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# THE DIMENSIONS OF EMPLOYEE COMMITMENT: A SOUTH AFRICAN CONFIRMATORY FACTOR ANALYSIS

**L KAMFER**

*Department of Industrial and Organisational Psychology*
*University of Port Elizabeth*

**D J L VENTER**

*Computing Centre*
*University of Port Elizabeth*

**A B BOSHOFF**

*Graduate School of Management*
*University of Pretoria*

## OPSOMMING

Skale vir die meting van algemene, morele, berekende en vervreemde verbondenheid is op 188 werknemers van 'n farmaseutiese maatskappy toegepas tesame met sewe ander skale wat verwante organisatoriese dimensies gemeet het. Deur middel van hooffaktorontleding is drie faktore, te wete 'n oorkoepelende positiewe persepsie van die organisasie en twee verbondenheidsfaktore, een affektief en die ander berekend, onttrek, wat saam 73% van die totale variansie verklaar het. Deur middel van bevestigende faktorontleding is bogenoemde oplossing met een-, twee- en vierfaktormodelle vergelyk. 'n Konseptualisering van verbondenheid in terme van twee faktore, affektief en berekend, is gesteun.

## ABSTRACT

Instruments measuring overall, moral, calculative, and alienative commitment as well as seven other related dimensions were applied to 188 employees of a pharmaceutical company. Through principal factor analysis three factors, viz. an overall positive perception of the organisation, and two commitment factors, namely an affective commitment factor and a calculative commitment factor, explaining 73% of the total variance were extracted. By means of a confirmatory factor analysis the solution was compared with one, two, and four-factor models. A conceptualisation of commitment in terms of two factors, affective and calculative, was supported.

Organisational commitment has traditionally been accepted as a factor leading to positive behavioural consequences (Johnston & Snizek, 1991) and therefore a phenomenon of interest to organisational researchers as well as practitioners.

An abundance of research has been conducted on the relationship between commitment and various hypothesised consequences of commitment, notably labour turnover (Jaros, Jermier, Koehler & Sincich, 1991; Gregersen & Black, 1992). Initially, there was debate as to whether commitment was an attitudinal or a behavioural phenomenon (Allen & Meyer, 1990; Mowday, Porter & Steers, 1982). Today, the view seems to prevail that commitment is multi-dimensional in nature (Hackett, Bycio & Hausdorf, 1992). Consensus has, however, not been reached on what these dimensions are nor on how they combine to constitute commitment. The measurement of commitment and related concepts is also still controversial. Various scales are in use. Conceptually, Jaros et al. (1991) mention problems of definition and overlap; Morrow (1983) refers to concept redundancy.

Although still rare, some South African studies on commitment have recently been reported, notably by Boshoff and his associates (1992), also by Roodt (1992) and by Dreyer and Basson (1992).

In the following section an overview is given of the various dimensions which have been suggested to comprise commitment.

*Requests for reprints should be addressed to L Kamfer, Department of Industrial and Organizational Psychology, University of Port Elizabeth, P.O. Box 1600, Port Elizabeth 6000.*

## CONCEPTUALISATIONS OF ORGANISATIONAL COMMITMENT

### Affective Commitment

Also called attitudinal commitment, this is probably the most widely discussed form of commitment (Allen & Meyer, 1990; Jaros, et al., 1990; Mathieu & Zajac, 1990; Mayer & Schoorman, 1992). This view has been traced to Kanter (1968), who defined commitment as "the willingness of social actors to give energy and loyalty to the organisation" (p. 499), to the extent that an emotional bond with the organisation is formed (p. 507). Attitudinal commitment is therefore the relative strength of an individual's identification with and involvement in a particular organisation. Conceptually, it can be characterized by at least three aspects: (a) a strong belief in and acceptance of the organisation's goals and values; (b) a willingness to exert considerable effort on behalf of the organisation; and (c) a strong desire to maintain membership in the organisation (Mowday et al. 1982, p. 27). The affective view is associated with Mowday, Steers & Porter, (1979), and with Buchanan (1974).

The scale used most frequently to measure attitudinal commitment is the Organisational Commitment Questionnaire (OCQ) developed by Porter & Smith (1970) (Huselid & Day, 1990; Meyer, Paunonen, Gellatly, Goffin & Jackson, 1989). This scale purports to measure overall rather than specific forms of commitment (Jaros et al., 1991), and has invariably displayed satisfactory psychometric qualities. Many researchers such as Allen & Meyer, (1990), however, classify the OCQ as a measure of affective rather than overall commitment.

### Calculative Commitment

The calculative view of commitment has developed from Becker's (1960) sidebet theory (Jaros et al., 1991). Also called "continuance" commitment or "behavioural" commitment

(Johnston & Snizek, 1991), it refers to a state in which the employee feels compelled to commit to the organisation because the monetary, social, psychological, and other costs associated with leaving are binding. Calculative commitment is defined as "a structural phenomenon which occurs as a result of individual-organisation transactions and alterations in side-bets or investments over time" (Hrebiniak & Alutto, 1972). In this sense, individuals become bound to an organisation because they have side bets, or sunk costs (e.g., a pension plan), invested in the organisation and cannot "afford" to separate themselves from it (Mathieu & Zajac, 1990). Calculative or continuance commitment results from the worker's entering into an exchange relationship with the organisation. The degree of continuance commitment is determined by the extent to which this exchange relationship favours the employee (Huselid & Day 1990). In this view, affect plays a minimum role (Allen & Meyer, 1990).

Mayer & Schoorman (1992) relate the abovementioned two commitment dimensions (affective and continuance or calculative) to the motivational dimensions identified by March & Simon (1955), viz. the decision to produce and the decision to participate.

Acceptable scales measuring calculative or continuance commitment have been developed by Allen & Meyer (1990), Hrebiniak & Alutto (1972), and Penley & Gould (1988).

The two most popular views of commitment then have been in terms of the affective and the continuance dimensions (Hackett, Bycio & Hausdorf, 1992). The most commonly used instruments to measure them have been the OCQ of Porter and his associates for the first, and the more recently developed Meyer & Allen (1984) ACS and CCS scales which measure both dimensions. Factor analysis has since shown that the continuance factor could be further split into two correlated dimensions labelled Low Perceived Alternatives and High Personal Sacrifice (Meyer, Allen & Gellatly, 1990; Hackett, Bycio & Hausdorf, 1992).

**Moral Commitment**

Originally conceptualised by Etzioni (1961), also described in terms of obligation or responsibility to the organisation and also called normative (Allen & Meyer, 1990), and value commitment (Angle & Perry, 1981), moral commitment is based on internalisation of norms and identification with organisational authority. While some authors subsume moral commitment into either the affective or attitudinal dimensions (Mathieu & Zajac, 1990; Mowday et al. 1982), other have treated it as a dimension on its own (Allen & Meyer, 1990; Penley & Gould, 1988; Randall, Fedor, Longenecker, 1990). The moral dimension does not seem to have attracted the same attention as the first two types of commitment have.

**Alienative Commitment**

Another aspect which has also not received the same emphasis is alienative commitment (or involvement). Alienative commitment represents a negative orientation toward the organisation, typically found in situations where individual behaviour is severely constrained. Penley and Gould (1988) developed a scale to measure this dimension which was also originally conceptualised by Etzioni (1961).

**Multidimensional Models of Commitment**

Although the various dimensions of commitment have been discussed separately, the concept of organisational commitment has most often been portrayed as consisting of more than one dimension. Basically two multidimensional models of organisational commitment, referring to the bond or linkage that could exist between the individual and the organisation (Mathieu & Zajac, 1990), and employing various combinations of the dimensions that were reviewed, have emerged. One of these suggests that commitment has two dimensions, an attitudinal, moral or value dimension, in which the individual desires to maintain organisational membership and identifies with the organisation's goals and values, and a calculative dimension, in which the individual exchanges organisational involvement for rewards or inducements (Angle & Perry, 1981; Huselid & Day, 1991; Mathieu & Zajac, 1990; Randall, 1990).

In two recent studies, the two-dimensional model has been substantiated by means of confirmatory factor analysis. Meyer, Allen & Gellatly (1990) confirmed two oblique factors, affective and continuance, with the continuance factor itself reflecting two strongly correlated aspects thereof, lack of alternatives and personal sacrifice. Mayer & Schoorman (1992), using different measures, also confirmed two dimensions which they labelled value and continuance commitment.

The second conceptualisation, also by Allen & Meyer (1990) in their earlier work, propounds a three-dimensional model of organisational commitment as consisting of affective, continuance, and normative components (rather than types): Employees could conceivably experience each of these to varying degrees. "Some employees, for example, might feel both a strong need and a strong obligation to remain, but no desire to do so; others might feel neither a need nor obligation but a strong desire, and so on" (Allen & Meyer, 1990, p. 4). Randall, Fedor & Longenecker (1990) as well as Penley and Gould (1983) also defend a three-dimensional view. While they distinguish between affective and instrumental commitment, Penley & Gould believe that moral and alienative are independent dimensions of affective commitment, with calculative commitment an instrumental form. Jaros et al. (1991) factor analysed 21 items measuring continuance, affective, and moral commitment. They also found three factors which explained 56% of the total variance, confirming the notion of the continuance, affective, and moral dimensions, supporting the idea that attitudinal commitment is multi-dimensional in nature, and that affective and moral commitment are separate concepts. Meyer & Allen (1990) indicated that further attention should be given to the development of the normative component. Hackett, Bycio & Hausdorf (1991) confirmed the Meyer & Allen (1984) three-dimensional model.

In summary therefore, both two- and three-dimensional models of organisational commitment have been propounded. Both have in turn been confirmed by means of confirmatory factor analysis. This situation calls for further research into the clarification of the definition and measurement of commitment (Meyer, Allen & Gellatly, 1990). Mathieu & Zajac (1990, p. 191) believe that "a greater number of studies need to be conducted with employees sampled from a wide variety of organisations."

The purpose of this study is to further investigate the nature of the commitment linkage which exists between employees and their employing organisation with a view to determining which commitment model should be supported in this case. This will be attempted by examining the relationship of four measures of commitment, one the most commonly used in the form of the OCQ, together with one which has not often featured, namely the three-factor Organisational Commitment Scale of Penley and Gould (1988). Results from a measure of job satisfaction and from instruments measuring employee perceptions of seven other related organisational dimensions are also included in the analysis. Hopefully, this study will contribute to the development of a more comprehensive empirical base in that it uses a South African sample and employs a commitment measure which is not commonly used. An attempt will be made to confirm the model which emerges by means of confirmatory factor analysis.

## METHOD

**Respondents**

This study is based on data collected in the South African subsidiary of a multinational organisation manufacturing and marketing pharmaceutical products. The South African company has its head office and manufacturing plant in an in-

dustrial centre, with branch offices located in three other areas so that its products were marketed and distributed nationally. The study involved all the employees in the organisation (n = 188). In this way the problems emanating from sampling were effectively avoided. More information on the characteristics of the respondents is given in the results section.

**Instruments**

Data was gathered by means of a written questionnaire, made up of nine scales plus a short scale measuring social desirability. The scales mentioned in the previous section can be further described as follows:

1. *Mission Statement Scale.* This was the company's mission statement formulated in 27 statements, resulting in what Alderfer and Brown (1977) described as an 'empathic' questionnaire. A respondent's score would indicate his/her attitude to, perception of, and degree of identification with the mission statement. The first four questions required respondents to answer yes, uncertain, or no. These were: As far as the mission statement is concerned, I have seen it, I understand it, I agree with it, the company is living by it. The remaining questions required response on a five-point Likert-type scale running from "strongly disagree" to "strongly agree", for example: people can use our products with confidence because our high ethical standards ensure that they are safe to use; we are seriously trying to become the best pharmaceutical company in South Africa; I feel that I am helping to improve the state of human health in South Africa. For a more detailed description of the procedure followed, see Kamfer (1991) where the first application of this technique is described. The inclusion of a scale representing the organisation's mission statement is conceptually justified by the definition of commitment as an attachment of an individual to an employing organisation through internalisation of its goals, values and mission (Jaros et al., 1991).

2. *Supervision Scale.* This is the Bluen and Donald (1991, p. 16) Supervision Scale, designed to measure respondent's attitudes to or perceptions of their supervisors. This dimension was included because supervision is an aspect that impinges on employee perceptions of the organisation (Mathieu & Zajac, 1990; Mattaz, 1985; Mattaz, 1988) and it could conceivably be regarded as an antecedent of commitment. Alpha coefficients of 0,82, 0,84 and 0,85 are reported for three different samples (Bluen & Donald, 1991, p. 14).

3. *Organisational Commitment Scale.* This is the short version of the Porter and Steers Organisational Commitment Scale (Cook, Hepworth, Wall & Warr, 1981), included as a measure of overall commitment (Morrow, 1983; Mowday, et al., 1979). Ferris & Aranya (1983) consider it to be the most widely used measure of its kind. Alpha coefficients in the region of 0,90 have consistently been reported (Cook, et al, 1981).

4. *Penley & Gould Organisational Commitment Scale.* This is the Penley & Gould (1988, p. 59) commitment scale and was included because it yields three Organisational Commitment Scores, on moral, calculative, and alienative commitment respectively, has a theoretical base in a well-known model but is not commonly included in studies of commitment. The authors report alpha coefficients of 0,86 for the alienative and moral, and 0,78 for the calculative scales.

5. *Employee Relations Scale.* Developed from the Bluen and Donald (1991, p. 16) and Rahim (1983, p. 194) scales, the scale measures perceived relationships within the firm. It has a Cronbach's alpha of 0,90. Relations with coworkers (Mathieu & Zajac, 1990; Mottaz, 1985) also in the form of peer cohesion (Allen & Meyer, 1990), or coworker assistance (Mottaz, 1988) have been studied in relation to commitment.

6. *Equal Opportunity Scale.* This is the first author's scale, developed to measure employee perceptions of an organisation's equal opportunity profile. Cronbach's alpha for the scale is 0,90. Allen & Meyer (1990) included a measure of equity in their study.

7. *Recognition of the Individual Scale.* This scale, taken from an unpublished Industrial Society (IS) survey, measures perceptions of the extent to which individuals are recognised for who they are and for what they achieve on their jobs. Previous studies in which a similar aspect was measured were by Allen & Meyer (1990) (personal importance), and Mathieu & Zajac (1990) (perceived personal competence). The psychometric properties of the scale are not known.

8. *Communication Scale.* Also from the IS survey, the scale measures perceptions of the state of communication practices within the firm. Aspects of communication have been included in commitment research (Allen & Meyer, 1990; Mathieu & Zajac, 1990). No psychometric data on the scale was available.

9. *Minnesota Satisfaction Questionnaire.* The short form was applied and the total job satisfaction score used. Median reliabilities of 0,90 have been reported by the authors (Weiss, Dawis, England & Lofquist (1967)). Measures of job satisfaction are commonly used in commitment research, especially in testing the exchange perspective. This aspect was included to probe the link between job satisfaction and commitment which has been conceptualised in different ways. Shore & Martin (1989), believe that they are not the same, while Meyer et al. (1989) and Mathieu & Zajac, (1990) believe that they are strongly associated. Job satisfaction is often postulated to be an antecedent of commitment (Becker, 1992; Hackett, Bycio & Hausdorf, 1992).

10. *Social Desirability Scale.* In an attempt to include a brief social desirability measure that would not unnecessarily increase the number of items, five items from the Greenwald and Satow (1970) short social desirability scale were included. They were used to allow control for the social desirability effect in respondents' answers, an aspect which has been of concern in previous commitment research (Mathieu & Zajac, 1990).

The inclusion of the mission statement, supervision, employee relations, equal opportunity, recognition of the individual, and communication measures together with the commitment and job satisfaction scales is an important feature of this study. It allows the assessment of specific organisationally relevant dimensions to which employees would probably be able to respond in an informed manner. Measures which would allow comparisons of this kind have not always been built into the investigations conducted so far. The Allen & Meyer (1990) study is a notable exception.

The sum of the item credits for each scale represented the respondents' scores on each of the scales. The scoring system was so designed that a higher score would indicate a more positive and a lower score a more negative attitude in terms of the concept being measured.

## RESULTS

**Employee Profile**

Firstly, a profile of the respondents who took part in the survey follows, presented as Table 1. Useable questionnaires were obtained from 188 respondents.

**TABLE 1**
**ORGANISATIONAL AND DEMOGRAPHIC PROFILE OF RESPONDENTS (n=188)**

| | | n |
|---|---|---|
| Department | Operations | 81 |
| | Commercial | 66 |
| | Finance | 15 |
| | Administration | 23 |
| | Unknown | 3 |
| Level | Executives | 6 |
| | Senior and middle management | 22 |
| | Specialists | 46 |
| | Other salaried staff | 43 |
| | Hourly paid employees | 68 |
| | Unknown | 3 |
| Gender | Men | 91 |
| | Women | 95 |
| | Unknown | 2 |
| Level of education | Stds 1–7 | 36 |
| | Stds 8–9 | 44 |
| | Std 10 or equivalent | 44 |
| | Post-Matric Diploma | 29 |
| | Degree or equivalent | 30 |
| | Unknown | 5 |
| Age | 20–29 years | 55 |
| | 30–39 | 61 |
| | 40–49 | 34 |
| | 50 years + | 32 |
| | Unknown | 6 |
| Length of service with the organisation | Less than 3 years | 52 |
| | 3–4 years | 33 |
| | 5–9 years | 39 |
| | 10–19 years | 42 |
| | 20 years + | 15 |
| | Unknown | 7 |
| Home language | Xhosa | 17 |
| | Afrikaans | 81 |
| | English | 86 |
| | Other | 2 |
| | Unknown | 2 |

The mean age of the respondents was 36,74 years (SD = 10,76) mean length of service 8,33 years (SD = 7,68). Three language groups (Xhosa, English, and Afrikaans) are represented. The fact that the number of women in the company slightly outnumber the men is notable.

**Questionnaire results**

*Statistical properties of the scales.* Each of the scales was item-analysed for internal consistency, factor structure, and correlation with social desirability. Five items were dropped from the Mission Statement Scale, one from the Recognition of the Individual Scale, and two from the Communication Scale. The item analyses were repeated and the results are shown in Table 2. The BMDP statistical package (program 4M) was used throughout.

**TABLE 2**
**STATISTICAL PROPERTIES OF THE SCALES**

| Scale | Number of Items | SocDes | Cronbach's Alpha | Number of Factors, and Variance accounted for |
|---|---|---|---|---|
| Mission Statement | 24 | 0,25 | 0,87 | 6; 62% |
| Supervision | 6 | 0,18 | 0,91 | 1; 69% |
| Moral Commitment | 5 | 0,18 | 0,72 | |
| Calculative Commitment | 5 | 0,00 | 0,68 | 4; 56% |
| Alienative Commitment | 5 | -0,15 | 0,62 | |
| Overall Commitment | 8 | 0,23 | 0,89 | 1: 59% |
| Employee Relations | 8 | 0,16 | 0,90 | 1; 59% |
| Equal Opportunities | 9 | 0,16 | 0,90 | 1; 56% |
| Recognition of the Individual | 6 | 0,11 | 0,86 | 1; 60% |
| Communication | 10 | 0,21 | 0,82 | 1; 38% |
| Overall Job Satisfaction | 20 | 0,24 | 0,90 | 5; 62% |
| Social Desirability | 5 | — | 0,40 | 2; 53% |

As can be seen in Table 2, all scales with the exception of the Social Desirability Scale display good or at least acceptable psychometric properties. The descriptive statistics of the scales are shown in Table 3.

**TABLE 3**
**DESCRIPTIVE STATISTICS OF THE SCALES**

| | Mean | SD | Skewness | Kurtosis |
|---|---|---|---|---|
| Mission | 3,85 | 0,54 | -0,24 | -0,33 |
| Superv | 3,68 | 0,92 | -0,01 | 0,83 |
| Commit M | 3,98 | 0,63 | -0,33 | 0,09 |
| Commit C | 3,54 | 0,81 | -0,24 | -0,80 |
| Commit A | 2,37 | 0,72 | 0,52 | 0,42 |
| Commit O | 3,83 | 0,74 | -0,85 | 1,08 |
| Emprelat | 3,33 | 0,81 | -0,62 | -0,03 |
| Equalopp | 3,13 | 0,83 | -0,18 | -0,34 |
| Recogind | 3,33 | 0,86 | -0,35 | -0,16 |
| Communic | 3,72 | 0,58 | -0,26 | 0,70 |
| Jobsatt | 3,65 | 0,61 | -0,56 | 0,69 |

**Exploratory Factor Analysis of Scales**

In order to investigate the interrelationships between the scales, the scale scores were first intercorrelated. The intercorrelations appear in Table 4.

**TABLE 4**
**INTERCORRELATIONS OF SCALE SCORES**

| | Mission | Superv | Commit M | Commit C | Commit A | Commit 0 | Emprel | Eqopp | Recogind | Commun | Jobsatt |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mission | 1,00 | | | | | | | | | | |
| Superv | 0,40 | 1,00 | | | | | | | | | |
| Commit M | 0,62 | 0,31 | 1,00 | | | | | | | | |
| Commit C | 0,34 | -0,05 | 0,27 | 1,00 | | | | | | | |
| Commit A | -0,42 | -0,38 | -0,41 | 0,15 | 1,00 | | | | | | |
| Commit 0 | 0,76 | 0,46 | 0,75 | 0,26 | -0,54 | 1,00 | | | | | |
| Emprelat | 0,69 | 0,48 | 0,45 | 0,15 | -0,40 | 0,61 | 1,00 | | | | |
| Equalopp | 0,64 | 0,59 | 0,46 | 0,08 | -0,46 | 0,61 | 0,71 | 1,00 | | | |
| Recogind | 0,49 | 0,56 | 0,39 | 0,03 | -0,43 | 0,49 | 0,47 | 0,58 | 1,00 | | |
| Communic | 0,69 | 0,33 | 0,51 | 0,24 | -0,33 | 0,54 | 0,55 | 0,57 | 0,51 | 1,00 | |
| Jobsatt | 0,64 | 0,63 | 0,49 | 0,09 | -0,51 | 0,68 | 0,54 | 0,61 | 0,59 | 0,57 | 1,00 |

Exploratory factor analyses were then conducted iteratively to obtain various models that could subsequently be evaluated by means of confirmatory factor analyses. Principal component analysis was used as the factor extraction method and due to probable intercorrelations between factors, oblique Quartimin rotation was selected as the applicable rotation method. Parameters were set to force one-, two-, three- and four-factor solutions. The results are summarised in Table 5.

All factor loadings greater than or equal to 0,30 are underlined as these were deemed significant for inclusion in factor analysis models subsequently evaluated by means of confirmatory factor analyses. The two-factor outcome would have been the optimal solution if the conventional Kaiser's Rule was used to determine the number of factors as only the Eigenvalues for the first and second factors were greater than 1.

**TABLE 5**
**RESULTS OF ONE, TWO, THREE AND FOUR FACTOR SOLUTIONS OF PRINCIPAL FACTOR ANALYSES**

Factor loadings and Communalities ($h^2$)

| | One Factor | | Two Factors | | | Three Factors | | | | Four Factors | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | F1 | $h^2$ | F1 | F2 | $h^2$ | F1 | F2 | F3 | $h^2$ | F1 | F2 | F3 | F4 | $h^2$ |
| Mission | **0,86** | 0,73 | **0,77** | **0,39** | 0,75 | **0,43** | **0,43** | **0,37** | 0,81 | **0,66** | -0,01 | 0,30 | 0,19 | 0,83 |
| Superv | **0,66** | 0,44 | **0,75** | **-0,34** | 0,53 | **0,92** | -0,16 | -0,18 | 0,71 | -0,09 | **0,99** | -0,05 | 0,00 | 0,85 |
| Commit M | **0,72** | 0,51 | **0,63** | **0,39** | 0,59 | -0,03 | **0,82** | 0,21 | 0,77 | 0,06 | 0,01 | **0,79** | 0,25 | 0,79 |
| Commit C | 0,21 | 0,05 | 0,01 | **0,86** | 0,27 | -0,04 | 0,01 | **0,89** | 0,79 | 0,02 | 0,03 | 0,04 | **0,93** | 0,88 |
| Commit A | **-0,61** | 0,38 | **-0,69** | **0,30** | 0,42 | -0,10 | **-0,79** | **0,48** | 0,79 | -0,03 | -0,09 | **-0,74** | **0,45** | 0,79 |
| Commit 0 | **0,86** | 0,74 | **0,80** | 0,26 | 0,77 | 0,24 | **0,72** | 0,15 | 0,84 | -0,19 | 0,17 | **0,67** | 0,16 | 0,85 |
| Emprelat | **0,78** | 0,61 | **0,76** | 0,12 | 0,61 | **0,68** | 0,13 | 0,19 | 0,64 | **0,92** | -0,00 | -0,05 | -0,09 | 0,79 |
| Equalopp | **0,82** | 0,67 | **0,84** | -0,04 | 0,65 | **0,80** | 0,08 | 0,06 | 0,74 | **0,71** | 0,28 | -0,03 | -0,11 | 0,78 |
| Recogind | **0,71** | 0,51 | **0,76** | -0,17 | 0,48 | **0,81** | -0,02 | -0,05 | 0,63 | 0,16 | **0,70** | 0,02 | 0,01 | 0,67 |
| Communic | **0,74** | 0,55 | **0,68** | **0,30** | 0,56 | **0,53** | 0,20 | **0,34** | 0,61 | **0,82** | -0,04 | 0,04 | 0,10 | 0,70 |
| Jobsatt | **0,82** | 0,68 | **0,84** | -0,06 | 0,66 | **0,66** | -0,27 | -0,02 | 0,70 | 0,12 | **0,60** | 0,29 | 0,05 | 0,75 |

Cumulative % of variance

| | F1 | F1 | F2 | F1 | F2 | F3 | F1 | F2 | F3 | F4 |
|---|---|---|---|---|---|---|---|---|---|---|
| Common | 100,0 | 81,0 | 100,0 | 72,9 | 90,0 | 100,0 | 67,7 | 83,5 | 92,8 | 100,0 |
| Total | 53,3 | 53,3 | 65,8 | 53,3 | 65,8 | 73,1 | 53,3 | 65,8 | 73,1 | 78,8 |

Intercorrelations

| | F1 | F1 | F2 | F1 | F2 | F3 | F1 | F2 | F3 | F4 |
|---|---|---|---|---|---|---|---|---|---|---|
| F1 | 100,0 | 1,00 | | 1,00 | | | 1,00 | | | |
| F2 | — | 0,11 | 1,00 | 0,58 | 1,00 | | 0,59 | 1,00 | | |
| F3 | — | — | — | 0,09 | 0,20 | 1,00 | 0,56 | 0,44 | 1,00 | |
| F4 | — | — | — | — | — | — | 0,17 | -0,08 | 0,10 | 1,00 |

| | F1 | F2 | F3 | F4 | F5 | F6 | F7 | F8 | F9 | F10 | F11 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Eigen values: | 5,86 | 1,37 | 0,81 | 0,62 | 0,55 | 0,45 | 0,41 | 0,31 | 0,25 | 0,21 | 0,16 |

F1 = Factor 1
F2 = Factor 2
F3 = Factor 3
F4 = Factor 4

**Confirmatory Factor Analyses**

Using Bentler's (1989) structural equations computer program EQS, confirmatory factor analyses were conducted in an attempt to determine which factor analytic model produces the best fit. The following models were evaluated:

One-factor Model:

Mission = F1 + E1
Superv = F1 + E2
Commit M = F1 + E3
Commit C not used
Commit A = F1 + E5
Commit O = F1 + E6
Emprelat = F1 + E7
Equalopp = F1 + E8
Recogind = F1 + E9
Communic = F1 + E10
Jobsatt = F1 + E11

Two-factors Model:

Mission = F1 + F2 + E1
Superv = F1 + F2 + E2
Commit M = F1 + F2 + E3
Commit C = F2 + E4
Commit A = F1 + F2 + E5
Commit O = F1 + E6
Emprelat = F1 + E7
Equalopp = F1 + E8
Recogind = F1 + E9
Communic = F1 + F2 + E10
Jobsatt = F1 + E11

Three-factors Model:

Mission = F1 + F2 + F3 + E1
Superv = F1 + E2
Commit M = F2 + E3
Commit C = F3 + E4
Commit A = F2 + F3 + E5
Commit O = F2 + E6
Emprelat = F1 + E7
Equalopp = F1 + E8
Recogind = F1 + E9
Communic = F1 + F3 + E10
Jobsatt = F1 + E11

Four-factors Model:

Mission = F1 + E1
Superv = F2 + E2
Commit M = F3 + E3
Commit C = F4 + E4
Commit A = F3 + F4 + E5
Commit O = F3 + E6
Emprelat = F1 + E7
Equalopp = F1 + E8
Recogind = F2 + E9
Communic = F1 + E10
Jobsatt = F2 + E11

In all of the above models the following apply:
1. Factors multiplied by factor loadings are indicated by F's.
2. The error terms are indicated by E's.
3. Factor variances were fixed at 1,0.
4. The variances of error terms and covariances between factors were estimated by EQS.

The various fit indices which were obtained are given in Table 6.

**TABLE 6**
**GOODNESS OF FIT INDICES**

| Index | One Factor | Two Correlated factors | Three Correlated factors | Four Correlated factors |
|---|---|---|---|---|
| $Chi^2$/df | 248,77/44 | 167,42/38 | 109,68/37 | 114,79/37 |
| $SBChi^2$ | 202,71 | 135,62 | 92,39 | 92,56 |
| BBNFI | 0,81 | 0,87 | 0,91 | 0,91 |
| BBNNFI | 0,79 | 0,85 | 0,91 | 0,91 |
| CFI | 0,83 | 0,89 | 0,94 | 0,94 |
| Independence AIC | 1 171,99 | 1 171,99 | 1 171,99 | 1 171,99 |
| Model AIC | 160,77 | 91,42 | 35,68 | 40,79 |
| Independence CAIC | 938,99 | 938,99 | 938,99 | 938,99 |
| Model CAIC | -25,63 | -69,57 | -121,07 | -115,95 |

$SBChi^2$ : Satora-Bentler $Chi^2$
BBNFI : Bentler-Bonett Normed Fit Index
BBNNFI : Bentler-Bonett Non-normed Fit Index
CFI : Comparative Fit Index
AIC : Akaike's Information Criterion
CAIC : Bozdogan's Consistent Version of the AIC

The three-factor model fits better than the others on all the fit indices used, all of which are positively related to a model's fit except for the chi-square value which is inversely related to the fit. Bentler (1989, p. 93) suggests that meeting or exceeding 0,90 on the Bentler-Bonett Normal Fit Index (BBNFI), Bentler-Bonett Non-normal Fit Index (BBNNFI) and Comparative Fit Index (CFI) indices represents an adequate fit. As can be seen, all the indices improve in the direction of the three-factor model and are again marginally reduced in the four-factor solution. The three-factor solution, in which the commitment scales divide into affective and calculative dimensions, provides the most satisfactory explanation.

The three factors extracted account for 73,11% of the total variance. Factor 1 appears to be an overall perceptual factor characterised by perceptions of receiving good supervision, individual recognition, equal opportunity, employee relations, degree of job satisfaction, feelings regarding the communication climate and about the mission statement. The commitment variables do not feature. This overall attitudinal factor accounts for 72,89% of common and 53,29% of total variance. Factor 2 is characterised by the moral and overall commitment dimensions. The mission statement and job satisfaction scales also load on this factor with alienative commitment having a negative loading. This appears to be an affective commitment factor with a high moral component. It explains 17,07% of the common and 12,48% of the total variance. On factor 3 calculative commitment, alienative commitment, the mission statement and communication load significantly. It explains 10,04% of common and 7,34% of total variance.

## CONCLUSION

The findings of this study confirm the idea of commitment as a multi-dimensional construct. Empirical confirmation is provided for a two-dimensional conceptualisation of commitment along the lines of an overall, affective, attitudinal dimension, and a calculative dimension. The two are largely uncorrelated, the intercorrelation of 0,20 found here is lower than for instance the correlation (r = 0,51) that was recently reported by Huselid & Day (1990). The low correlation between the two factors, and the relative contribution to the variance made by each, indicate that both facets of commitment, affective and calculative, are necessary to account for the bonds which employees have with the organisations for which they work. This is in line with the implications of recent studies by Ferris & Aranya, (1983); Matthieu & Zajac, (1990) and Randall (1990) as well as with the findings which Mayer & Schoorman (1992) and Hackett, Bycio & Hausdorf (1992) obtained by means of confirmatory factor analysis.

The study supports the concept redundancy finding of Morrow (1983), but not to the extent of the unidimensional exchange orientation present in the findings of Mottaz (1988). The high internal consistency of the Porter OCQ ($\alpha$ = 0,89) is again shown. Lastly, as this study reports the perceptions of a group of culturally diverse employees working in a country other than the United States, and also includes a different scale in the measurement of commitment, the literature base on commitment is extended.

There are limitations in the design. The relatively small sample (n = 188) restricted the analyses possible. The sample is not representative and generalisation of the findings must be limited. Method and response bias could have inflated the relationships between the variables (Mathieu & Zajac, 1990). The findings obtained from this analysis can be interpreted only in the context of the variables included in the model. Within these constraints, our data confirms that commitment has two dimensions, affective and calculative. This finding suggests that, for this organisation at least, attempts to foster commitment should emphasise the enhancement of both affective and calculative bonds.

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