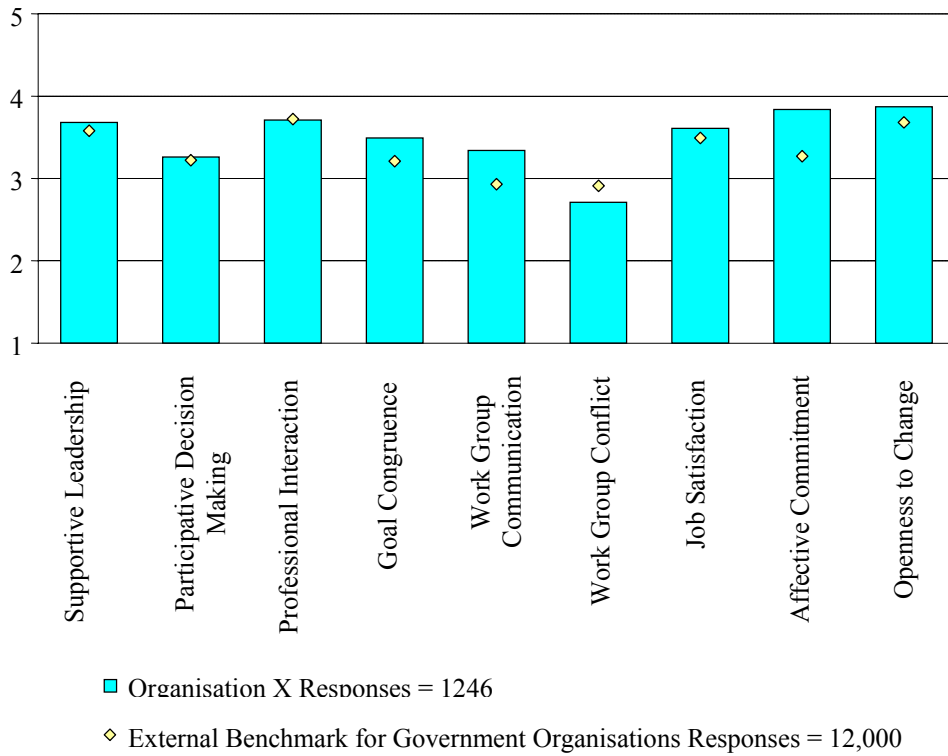
**Figure 1**  
**The Organisation's Scores on the Effectiveness Measures**



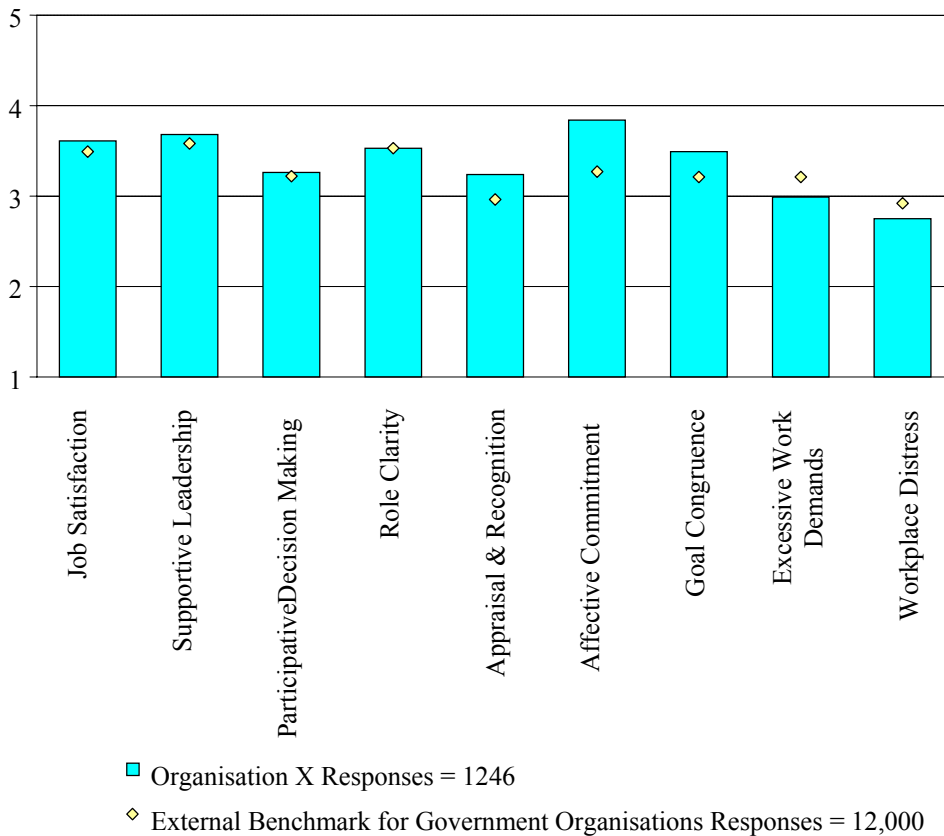
Comparing the organisation's pattern of responses against the external benchmark provides another basis for evaluating the data. The benchmark analysis revealed that employees in this organisation are reporting a relatively high level of workplace morale. Their responses to items on understanding client needs were in line with the benchmark, but in terms of innovation and turnover intentions the organisation was performing below average. Note that while the differences between the organisation's performance and the external benchmark appear small, with a sample of this size, a very small shift in one of these measures is indicative of either a small shift throughout the whole organisation, or a substantial shift in a subsection of the organisation. The benchmark analysis, therefore, suggested that the organisation needed to address two areas of performance: innovation and turnover intentions.

We also performed a benchmark analysis on the predictor measures for innovation and turnover intentions. Figures 2 and 3 show the organisation's profile on the predictor measures in relation to the external benchmark (represented by the diamond). Of the innovation predictor measures, participative in decision making and professional interaction were lowest in relation to the external benchmark. In terms of turnover intentions, the predictor measures that were lowest in relation to the benchmark were participative decision making and role clarity.

**Figure 2**  
**Benchmarking Predictors of Innovation**



**Figure 3**  
**Benchmarking Predictors of Turnover**



In summary, benchmarking on the effectiveness measures identified innovation and turnover intentions as areas for improvement. When the benchmarking process was extended to the predictor measures from the survey, it revealed that the organisation had relatively low ratings for participative decision making, professional interaction and role clarity. On the basis of this information, the organisation might be inclined to implement a participative decision making initiative to increase innovation and reduce turnover.

## 8. Stage Three: Quasi-Linkage Analyses

In contrast to the benchmarking approach, the linkage approach identifies which of the predictor variables is most closely related to self-reported innovation and turnover intentions. We began by looking at the individual-level correlations amongst the variables, reported in table 1. Nearly all of the variables were significantly correlated, suggesting common method variance might be a concern in this data set.

To minimize the influence of common method variance we conducted our main investigation at the group level of analysis. For each group we obtained predictor measures from half of the group members, and obtained the effectiveness measures from the other half of the group members. In practice this procedure involves deleting data from any groups with only one respondent, and randomly allocating half of the group to predictor measures and half the group to effectiveness measures. Data is then aggregated to the group level of analysis so that the group predictor measures are based on different individuals to those of the effectiveness measures.

Before aggregation we assessed the extent to which the measures varied across groups in the study. The first two columns of table 1 show the statistical significance of the between-group variance in each measure and the intra-class correlation for all measures. The intra-class correlation estimates the proportion of variance that can be attributed to group membership. All measures statistically significant at the 0.05 probability level except for the predictor of openness to change. The amount of between-group variance ranged from 1% for openness to change to 15% for participative decision-making and workplace distress.

Table 1 shows the correlations among all measures obtained at the individual level of analysis. Table 2 shows the correlations at the group level of analysis, both before and after controlling for common method variance. The tables show that correlations at the group level were quite different from those at the individual level. First, when considered at the group level, none of the predictor variables was significantly correlated with innovation. In addition, fewer variables correlated significantly with turnover intentions. Table 2 shows the correlations at the group level of analysis, both before (second row) and after (first row) controlling for common method variance. After reducing the contribution of common method variance to relationships among variables, turnover intentions were negatively related to professional interaction, and positively related to workgroup conflict and workgroup distress.

**Table 1**  
**Means, Standard Deviations, and Intercorrelations among Measures at the Individual Level (N = 1246)**

| Variable                         | F-value | ICC | M    | SD   | N    | 1       | 2        | 3        | 4        | 5        | 6        | 7        |
|----------------------------------|---------|-----|------|------|------|---------|----------|----------|----------|----------|----------|----------|
| 1. Innovation                    | 1.45*   | 2%  | 3.52 | 0.87 | 1220 |         |          |          |          |          |          |          |
| 2. Turnover intentions           | 1.61**  | 3%  | 2.36 | 1.07 | 1227 | 0.02    |          |          |          |          |          |          |
| 3. Supportive leadership         | 2.31*** | 7%  | 3.68 | 0.89 | 1237 | 0.09**  | -0.33*** |          |          |          |          |          |
| 4. Participative decision-making | 4.57*** | 15% | 3.26 | 0.93 | 1236 | 0.13*** | -0.27*** | 0.65***  |          |          |          |          |
| 5. Professional interaction      | 2.61*** | 10% | 3.71 | 0.78 | 1238 | 0.13*** | -0.31*** | 0.64***  | 0.67***  |          |          |          |
| 6. Goal congruence               | 2.89*** | 9%  | 3.49 | 0.76 | 1237 | 0.08**  | -0.32*** | 0.55***  | 0.60***  | 0.56***  |          |          |
| 7. Work group communication      | 3.08*** | 10% | 3.34 | 0.91 | 1234 | 0.17*** | -0.28*** | 0.54***  | 0.64***  | 0.56***  | 0.63***  |          |
| 8. Work group conflict           | 3.35*** | 14% | 2.71 | 0.92 | 1234 | -0.07*  | 0.31***  | -0.55*** | -0.57*** | -0.58*** | -0.50*** | -0.54*** |
| 9. Job satisfaction              | 2.30*** | 5%  | 4.91 | 1.41 | 1236 | 0.20*** | -0.54*** | 0.51***  | 0.46***  | 0.51***  | 0.49***  | 0.44***  |
| 10. Affective commitment         | 1.97*** | 4%  | 3.84 | 0.86 | 1234 | 0.29*** | -0.39*** | 0.48***  | 0.47***  | 0.55***  | 0.52***  | 0.47***  |
| 11. Openness to change           | 1.30    | 1%  | 5.31 | 0.92 | 1234 | 0.21*** | -0.01    | 0.24***  | 0.20***  | 0.20***  | 0.20***  | 0.16***  |
| 12. Role clarity                 | 2.31*** | 8%  | 3.53 | 0.78 | 1237 | 0.11*** | -0.32*** | 0.61***  | 0.52***  | 0.56***  | 0.66***  | 0.52***  |
| 13. Appraisal and recognition    | 3.03*** | 10% | 3.24 | 0.95 | 1236 | 0.12*** | -0.28*** | 0.67***  | 0.67***  | 0.60***  | 0.57***  | 0.56***  |
| 14. Excessive workload           | 3.43*** | 12% | 2.99 | 0.93 | 1237 | 0.04    | 0.13***  | -0.20*** | -0.17*** | -0.15*** | -0.17*** | -0.10**  |
| 15. Workplace distress           | 3.94*** | 15% | 2.75 | 0.89 | 1235 | -0.02   | 0.31***  | -0.48*** | -0.50*** | -0.49*** | -0.52*** | -0.42*** |

Note: \* $p < 0.05$ ; \*\* $p < 0.01$ ; and \*\*\* $p < 0.001$ .

**Table 1 Continued**  
**Means, Standard Deviations, and Intercorrelations among Measures at the Individual Level ( $N = 1246$ )**

| Variable                         | 8        | 9        | 10       | 11       | 12       | 13       | 14      |
|----------------------------------|----------|----------|----------|----------|----------|----------|---------|
| 1. Innovation                    |          |          |          |          |          |          |         |
| 2. Turnover intentions           |          |          |          |          |          |          |         |
| 3. Supportive leadership         |          |          |          |          |          |          |         |
| 4. Participative decision making |          |          |          |          |          |          |         |
| 5. Professional interaction      |          |          |          |          |          |          |         |
| 6. Goal congruence               |          |          |          |          |          |          |         |
| 7. Work group communication      |          |          |          |          |          |          |         |
| 8. Work group conflict           |          |          |          |          |          |          |         |
| 9. Job satisfaction              | -0.39*** |          |          |          |          |          |         |
| 10. Affective commitment         | -0.38*** | 0.69***  |          |          |          |          |         |
| 11. Openness to change           | -0.14*** | 0.22***  | 0.27***  |          |          |          |         |
| 12. Role clarity                 | -0.43*** | 0.53***  | 0.51***  | 0.22***  |          |          |         |
| 13. Appraisal and recognition    | -0.54*** | 0.48***  | 0.47***  | 0.23***  | 0.57***  |          |         |
| 14. Excessive workload           | 0.16***  | -0.16*** | -0.04    | -0.17*** | -0.16*** | -0.23*** |         |
| 15. Workplace distress           | 0.58***  | -0.40*** | -0.32*** | -0.17*** | -0.41*** | -0.47*** | 0.47*** |

Note: \* $p < 0.05$ ; \*\* $p < 0.01$ ; and \*\*\* $p < 0.001$ .

**Table 2**  
**Means, Standard Deviations, and Intercorrelations among Measures at the Group Level (N = 64)**

| Variable                         | M    | SD   | N  | 1      | 2        | 3        | 4        | 5        | 6        | 7        |
|----------------------------------|------|------|----|--------|----------|----------|----------|----------|----------|----------|
| 1. Innovation                    | 3.50 | 0.42 | 63 |        |          |          |          |          |          |          |
|                                  | 3.56 | 0.27 | 65 |        |          |          |          |          |          |          |
| 2. Turnover intentions           | 2.33 | 0.44 | 63 | 0.07   |          |          |          |          |          |          |
|                                  | 2.33 | 0.37 | 65 | -0.11  |          |          |          |          |          |          |
| 3. Supportive leadership         | 3.72 | 0.39 | 64 | 0.01   | -0.24    |          |          |          |          |          |
|                                  | 3.73 | 0.35 | 65 | 0.12   | -0.37**  |          |          |          |          |          |
| 4. Participative decision-making | 3.41 | 0.51 | 64 | -0.11  | -0.18    | 0.74***  |          |          |          |          |
|                                  | 3.37 | 0.43 | 65 | 0.02   | -0.23    | 0.69***  |          |          |          |          |
| 5. Professional interaction      | 3.73 | 0.40 | 64 | 0.04   | -0.26*   | 0.83***  | 0.78***  |          |          |          |
|                                  | 3.73 | 0.35 | 65 | 0.07   | -0.31*   | 0.73***  | 0.75***  |          |          |          |
| 6. Goal congruence               | 3.54 | 0.35 | 64 | 0.01   | -0.19    | 0.57***  | 0.63***  |          | 0.59***  |          |
|                                  | 3.53 | 0.32 | 65 | -0.09  | -0.31*   | 0.63***  | 0.74***  |          | 0.68***  |          |
| 7. Work group communication      | 3.38 | 0.43 | 64 | 0.15   | -0.22    | 0.52***  | 0.64***  | 0.57***  | 0.62***  |          |
|                                  | 3.38 | 0.40 | 65 | 0.23   | -0.41*   | 0.64***  | 0.72***  | 0.68***  | 0.73***  |          |
| 8. Work group conflict           | 2.61 | 0.47 | 64 | -0.16  | 0.37**   | -0.60*** | -0.50*** | -0.39**  | -0.46*** | -0.42**  |
|                                  | 2.62 | 0.46 | 65 | 0.23   | 0.57***  | -0.66*** | -0.60*** | -0.49*** | -0.54*** | -0.59*** |
| 9. Job satisfaction              | 5.06 | 0.62 | 64 | 0.01   | -0.08    | 0.37**   | 0.48***  | 0.48***  | 0.38**   | 0.49***  |
|                                  | 5.03 | 0.50 | 65 | 0.33** | -0.57*** | 0.50***  | 0.51***  | 0.56***  | 0.38***  | 0.53***  |
| 10. Affective commitment         | 3.90 | 0.37 | 64 | -0.05  | -0.14    | 0.35**   | 0.41**   | 0.51***  | 0.38**   | 0.45***  |
|                                  | 3.89 | 0.31 | 65 | 0.25*  | -0.50*** | 0.48***  | 0.50***  | 0.59***  | 0.45***  | 0.53***  |
| 11. Openness to change           | 5.26 | 0.40 | 64 | -0.04  | -0.01    | 0.12     | 0.17     | 0.16     | 0.19     | 0.17     |
|                                  | 5.29 | 0.29 | 65 | 0.18   | -0.01    | 0.22     | 0.20     | 0.26*    | 0.24*    | 0.23     |
| 12. Role clarity                 | 3.55 | 0.34 | 64 | -0.12  | -0.16    | 0.55***  | 0.65***  | 0.77***  | 0.62***  | 0.59***  |
|                                  | 3.52 | 0.33 | 65 | -0.07  | -0.32*   | 0.64***  | 0.59***  | 0.73***  | 0.66***  | 0.71***  |
| 13. Appraisal and recognition    | 3.32 | 0.46 | 64 | 0.11   | -0.14    | 0.71***  | 0.75***  | 0.61***  | 0.75***  | 0.53***  |
|                                  | 3.33 | 0.40 | 65 | 0.15   | -0.25*   | 0.76***  | 0.76***  | 0.71***  | 0.77***  | 0.66***  |
| 14. Excessive workload           | 3.01 | 0.53 | 64 | 0.04   | 0.24     | -0.14    | -0.11    | 0.05     | -0.19    | 0.05     |
|                                  | 2.99 | 0.46 | 65 | 0.22   | -0.04    | -0.14    | -0.15    | -0.08    | -0.20    | 0.06     |
| 15. Workplace distress           | 2.73 | 0.46 | 64 | 0.16   | 0.43***  | -0.61*** | -0.58*** | -0.46*** | -0.65*** | -0.37**  |
|                                  | 2.72 | 0.43 | 65 | 0.23   | 0.25*    | -0.61*** | -0.60*** | -0.58*** | -0.55*** | -0.34**  |

Note: \* $p < 0.05$ ; \*\* $p < 0.01$ ; and \*\*\* $p < 0.001$ .

**Table 2 Continued**  
**Means, Standard Deviations, and Intercorrelations among Measures at the Group Level ( $N = 64$ )**

| Variable                         | 8        | 9       | 10      | 11    | 12      | 13       | 14      |
|----------------------------------|----------|---------|---------|-------|---------|----------|---------|
| 1. Innovation                    |          |         |         |       |         |          |         |
| 2. Turnover intentions           |          |         |         |       |         |          |         |
| 3. Supportive leadership         |          |         |         |       |         |          |         |
| 4. Participative decision-making |          |         |         |       |         |          |         |
| 5. Professional interaction      |          |         |         |       |         |          |         |
| 6. Goal congruence               |          |         |         |       |         |          |         |
| 7. Work group communication      |          |         |         |       |         |          |         |
| 8. Work group conflict           |          |         |         |       |         |          |         |
| 9. Job satisfaction              | -0.37**  |         |         |       |         |          |         |
|                                  | -0.49*** |         |         |       |         |          |         |
| 10. Affective commitment         | -0.37**  | 0.69*** |         |       |         |          |         |
|                                  | -0.52*** | 0.73*** |         |       |         |          |         |
| 11. Openness to change           | -0.01    | 0.15    | 0.26*   |       |         |          |         |
|                                  | -0.07    | 0.24*   | 0.31*   |       |         |          |         |
| 12. Role clarity                 | -0.25*   | 0.48*** | 0.39**  | -0.00 |         |          |         |
|                                  | -0.38**  | 0.44*** | 0.39**  | 0.11  |         |          |         |
| 13. Appraisal and recognition    | -0.56*** | 0.43*** | 0.34**  | 0.31* | 0.55*** |          |         |
|                                  | -0.60*** | 0.51*** | 0.42**  | 0.30* | 0.61*** |          |         |
| 14. Excessive workload           | -0.06    | 0.04    | 0.20    | -0.15 | -0.07   | -0.16    |         |
|                                  | -0.11    | 0.01    | 0.22    | 0.03  | -0.08   | -0.20    |         |
| 15. Workplace distress           | 0.55***  | -0.25*  | -0.19   | -0.12 | -0.34** | -0.60*** | 0.41**  |
|                                  | 0.56***  | -0.38** | -0.36** | -0.05 | -0.31** | -0.58*** | 0.48*** |

Note: \* $p < 0.05$ ; \*\* $p < 0.01$ ; and \*\*\* $p < 0.001$ .

These correlational results could be followed with more detailed regression analysis. Regression analyses are useful when the correlational analyses identify several significant predictor variables, because they take into account the overlapping variance among the predictor variables in order to determine which correlate is strongest. However, in this instance, because relatively few predictors were identified, we focus on the correlations.

In summary, the quasi-linkage analyses suggested that, within this organisation, turnover intentions were a function of the work group climate. This finding illustrates why it is important for organisations to develop their own models of organisational effectiveness. Research conducted in other organisations tends to suggest that turnover is an individual issue, driven by individual job satisfaction and commitment (Griffin, Hart & Wilson-Evered 2000; Hom & Kinicki 2001; Tett & Meyer 1993), in combination with economic factors such as the level of unemployment (Carsten & Spector 1987). While research findings are useful for suggesting potentially important factors that should be assessed in the employee opinion survey, it is important to bear in mind that these relationships are often dependent upon a range of other factors. Because each organisation has a unique culture and operating environment, organisations need to conduct their own diagnosis to determine the drivers of effectiveness. In this instance, the quasi-linkage analyses told the organisation that targeting work group climate, rather than individual job satisfaction and commitment, was more likely to be effective. The organisation was then able to use this information to put work group action planning and team building interventions in place.

The results of the analyses for innovation further illustrate the importance of researching the organisation's own drivers of effectiveness, and also the necessity of taking common method variance into account. The individual-level analyses identified several factors that were related to self-reported innovation and two factors were identified in the group level analysis before controlling for common method variance. However, after controlling for common method variance, we found that none of the variables measured in the survey was significantly related to self-reported innovation. A different set of predictors might be necessary to understand linkages to innovation. These predictors might be identified through exploratory approaches such as focus groups and interviews to identify the issues surrounding innovation.

Finally, we note that the benchmarking and quasi-linkage approaches produced quite different recommendations. Why should we rely on the results of the quasi-linkage in preference to the results of the benchmark analyses? The benchmarking approach identifies work environment characteristics for which the organisation has a relatively low score. However, if the characteristic in question is not of intrinsic value, the fact that the organisation is low on this particular characteristic does not guarantee that the organisation will be more effective if this characteristic is improved. Sometimes organisations will do better to concentrate on their strengths. In some instances scores on work environment characteristics are low precisely because they are not important for organisational effectiveness in this particular organisation, and therefore have not been a focus for the organisation.

In contrast, the quasi-linkage approach identifies variables that are related to measures of organisational effectiveness. It is true that we do not know that this

relationship is causal, that is, we cannot say that the predictor variable definitely drives the effectiveness measure. In reality, the relationship might operate in the opposite direction, or a third variable might drive both the predictor measure and the effectiveness measure. Identifying which predictor measures are actually related to effectiveness measures provides more strategic information than simply identifying areas where the organisation scores relatively high or low.

## 9. Conclusions

The purpose of this paper was to illustrate a practical approach that allows organisations to use more fully the strategic information derived from employee opinion surveys. Our quasi-linkage approach, combined with a process for reducing common method variance, allows us to identify which work environment factors are related to organisational effectiveness measures. This level of information is not provided by benchmarking, and although the traditional linkage approach does provide such information, it may not be practical. In comparison, the quasi-linkage approach represents a cost-effective and accessible means of ensuring that organisational improvement efforts are directed towards those areas where they are most likely to have an impact on organisational effectiveness.

A key issue for the quasi-linkage approach is the extent to which the self-report measures of organisational effectiveness are actually representative of organisational performance. The validity of self-report measures varies according to the way in which it is assessed, and the type of construct that is being assessed. Furthermore, good survey measures are based on items that are couched in simple, unambiguous language, limited to short sentences, and refer to specific events or time periods (Kraut 1996). Adhering to the basic principles of survey design and administration is the first step towards ensuring that the measures contained in the employee opinion survey provide useful information.

However, even when the survey is designed well, employees tend to be better at describing some aspects of organisational effectiveness than others. The correlation between self-reported absence and records-based measures of absenteeism is strong (in the region of  $r = 0.68$ ), and researchers have found that when analyses are performed on self-report and records-based measures of absenteeism, similar conclusions tend to be reached (Johns 1994). Other self-report measures still correlate significantly with organisational database measures, but the relationship is somewhat weaker. For example, the average correlation between self-reported intention to leave the organisation, and organisational turnover statistics has been estimated between 0.38 (Carsten & Spector 1987; Griffeth, Hom & Gaertner 2000) and 0.65 (Tett & Meyer 1993). Researchers have also found significant correlations between self-ratings of performance and supervisor and peer ratings of performance (Harris & Schaubroeck 1988), and between employees' perception of their organisation's customer service orientation and volume of sales (Weitzel, Schwarzkoph & Peach 1989). Therefore, although the accuracy of self-report data varies from measure to measure, the research is consistent in finding that self-report measures are related to alternative measures of organisational (or individual) performance.

It should be noted that the issue of validity applies to linkage research as well. There is a tendency to assume that organisational records are always more accurate

and reliable than self-report data. However, this assumption is not always justified, and the quality of organisational databases is commonly quite low (Strong, Lee & Wang 1997). Problems with organisational database measures can arise because the people who are supposed to generate the data do not report relevant events reliably (e.g. managers failing to report a breach of safety procedures), because the data custodians fail to perform the necessary data screening procedures, or because the data consumers use inappropriate reporting periods or combine data in ways that they should not be combined. The issue of validity therefore applies to both quasi-linkage analyses and linkage research.

In conclusion, this study demonstrates the utility of the quasi-linkage approach to survey analysis and shows the importance of reducing common method variance when analysing data from a single source. The results of quasi-linkage analysis might lead to very different conclusions than those derived from benchmark comparisons.

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