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THE RELATIONSHIP BETWEEN INTERPERSONAL TRUST, COMMITMENT, AND PERFORMANCE IN SELF-MANAGING TEAMS: THE AUSTRALIAN EXPERIENCE

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Abstract

Performance is a key concern for organisations in the rapidly changing global economy. Although both trust and the commitment of employees to work in an autonomous manner are often cited as being essential for effectiveness of self-managed teams, little is known on the effect of interpersonal trust on organisation commitment, and the consequences for team performance. A survey of 49 self-managing teams (239 individuals) was carried out in a manufacturing organisation to investigate the relationship between the dimensions of interpersonal trust, a number of commitment dimensions, and team performance. The analyses indicated that two thirds of interpersonal trust dimensions are positively related to the variables of organisational commitment. Moreover, the results showed that the effects of 'interpersonal trust' on team performance to a large extent are mediated by the intervening variables of organisational commitment.

Keywords: interpersonal trust ♦ organisational commitment ♦ self-managing teams ♦ team performance

Introduction

Despite the large number of studies on organisational commitment (Price & Mueller, 1981; Allen & Meyer, 1990; Lahiry, 1994), organisational scientists strive to understand the facets of commitment and their relationships to work outcomes. Mathieu and Zajac (1990:185) in their meta-analytical study concluded, "*the relationship between organisational commitment and employees' behaviours have not produced many large correlations*". The

absence of strong associations between personal characteristics and commitment does not necessarily imply, however, that these characteristics do not play a role in the development of commitment.

Mathieu and Zajac suggested these linkages are likely to be mediated or moderated by other factors. For example, the relationship between organisational commitment and performance might be moderated by pay policies or influenced by the trust of the members of self-managing teams.

On the other hand, the most notable trend of the 1990s that will continue to dominate the work environment of the twenty first century was the explosion of work teams in manufacturing and service organisations (Cohen, Ledford & Spreitzer, 1996). In such work environments, more emphasis is given on interpersonal and group dynamics, where trust is seen as one of the critical elements. If trust is absent, no one will risk moving first and all parts will sacrifice the gains from collaboration and cooperation in increasing effectiveness (Sabel, 1993).

Therefore, understanding the role of trust of self-managing teams has become increasingly important, particularly, when the chief ingredient of self-managed teams (that is, autonomy) was found to be positively related with organisational commitment (Cordery, Mueller & Smith, 1991; Cohen *et al.* 1996) and trust in management (Cohen *et al.* 1996). Although few studies acknowledge trust as being an antecedent to organisational commitment (Brewer, 1993, Morgan & Hunt, 1994), the existing research shows little insight about this effect. By considering the relationship between interpersonal trust factors and organisational commitment in a work environment where relationships have become more horizontal and team centred we may provide one line of explanation.

In particular, the present study examines the relationship between interpersonal trust and organisational commitment, and how this affects team performance. The study involves a questionnaire-based survey of members of self-managing teams from a large high-technology, aerospace, manufacturing organisation in Australia.

Organisational commitment

Organisational commitment refers to the relative intensity of identification and involvement of an individual in a specific organisation (Porter, Steers, Mowday & Boulian, 1974).

Organisation commitment represents "*an employee's orientation towards the organisation in terms of his or her loyalty to, identification with, and involvement in, the organisation*" (Robbins, Bergman & Stagg, 1997: 481). Cook and Wall (1980: 40) defined these attributes as follows:

- Loyalty: refers to "*affection for and attachment to the organisation; a sense of belongingness manifesting as 'a wish to stay'*".
- Identification: refers to "*pride in organisation; the internalisation of the organisation's goals and values*".
- Involvement: refers to the "*psychological absorption in the activities of one's role*".

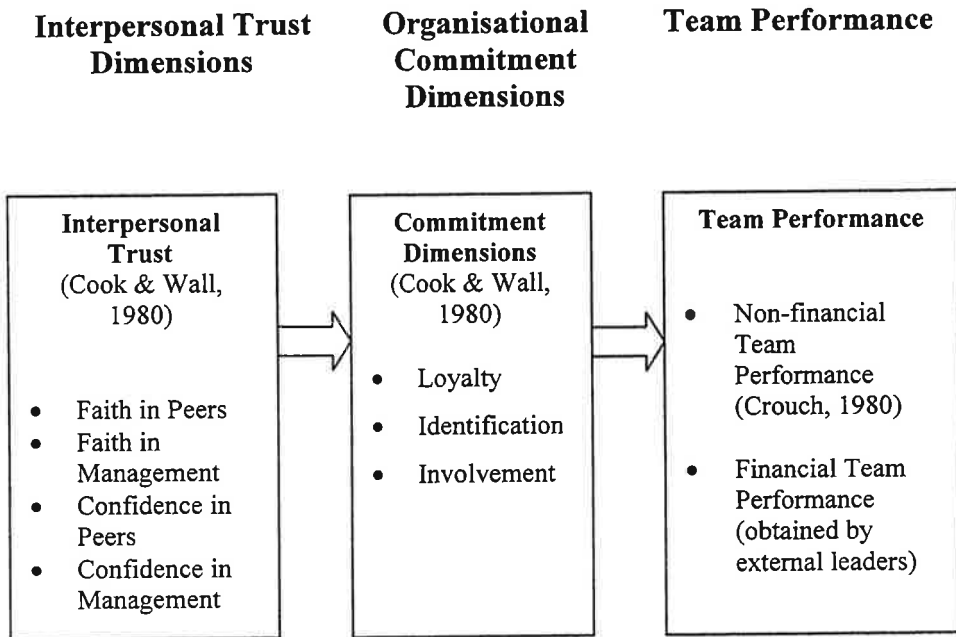
A review of the literature revealed that the dimensions of identification, involvement and loyalty are consistently related with employee behaviours, such as, absenteeism, turnover and performance (Porter & Steers, 1973; Bluedorn, 1982). As a result, organisational commitment has been a topic of considerable research in the management and behavioural sciences for the past three decades (Mowday, Porter, & Steers, 1982; Mathieu & Zajac, 1990; Yousef, 2000).

The major focus of commitment models and research findings has been to identify antecedents of commitment from a variety of categories (Lum, Kervin, Clark, Reid & Sirola, 1998). Although numerous studies have explored the associations of organisational commitment with employee and organisational variables, a review of the literature revealed that certain antecedents to organisational commitment have been less frequently investigated than others have. For instance, Mathieu and Zajac's (1990) major review and meta-analysis on the antecedents, correlates and consequences of commitment did not include any reference to trust or interpersonal trust. Morgan and Hunt (1994) however, argue that work relationships that are characterised by trust, engender cooperation, reduce conflicts, increase the commitment to the organisation and diminish the tendency to leave.

Although satisfaction and commitment have been pointed out as dimensions of effectiveness predicted by trust (Angle & Perry, 1981; Brewer, 1993), Bateman and Strasser (1994) have argued that many studies have limited interpretability due to the tendency to use 'static correlational analysis' of the relationship between commitment and its hypothesised antecedents. Although it is generally assumed that trust is an antecedent to commitment, studies generally have either failed to include both trust and commitment or overlooked the causal relationship between the two variables.

In buying and selling relationships however, trusting behaviours and perceived trustworthiness were found to be positively related with task performance (Smith & Barclay, 1997). Acknowledging that trust is essential to coordinate collective action, it is reasonable to predict that the dimensions of interpersonal trust will be related to the variables of organisational commitment and team performance. This functional relationship is shown in the schematic diagram of Figure 1.

Figure 1: Summary of variables used in the paper



Interpersonal trust

At the most fundamental level, trust is essential to coordinate collective action and is seen as a positive force with valuable outcomes for the organisation (Barnard, 1938). Therefore, trust in organisations has been studied extensively by a number of management researchers and practitioners (Lawler, 1992; Costigan, Iltter & Berman, 1998). As the interest in the area of trust developed, researchers formulated their own definitions of the term. Among the earlier trust theorists, Rotter (1967) defined interpersonal trust "*as an expectancy held by an individual or a group that the word, promise, verbal or written statement of another individual or group can be relied upon*" (p. 651).

The recent emergence of self-managing teams (*groups*) has increased the interest in the study of trust (O'Shea, 2000). Despite this interest, very little information exists in examining the effect of *interpersonal trust* on the dimensions of organisational commitment and what the consequences are for performance in a self-managing environment. In that respect, Cook and Wall (1980) have distinguished two components of dyadic or *interpersonal trust*, faith and confidence. In the work place, trust has been viewed as faith and confidence in peers (that is, co-worker trust), as well as faith and confidence in management (that is, trust in both the supervisor and top management). The definitions of faith and confidence have been adopted from Cook and Wall (1980: 40).

- Trust refers to the "*faith in the trustworthy intentions of others*".
- Trust refers to the "*confidence in the ability of others, yielding ascriptions of capability and reliability*".

Empirical evidence has shown that collaborative problem solving in complex organisations presupposes interpersonal trust (Atkinson, 1995; Davenport & Prusak, 1998), and specifically co-worker trust. Co-workers, members of self-managing teams, are assumed to operate without direct control and intervention from management in a self-managing work environment. Considering an autonomous and self-managing environment, Mayer *et al.* (1995) argued that "*in the use of self-directed teams, trust must take the place of supervision because direct observation of employees becomes impractical*" (p. 710). Yet, empirical studies suggested that leadership (*supervision*) is positively related to organisational commitment

(Iverson & Roy, 1994; Atwater, Waldman, Atwater & Cartier, 2000). It is therefore reasonable to hypothesise that the factors representing interpersonal trust will be predictive factors of organisational commitment.

H1: There will be positive and significant correlation between faith in peers and the factors of organisational commitment.

H2: There will be positive and significant correlation between faith in management and the factors of organisational commitment.

H3: There will be positive and significant correlation between confidence in peers and the factors of organisational commitment.

H4: There will be positive and significant correlation between confidence in management and the factors of organisational commitment.

Team performance

Performance is of considerable importance for quality of life, for national economies and for increasing organisational competitiveness in the rapidly changing global economy. Due to its importance, the issue of measuring team performance has received a great deal of scientific attention in the last twenty years (Cohen & Bailey, 1997). Despite the general utility of the performance concept, Dunnette (1963) complained about the absence of an adequate framework to account for what it is exactly that researchers should be trying to measure when they attempt to measure team performance.

In the decision of what to measure, it is being argued that performance measures, *related to human factors* (non-financial), determine the productivity outcomes, *related to financial measures* (Lemmink & Mattsson, 1998). Following the recommendations of Manoochehri (1999), we adopted instruments measuring both financial and non-financial dimensions of team performance.

In relation to financial dimensions, a number of performance indicators were chosen which were used by the participating organisation to monitor and report teams' performances. Each team was rated by its team leader on three 'target indicators' (schedule,

quality and profit). Team leaders were asked to report the team's performance in terms of what it had achieved over the previous six months, as a percentage of the agreed target values for each of the three 'target indicators'. The agreed values for the performance indicators were being jointly developed between the members of the self-managing teams and the external team leaders and were published on notice boards monthly.

In relation to non-financial dimensions, we adopted a scale measuring perceptions of team performance. The scale was developed by Crouch (1980) and consists of five items that used a seven-point Likert-type response (*1 = definitely disagree, 7 = definitely agree*). Individual team members assessed their own group performance by indicating the degree of agreement or disagreement on each of the statements in the scale.

The issue of whether commitment enhances organisational performance receives conflicting answers in the literature. A few writers, e.g., Mueller and Price (1990) concluded that although both satisfaction and commitment are related to turnover, organisational commitment is more strongly related to turnover intentions. Therefore, an important concern exists regarding the relative contribution of organisational commitment to performance because individuals who tend to stay with the organisation are decreasing turnover and increasing organisational effectiveness (Porter *et al.* 1974). However, over the years numerous studies have established the relationship between organisational commitment, absenteeism, turnover and performance (Porter & Steers, 1973; Bluedorn, 1992). In that regard, it is expected that significant correlations will be found between the dimensions of organisational commitment and the factors of team performance.

H5: Organisational commitment will be positively related with perceived (non-financial) team performance.

H6: Organisational commitment will be positively related with financial team performance.

Subjects and procedure

Sample

The sample was drawn from a large high-technology, aerospace, manufacturing organisation operating in Sydney, Australia. The sample consisted of members of self-managing teams from 49 teams, together with 36 team leaders of 36 of these 49 teams. The size of all teams was approximately the same, with an average team size of 9 members. The team leaders had been with team members for at least 6 months. They were what are commonly termed 'external' team leaders as they were not directly involved in the functions/operations of their groups. All teams had been engaged in the process of teamwork for more than 5 years and team members had received training covering core team skills, new administrative skills, new technical skills and interpersonal skills.

All respondents were full-time unionised employees and volunteered to participate in the study. A questionnaire containing items measuring four interpersonal trust dimensions, three organisational commitment attributes and team performance was distributed to 280 self-managing employees. A total of 239 employees (85.4 percent individual response rate) returned usable questionnaires. Eleven incomplete questionnaires were excluded from the final sample. Our final sample contained data from 49 self-managing teams, for a team response rate of 89 percent.

Analytical procedure

The Analysis of Moment Structures (AMOS) was used for the factor analysis (measurement model) and for the regression analysis (path model). Following the recommendations of Sommer, Bae and Luthans (1995), we first developed the measurement model and then, with this held; a path model is developed. Using confirmatory factor analysis (CFA) we first assess the validity of the measurement model of the variables used in the paper. Given adequate validity of those measures, we reduced the number of indicators in the model by creating a composite scale for each latent variable. A mixture of fit-indices was employed to assess the overall fit of the measurement and path models. The ratio of Chi-square to degrees of freedom (χ^2/df) has been computed, with ratios

of less than 2.0 indicating a good fit. However, since absolute indices can be adversely affected by sample size (Loehlin, 1992), four other relative indices (GFI, AGFI, TLI, and CFI) were computed to provide a more robust evaluation of model fit (Tanaka, 1987; Tucker – Lewis, 1973). For the GFI, AGFI, TLI, and CFI, coefficients closer to unity indicate a good fit, with acceptable levels of fit being above 0.90 (Marsh, Balla & McDonald, 1988). The analytical procedure (steps), to calculate the regression coefficient λ_i and measurement error θ_i of each variable, used in this paper is detailed in Politis's (2001) study. The parameters of λ_i and θ_i were used as fix parameters in the path model.

Measurement models

As shown in Figure 1, the variables that we measure on the survey are: faith in peers, faith in management, confidence in peers, confidence in management (as rated by team members), organisational commitment – loyalty, identification, involvement – and team performance obtained from the responses of team members (non-financial) and the external leaders (financial).

Independent variables

Interpersonal trust measures were assessed using Cook and Wall's (1980) 12 item questionnaire. The theory posits four dimensions of interpersonal trust (Faith in Peers, Faith in Management, Confidence in Peers, Confidence in Management). Based on the results of a CFA supporting three factors, these items were used to create three scales: Faith in Peers (three items, $\alpha = 0.86$), Confidence in Peers (four items, $\alpha = 0.76$), and Confidence in Management (three items, $\alpha = 0.86$). Two items were dropped due to cross loading.

Dependent variables

Organisational commitment is made up of the subcategories of loyalty, identification, and involvement. These categories were assessed using Cook and Wall's (1980) 9 item instrument. Based on the results of the CFA two factors were clearly defined:

organisational involvement (four items, $\alpha = 0.71$), and organisational identification (four items, $\alpha = 0.72$). (Note: on the basis of the CFA results, the factors of organisational loyalty and organisational identification were combined on a single factor.) One item was dropped due to cross loading.

Team performance was assessed using both non-financial and financial measures. The non-financial measures were assessed using Crouch's (1980) 5 item scale of Crouch's Behavioural Inventory instrument. The four-item scale resulting from the CFA of this study showed a good internal reliability coefficient ($\alpha = 0.90$). (One item was dropped due to poor loading.)

Finally, the financial measures of team performance were assessed using a composite scale made up from schedule and profit (two items, $\alpha = 0.82$). The measure of quality was dropped due to poor loading. (Note: the level of performance for each indicator, schedule, quality and profit, was reported by the external team leaders of the self-managing teams and expressed as a percentage of target value over the previous six months.)

Path modelling

Using the analytical procedure outlined in Politis's (2001: 358-359) study, we then calculated the parameters in the path model (i.e., λ_i and θ_i). Table 1 contains the means, SDs, reliability estimates, λ_i and θ_i , estimates.

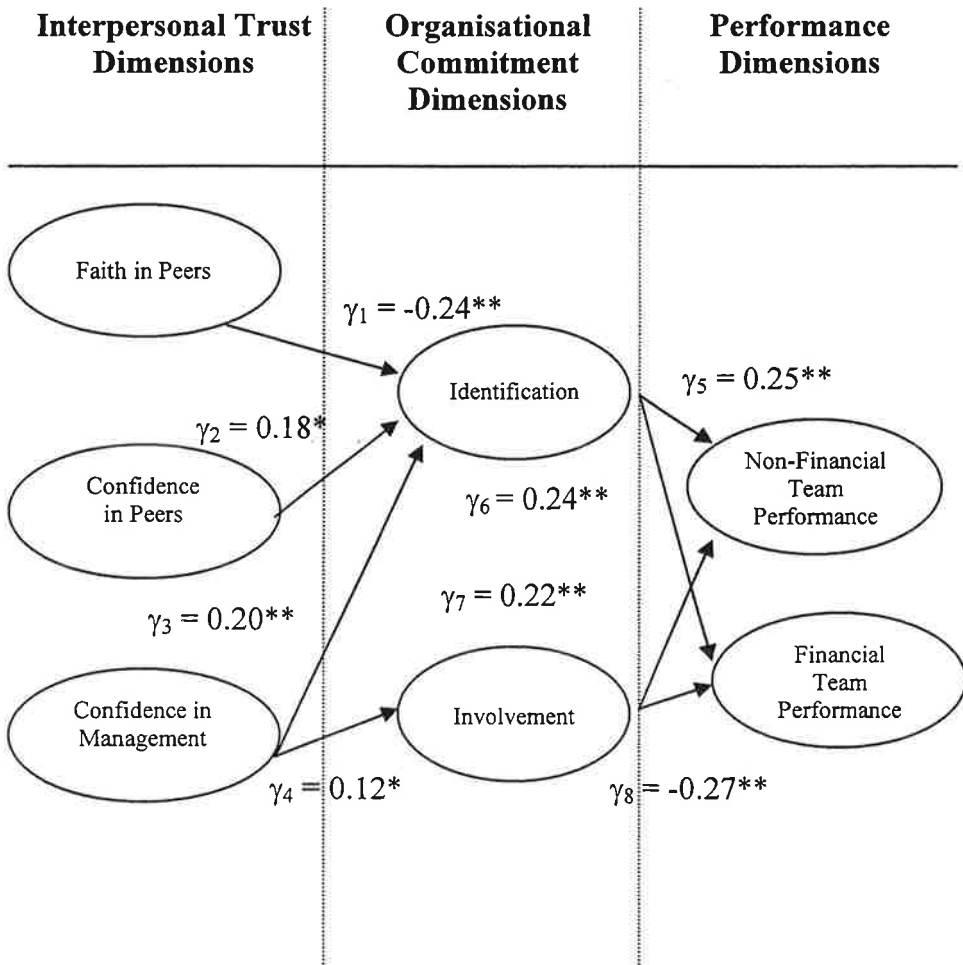
Table 1: Descriptive statistics, reliabilities, λ_i and θ_i estimates

Variable	Mean	SD (σ)	α	$\lambda = \sigma \sqrt{\alpha}$	Error variance $\theta = \sigma^2 (1 - \alpha)$
<u>Interpersonal trust</u>					
Faith in peers	5.53	1.24	.86	1.15	.215
Confidence in peers	5.23	1.20	.76	1.05	.345
Confidence in management	4.61	1.61	.86	1.49	.362
<u>Organisational commitment</u>					
Involvement	4.98	1.21	.71	1.02	.425
Identification	5.09	1.27	.72	1.08	.452
<u>Team performance</u>					
Non-financial	5.38	1.19	.90	1.13	.142
Financial	87.6	16.6	.82	15.0	50.5

Once these parameters, regression coefficients (λ_i) which reflect the regression of each composite variable on its latent variable, and the measurement error variances (θ_{ii}) associated with each composite variable, were calculated, we build this information into the path model to examine the relationships among the latent variables.

The model of Figure 2 contains three interpersonal trust dimensions (i.e., faith in peers, confidence in peers, confidence in management), two organisational commitment variables (identification, involvement), and two team performance variables: non-financial and financial. (It should be noted that one of the four interpersonal trust dimensions (faith in management) was not supported from the CFA results.)

Figure 2: Structural estimates of the hypothesised model ^α



Note: α standardised path coefficients

N = 49 self-managing teams

* $p < 0.05$

** $p < 0.01$

*** $p < 0.001$

The analysis revealed that the structural model of Figure 2 fit the data fairly well, with $\chi^2 = 15.2$; $df = 9$; ($\chi^2/df = 1.69$); $\rho = 0.085$; GFI = 0.98; AGFI = 0.95; TLI = 0.93; CFI = 0.97; RMR = 0.573; and RMSEA = 0.054. Figure 2 displays the results of structural equations modelling.

Standardised path estimates (γ s) are provided to facilitate comparison of regression coefficients. (It should be noted that all standardised path coefficients given in the AMOS output are reported in Figure 2.) Alternative models were examined with either paths added, reversed or removed, but all led to significantly worse model fit.

Hypotheses testing

Figure 2 indicates the estimated path coefficients (γ values) obtained from the AMOS analysis and the associated significant levels for each path. As predicted by $H4$, there were significant positive relationships between confidence in management and the two component dimensions of organisational commitment. *Confidence in management* is positively related to *identification* ($\gamma_3 = 0.20$, $p < 0.01$) and *involvement* ($\gamma_4 = 0.12$, $p < 0.05$), supporting $H4$.

$H3$ proposed that confidence in peers would be positively related to organisational commitment variables. This hypothesis was partially supported by the data of this study, in that *confidence in peers* was positively and significantly related to *identification* ($\gamma_2 = 0.18$, $p < 0.05$). Contrary to our prediction, the effect of *confidence in peers* on the dimensions of *organisational involvement* was not supported by the data of this study.

Contrary to our prediction, the standardised path from *faith in peers* to the dimension of *involvement* although it was significant ($p < 0.01$), it was relatively weak and negative ($\gamma_1 = -0.24$). The expected influence, however, of *faith in peers* on the second

component dimension of organisational commitment (*identification*) was not supported by the data of this study. *H2* was not tested because the component dimension of interpersonal trust, faith in management, was not supported from the CFA results.

On the right-hand side of the model, the results showed only one of the two dimensions of organisational commitment (*identification*) was positive and significantly related to team performance, supporting *H5*. Specifically, the relationship between the construct of *identification* and *non-financial team performance* was positive and significant ($\gamma_5 = 0.25, p < 0.01$), followed by similar relationship with the construct of *financial team performance* ($\gamma_6 = 0.24, p < 0.01$).

The second dimension of commitment (*involvement*) however, partially supported *H6*. The relationship between the component dimension of *involvement* and *non-financial team performance* was positive and significant ($\gamma_7 = 0.22, p < 0.01$). Contrary to our prediction, the standardised path from *involvement* to the dimension of *financial team performance* although it was significant ($p < 0.01$), it was negative ($\gamma_8 = -0.27$), not supporting *H6*. Furthermore, adding direct paths from interpersonal trust to team performance has also led to significantly worse model fit. Alternative models were examined with either paths added, reversed or removed, but all led to significantly worse model fit.

Discussion

The overall pattern of relationships between independent and dependent variables in the structural equation model to a large extent is consistent with the hypotheses. Eight of 10 tested paths between independent and dependent variables were significant. Of the eight significant paths, six were found positive while the other two were negative. To a large extent the findings suggest that the dimensions associated with Cook and Wall's (1980) model of interpersonal trust are essential in the process of strengthening the commitment of employees (members of self-managing teams) to work in an autonomous manner. Specifically, the relationship between confidence in management and *identification* was positive and significant, indicating that confidence in the ability of managers yields pride in the organisation and internalisation of the organisation's goals and values. Furthermore, confidence in the

ability of managers facilitates the psychological absorption in the activities of one's role. That is, managers' embodied ability to behave as team members, is essential for organisational commitment and team performance.

With respect to trust, the literature suggests that there are certain factors of perceived 'trustworthiness' that lead to trust. Mayer *et al.* (1995: 715) suggested that these factors are *ability, benevolence, and integrity*. Since the members of self-managing teams of our sample are working together for some years (reference sample section), trust between these members may be based more on attributions of 'trustworthiness' – *ability, benevolence, integrity* – made to one another than on general expectancies.

But *ability* has been acknowledged in Mathieu and Zajac's (1990) meta-analysis on the antecedents, correlates and consequences as an antecedent to organisational commitment. Moreover, Kelley (1996) argued that *benevolence* is essentially a commitment to achieving a positive value, and it is a major virtue, comparable in many respects to productiveness. Therefore, the current study reinforces the conceptualisation of trust being an antecedent to organisational commitment. The findings of this study are consistent with the way of thinking of some scholars in the literature that satisfaction and commitment are dimensions of effectiveness predicted by trust (Angle & Perry, 1981).

Finally, the findings of the study clarify which of the organisational commitment attributes *best* predict team performance. In particular, *identification* is a fundamental lever of both, non-financial and financial team performance. It is interesting to note that the psychological absorption in the activities of one's role negatively influences financial team performance.

A brief mention of some limitations of this study should be made to place the results in proper perspective. Although from an analytical perspective Structural Equation Modelling has a number of advantages in testing causal relationships, some caution should be noted. First, given the cross-sectional nature of the study, causality cannot be tested directly, although the hypotheses imply causation. So experimental or longitudinal data are needed for more definite results.

Although the cross-sectional nature of the study renders it vulnerable to problems typically associated with survey research (common method variance), an attempt was made to collect data using more than a single technique. Team performance for example, was assessed with both non-financial measures (employees rated their own group performance) and financial measures (external team leaders rated team's performance on schedule, quality and profit). However, the lack of measures from multiple sources of the other variables represents a limitation to the study. Therefore, future researchers should include financial measures across supervisory and team samples, and data for interpersonal trust and organisational commitment should be collected from multiple sources.

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