

# Is there a general factor in goal commitment?



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**Orientation:** While scholars generally agree that organisations benefit from a motivated workforce that is committed to achieving organisational goals, there is much disagreement regarding the theoretical structure of goal commitment.

**Research purpose:** To provide a useful theoretical structure of the multifaceted nature of goal commitment, while arguing for the existence of a general factor of goal commitment.

**Motivation for the study:** This article challenges the notion of a unidimensional construct of goal commitment by proposing a more inclusive, yet clearly differentiated, view of goal commitment as a bifactor model.

**Research approach, design, and method:** A cross-sectional survey was conducted in various economic sectors, using different sampling techniques ( $n = 450$ ). The quantitative data were analysed using confirmatory factor analysis.

**Main findings:** The findings suggest that a general factor explains a significant amount of common variance among the manifest variables of goal commitment. The recovery of the group factors provided support for a small multidimensional element of goal commitment.

**Practical/managerial implications:** Human resource specialists should use a more inclusive model of goal commitment to enable more accurate predictions of high performance and provide more depth for development initiatives aimed at employees self-regulating the direction, intensity, and persistence of their actions towards goals. However, the practical use of subscale scores should be tempered by the statistically unique information that such factors provide in addition to a general factor.

**Contributions/value-add:** This study proposes a more comprehensive theory and clear articulation of the structure of goal commitment.

**Keywords:** Work motivation; goal commitment; bifactor; theoretical structure; workforce.

## Introduction

### Orientation

Motivation plays a significant role in the management of human resources by contributing to 'performance, adjustment, and growth at the individual, group and organisational level' (Kanfer, Chen, & Pritchard, 2008, p. 2). Kanfer et al. (2008, p. 2) define work motivation as factors that increase 'the direction, intensity, and persistence of behaviour or thought'. Regrettably, a study conducted by Gallup (2017) from 2014 to 2016 indicated that only 15% of employees in 155 countries were motivated to perform well at work. Continued research into work motivation is critical to the success of global and South African organisations.

Locke and Latham's (1990) cognitive theory of goal setting has made significant contributions to industrial psychologists' understanding of motivation at work and could help to elevate low levels of motivation. The accumulation of empirical evidence culminated in Locke and Latham's (1990) High-Performance Cycle, a metatheory of the impact of goal setting on performance. A central tenet of the theory is that more challenging goals often lead to improved performance (Borgogni & Dello Russo, 2013). Locke and Latham also outlined important moderating effects on the relationship between challenging goals and high performance, such as goal commitment. According to Meyer (2014), commitment forms an integral part of motivation, as it could bind employees to a particular course of action, influencing the direction, persistence, and intensity of their behaviours towards achieving their goals. There seems to be consensus among scholars that a committed workforce is critical for the performance of an organisation, which is vital to achieving competitiveness in the global economy (Klein, Molloy, & Cooper, 2009; Meyer, 2014).

Despite the clear recognition of the importance of commitment, there is disagreement about its conceptualisation (Klein et al., 2009; Meyer, 2014). Whereas some authors argue that commitment is a multidimensional construct (Meyer, 2014; Meyer, Becker, & Vandenberghe, 2004), others favour a unidimensional conceptualisation (Klein, Cooper, Molloy, & Swanson, 2014; Klein et al., 2009; Klein, Molloy, & Thomas, 2012). Roodt (2004) argues that commitment research did not evolve in a logical fashion.

Roodt (2004) argues that commitment research did not evolve in a logical fashion. Instead, it could be described as fragmented, resulting in a need for meta-theoretical integration (Klein et al., 2012; Roodt, 2004). It is essential to determine the psychological state of goal commitment, namely whether it is cognition, affect, volition, behavioural intentions, or all four (Roodt, 2004).

## Research purpose and objectives

The objective of this article is to indicate a midpoint in existing scholarship on goal commitment by determining whether the cognitive, affective, volitional, and behavioural intentional dimensions are differentiable, yet part of a general factor of goal commitment. Evidence of a short measure of goal commitment that can be used as an outcome variable in process models when predicting performance on goals is also investigated.

## Literature review

A historical overview of goal commitment is provided, in order to highlight the theoretical progression towards a unidimensional construct. Thereafter, the standing of goal commitment relative to other goal reactions is outlined, in support of the argument that a general factor of goal commitment exists, which is composed of a cognitive, affective, volitional, and behavioural intentional dimension. Finally, the proposed factor structure of goal commitment is outlined.

### A historical overview of goal commitment

The importance of goal commitment was first recognised by Edwin A. Locke (1968), who defined the construct as an unwillingness to abandon a goal, together with continued effort to achieve it. Hollenbeck, Klein, O'Leary, and Wright (1989) initially developed a nine-item scale that measured cognitive, volitional, and behavioural intentional facets of what was purported to be a unidimensional construct of goal commitment. However, Deshon and Landis (1997) outlined that the nine-item measure was not a unidimensional construct, but that two factors could be differentiated: one associated with commitment and another pertaining to the cognitive aspect of goal attainment. Instead of rebutting contrasting views, Klein, Wesson, Hollenbeck, Wright, and DeShon (2001) collaborated on a meta-analytical investigation of goal commitment, which yielded a unidimensional construct (based on a five-item scale).

The most recent outcome of the pursuit of a unidimensional construct of commitment included a four-item scale developed by Klein, Cooper, Molloy, and Swanson (2014), which was based on a strong theoretical foundation proposed by Klein et al. (2012). Klein et al. (2009) were the first to articulate the need for a unidimensional construct of commitment, based on a clear theoretical concept. According to Klein et al. (2009), commitment reflects employees' volition to dedicate themselves to or take responsibility for a target. The target of commitment is the entity towards which the bond is directed (Klein et al., 2012), which, in this study, was managers' goals. In the validated measure of Klein et al. (2014), commitment is construed as a target-free concept, indicating that commitment to any object could be measured. The target of commitment could, for example, be the employing organisation, professional associations, supervisors, work teams, projects, decisions, goals, values or careers (Klein et al., 2012; Meyer & Herscovitch, 2001). Klein et al. (2012) further developed a process model to differentiate commitment from its antecedents and outcomes.

Klein et al.'s (2012) Process Model of Commitment provides useful theoretical guidance in understanding the nature and process of the formation of goal commitment. Klein et al. postulate that subordinates initially form cognitive and affective impressions of the goals set by managers. With respect to perceptual processes, Klein et al. refer to the salience of the target of commitment as an important indicator of whether a person will commit. Goals set by a direct supervisor, for example, might be more salient than organisational goals and, as a result, might carry more weight in the mind of the employee (Becker, 2009; Klein et al., 2012). In this article, cognitive impressions will be considered with regard to subordinates' deliberate evaluation of the importance and feasibility of managers' goals (Hollenbeck et al., 1989; Hollenbeck, Williams, & Klein, 1989; Vroom, 1964). Affect, entwined with deliberate evaluations, reflects subordinates' feelings towards (intuitive evaluations of) goals, and employees are more likely to commit to goals that induce positive affect (Klein et al., 2012; Vandenberg & Lance, 1992). Based on the cognitive and affective perceptions of managers' goals, subordinates volitionally (wilfully) decide whether they will dedicate themselves to goals (Klein et al., 2012). Finally, in accord with their volitional decisions to bond with goals, commitment might influence the direction, persistence, and intensity with which employees pursue a particular course of action (Klein et al., 2012), and could result in positive obligatory and discretionary behaviour (Meyer et al., 2004; Meyer & Herscovitch, 2001).

Recent evidence has outlined that repeatedly setting high-performance goals could have unintended negative consequences (Latham & Locke, 2006; Welsh & Ordóñez, 2014). When individuals are continuously placed under strain to direct their attention towards the attainment of high-performance goals, costly sacrifices are made as a result of the depletion of personal resources related to self-regulation (Welsh & Ordóñez, 2014).

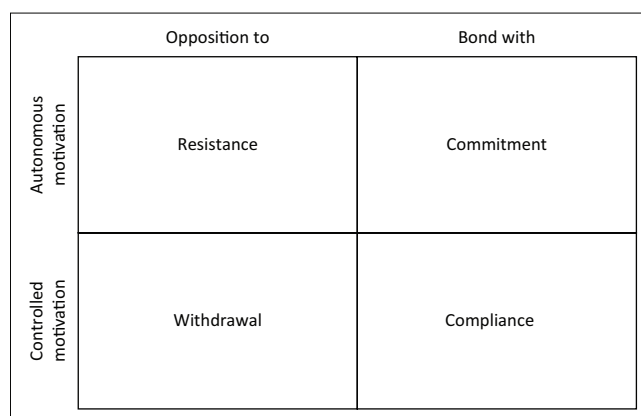
As a result of the depletion of personal resources, such as individuals' ability to regulate their impulses to achieve goals, employees may neglect other important tasks, or increasingly take unnecessary risks (perhaps even displaying unethical behaviour) in order to achieve challenging goals (Van Lill, 2019; Welsh & Ordóñez, 2014). It is, therefore, also important to consider the relationship between dysfunctional intentions of commitment and the general factor of goal commitment.

### Goal commitment's theoretical standing relative to other goal reactions

It is evident that goal commitment became conceptually reduced for the sake of precision in measurement in sequential waves of empirical research conducted by Hollenbeck et al. (1989), Klein et al. (2001), and Klein et al. (2012). The reductionist approach prevents, as phrased by Klein et al. (2012, p. 132), the risk of sinking the concept of commitment into a theoretical 'quagmire', where it is hard to differentiate the construct from other concepts.

However, the conceptual nuances of goal commitment might have been unnecessarily reduced to obtain more precision in the pursuit of identifying a unidimensional construct, which eventually only focused on the volitional aspect of goal commitment. In agreement with Klein et al. (2012), the cognitive, affective, volitional, and conative components of goal commitment are differentiable constructs. However, the constructs share a common theoretical foundation, namely that they are all inextricably linked to a more autonomous drive to bond with a goal (Meyer, 2014). Furthermore, all the constructs related to goal commitment are part of a cognitive-motivational mechanism that mediates the relationship between environmental stimuli and subsequent actions (Klein et al., 2012; Van Lill, 2019). For a large part of the 21st century, the literature on motivation was dominated by a behaviourist perspective, which reduced the concept of employees' motivation to an automated behavioural response to environmental stimuli (Ryan, 2019; Van Lill, 2019). As a result, the cognitive-motivational mechanisms underlying motivation were perceived as a 'black box' that was inaccessible to scientific inquiry (Ryan, 2019; Van Lill, 2019). The aim of the present study was to provide a more inclusive account of goal commitment as a cognitive-motivational mechanism, irrespective of its behavioural outcomes. In order to highlight the communality of the facets that make up the cognitive-motivational mechanism, it was considered useful to investigate goal commitment's theoretical standing relative to other goal reactions (as reflected in Figure 1) on the self-determination continuum (Klein et al., 2012; Meyer, 2014).

Resistance, in contrast to commitment, reflects employees' autonomous motivation to oppose goals set by managers, which could result in either constructive or dysfunctional outcomes (Falbe & Yukl, 1992; Tepper et al., 1998). Constructive forms of resistance include attempts to debate undesired goals with managers, whereas dysfunctional forms of resistance are, for example, attempts to disrupt



Source: Adapted from Van Lill, X. (2019). *Effects of managers' goal setting styles on subordinates' degrees of commitment*. Unpublished doctoral thesis, p. 32, University of Johannesburg, Johannesburg.

FIGURE 1: Taxonomy of employees' goal reactions.

achievement of the goals (Tepper et al., 1998; Van Lill, 2019). Compared to withdrawal, resistance is considered a purposeful and voluntary form of opposition (Carpenter & Berry, 2014), which is why the construct is located in the *Autonomous motivation* space of the typology. While withdrawal can be construed as oppositional behaviour, it appears from the literature to be less intentional and largely driven by avoidance of or disengagement from goals that are perceived as undesirable (Carpenter & Berry, 2014; Klein et al., 2012). Compared to resistance, withdrawal is regarded an extrinsically motivated form of opposition (Carpenter & Berry, 2014), which is why the construct is located in the *Controlled motivation* space of the typology.

Compliance is considered an alternative bond with a goal (Klein et al., 2012), which can be defined as a decision to acquiesce to a goal (Klein et al., 2012). Compared to commitment, compliance is viewed as a more extrinsically motivated bond (Gagné & Deci, 2005; Klein et al., 2012), which is why the construct is located in the *Controlled motivation* area of the typology. According to Klein et al. (2012), commitment can be defined as a type of bond, 'one reflecting volitional dedication and responsibility for a target' (p. 130). In comparison to compliance, commitment suggests an intrinsically motivated bond with a goal (Klein et al., 2012; Meyer, 2014), which is why the construct is located in the *Autonomous motivation* space of the typology.

Positive expectancies of and affect towards a goal, as well as dedication and intention to display discretionary behaviours, form part of a distinguishable construct, namely an autonomous cognitive-motivational state.

### The proposed factor structure of goal commitment

Burkley, Anderson, Curtis, and Burkley (2012) argue that direct (volitional commitment) and indirect (cognition, affect, and behavioural intentions) measures of commitment should be administered simultaneously. However, a hierarchical model of goal commitment might provide a more inclusive and coherent model of goal commitment and may help

scholars to reach greater consensus about the factor structure of goal commitment. A bifactor model of goal commitment, which is a type of hierarchical factor model, is proposed in Figure 2. A bifactor model was deemed appropriate to investigate the unique variance explained by a general factor relative to the group factors of goal commitment (Rodriguez, Reise, & Haviland, 2016). The findings could expand on current practices by introducing the choice of using a total score or subscale scores, depending on the level of specificity required (Rodriguez et al., 2016).

As portrayed in Figure 2, goal commitment is hypothesised to be a bifactor model with a general factor ( $g$ ), which is composed of group factors. The group factors of *goal commitment* are: Cognitive (Gco), Affective (Gaf), Volitional (Gvo), Constructive obligatory (behavioural) intentions (Gob), Constructive discretionary (behavioural) intentions (Gdi), and Dysfunctional (behavioural) intentions (Gdy). According to Klein et al. (2012), cognitive and affective commitment are related in the sense that both factors measure perceptual processes that precede volitional commitment. Evidence from neuroscience indicates that cognition and emotion are more entwined than previously suggested (Phelps, 2006; Thagard, 2008). Cognitive and affective commitment were specified to correlate in the model to account for the strong relationship between the factors. The manifest variables are theorised to be related to both the general factor and the group factors.

## Research design

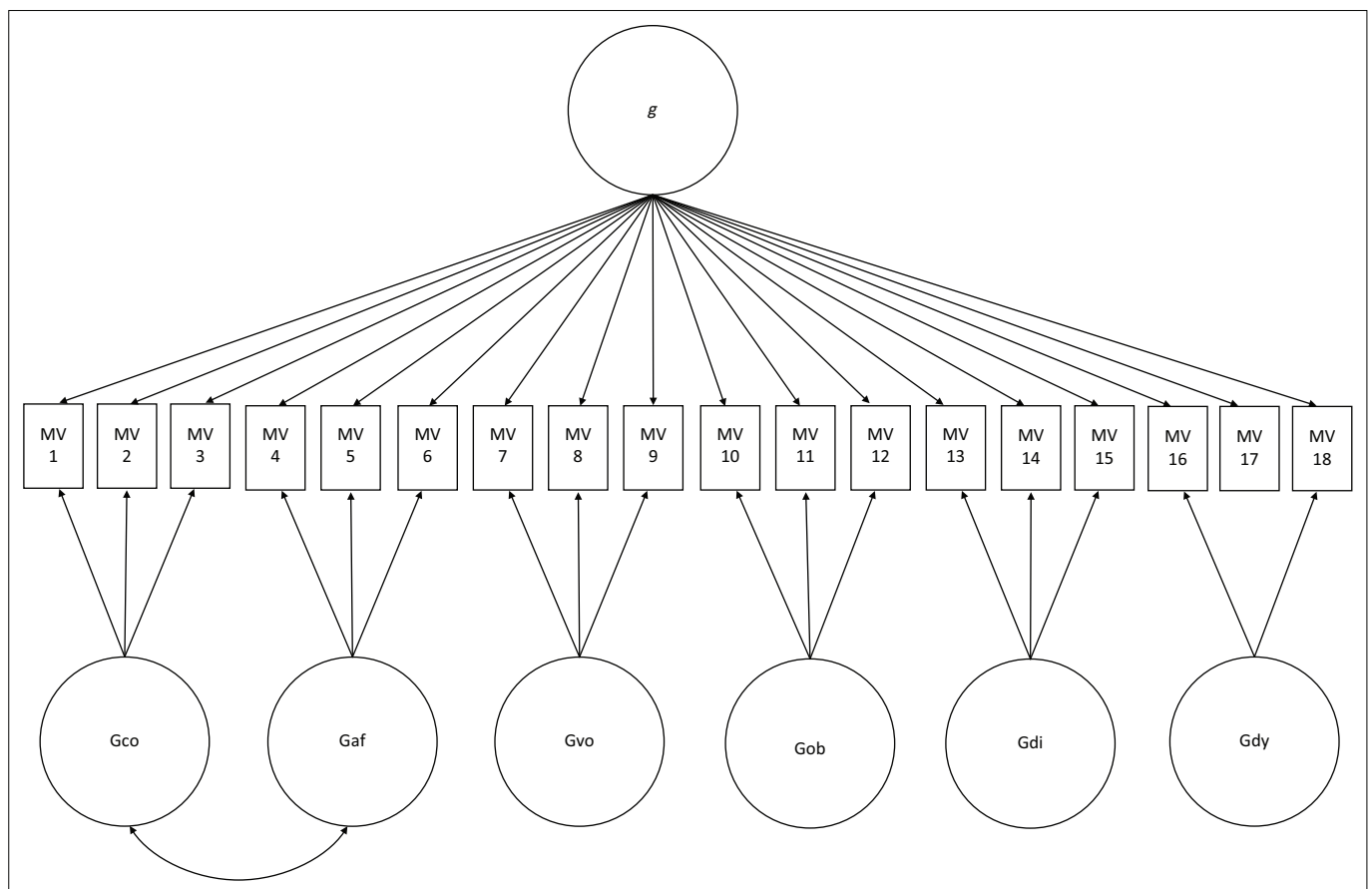
### Research approach

Subordinates' subjective experience (cognitive schema) of goal commitment was central to this study, which did not allow an investigation of other sources of subordinates' goal commitment, such as 360° evaluations (Spector, 2019). Furthermore, a measurement of different aspects of subordinates' goal commitment at different time intervals might have introduced extraneous variables into the design (Spector, 2019). Subsequently, a cross-sectional design was selected for its ability to gain a composite view of the multifaceted nature of subordinates' cognitive schemas of goal commitment at one point in time, as well as the efficiency with which the communality between a large set of variables could be quantitatively explored across different organisational contexts (Pierce & Aguinis, 2003).

### Research method

#### Research participants

Respondents ( $n = 451$ ) were working adults who were at least 18 years old, had at least a Grade 12 education, who self-reported satisfactory English reading ability, and reported to a manager in their work setting. To achieve generalisability of the results, 17 organisations across different sectors and industries were targeted for participation in the survey



$g$ , General factor of commitment; MV, manifest variables; Gco, cognitive commitment; Gaf, affective commitment; Gvo, volitional commitment; Gob, constructive obligatory intentions; Gdi, constructive discretionary intentions; Gdy, dysfunctional intentions.

**FIGURE 2:** Bifactor model of goal commitment.

(Aguinis & Edwards, 2014; Statistics South Africa, 2012; Stone-Romero, Weaver, & Glenar, 1995). Respondents were drawn from six participating organisations, and represented the agriculture, finance, manufacturing, science, human health, and transport sectors. All the organisations' head offices were in Gauteng, South Africa. To increase the sample size, an additional 19 respondents who were not part of the mentioned organisations, completed the survey. Table 1 summarises the biographical and demographic information of the sample.

### Measuring instruments

An 18-item measure of goal commitment was developed for this study, which consisted of a scale for each of the factors: *Cognitive commitment* (e.g. 'How convinced are you of the importance of goals set by your manager?'), *Affective commitment* (e.g. 'How satisfied are you with goals set by your manager?'), *Volitional commitment* (e.g. 'How dedicated are you to goals set by your manager?'), *Constructive obligatory intentions* (e.g. 'How

willing are you to adhere to the requirements of goals set by your manager?'), *Constructive discretionary intentions* (e.g. 'How willing are you to put forth a great deal of effort, beyond what normally is required, to achieve goals set by your manager?'), and *Dysfunctional intention* (e.g. 'How willing are you to neglect other tasks in order to reach goals set by your manager?'). Three items were developed for each of the scales, rated on a five-point intensity scale. Word anchors were used to define extreme points of the scale, as recommended by Zikmund, Babin, Carr and Griffin (2010). For example, the anchors for the question 'How satisfied are you with goals set by your manager?' were 'Not satisfied' and 'Very satisfied'. A total of 19 subject-matter experts from diverse backgrounds participated in an item-sort exercise to determine the substantive validity of the items, as proposed in literature (Anderson & Gerbing, 1991; Howard & Melloy, 2016). The internal consistency reliability of all the goal commitment scales was satisfactory ( $\alpha$  and  $\omega_h \geq 0.79$ ).

### Research procedure and ethical consideration

An online survey was distributed to working adults via an email link. In a cover letter to the survey, it was made explicit to the candidates that their participation was voluntary, and that they would remain anonymous. They were also informed that by submitting the completed questionnaire, they acknowledged that they had been informed that participation was voluntary and anonymous, they had been assured that no harm would be caused, that they had responded to the items truthfully, and that they gave consent for the results to be used for research and development purposes. Ethical clearance was obtained from the Research Ethics Committee, College of Business and Economics, University of Johannesburg.

### Statistical analysis

The purpose of hierarchical models is to provide a more parsimonious account, based on a predefined theory, of a latent variable that is not unidimensional, but consists of various underlying facets that are also interrelated (Brown, 2006). Beaujean (2014) distinguished two types of hierarchical latent variable models, namely higher-order and bifactor models. Higher-order models are employed when it is hypothesised that: (1) multiple group factors have high inter-factor correlations and (2) there is a second-order factor that accounts for the relationships between the group factors (Beaujean, 2014). In contrast, a bifactor model is employed when it is hypothesised that: (1) the variance in the manifest variables is explained by a general factor, (2) when there are multiple group factors that are also of interest, and (3) the researcher has an interest in both the general and the group factors (Beaujean, 2014). The aim of the present study was to determine whether the general and group factors of goal commitment exist simultaneously, which motivated the use of a bifactor model.

Confirmatory factor analysis (CFA) was performed using Version 0.6-4 of the lavaan package (Rosseel, 2012; Rosseel & Jorgensen, 2019) in R (R Core Development Team, Auckland, New Zealand) to inspect the factor structure of the data. The fit

**TABLE 1:** Respondents' biographical and demographic information.

Variable	Category	Frequency	%
Ethnicity	Asian	6	1.33
	Black African	213	47.23
	Coloured	22	4.88
	Indian	22	4.88
	White	187	41.46
	Other	0	0.00
	Missing responses	1	0.22
	Total	451	100
Age	18–29 years	122	27.05
	30–39 years	144	31.93
	40–49 years	88	19.51
	50–59 years	67	14.86
	60+ years	15	3.33
	Missing responses	15	3.33
	Total	451	100
Gender	Male	192	42.57
	Female	257	56.98
	Missing responses	2	0.44
	Total	451	100
Level of education	Grade 12	132	29.27
	Diploma	154	34.15
	Bachelor's degree	77	17.07
	Honours degree	49	10.87
	Master's degree	26	5.77
	Doctoral degree	10	2.22
	Missing responses	3	0.67
	Total	451	100
Years in position	0–9	356	78.94
	10–19	59	13.08
	20–39	29	6.43
	40–49	1	0.22
	Missing responses	6	1.33
	Total	451	100
Job level	Semi-skilled	27	5.99
	Skilled	189	41.91
	Professional	133	29.49
	Lower-level management	38	8.43
	Middle-level management	53	11.75
	Upper-level management	11	2.44
	Missing responses	0	0.00
	Total	451	100

of the CFA models was evaluated using the comparative fit index (CFI), the Tucker-Lewis index (TLI), standardised root mean square residual (SRMR), and root mean square error of approximation (RMSEA) (Brown, 2006; Hu & Bentler, 1999). Fit was considered suitable if the RMSEA and SRMR were 0.08 or below (Brown, 2006; Browne & Cudeck, 1992), and the CFI and TLI were 0.90 or higher (Brown, 2006; Hu & Bentler, 1999). According to Vandenberg and Lance (2000), the chi square ( $\chi^2$ ) statistic is sensitive to sample size, and, as a standard measure of care, the significance level of the difference in the  $\chi^2$  statistic should be interpreted in conjunction with the differences in other indices of fit. The significance level of difference in the  $\chi^2$  statistic, in conjunction with a comparison of the differences in other indices of fit, was used to determine if the sequential factor models displayed improvement in fit.

## Results

### Descriptive statistics and inter-factor correlations

Mardia's multivariate skewness and kurtosis coefficients were 23.2 ( $p < 0.01$ ) and 1.39 ( $p > 0.01$ ), which indicated that the data had a non-normal multivariate distribution. Against this background, a CFA with a mean and variance adjusted unweighted least squares (ULSMV) estimation was adopted (Forero, Maydeu-Olivares, & Gallardo-Pujol, 2009; Rhemtulla, Brosseau-Liard, & Savalei, 2012). A six-factor model with correlated factors produced satisfactory fit with the observed data (i.e.  $\chi^2(120) = 355.78$ , CFI = 0.98, TLI = 0.97, SRMR = 0.03; and RMSEA = 0.07; 90% CI: 0.06; 0.08). Standardised CFA correlations between the six factors in the model are reported below the diagonal in Table 2. The internal consistency reliability of all the scales is reported in the last two rows of Table 2.

The internal consistency reliability of each of the scales was satisfactory ( $\alpha$  and  $\omega_h \geq 0.77$ ). The moderate to high inter-factor correlations between *Cognitive commitment*, *Affective commitment*, *Volitional commitment*, *Constructive obligatory intentions*, *Constructive discretionary intentions*, and *Dysfunctional intentions* suggested the prevalence of a general factor.

Furthermore, the high inter-factor correlations between *Cognitive commitment* and *Affective commitment* ( $\phi = 0.92$ ) suggested multicollinearity, which supported the argument of Klein et al. (2012), Phelps (2006), and Thagard (2008) that these two group factors are entwined. Subsequently, an inter-

factor correlation between the two factors was specified in the hierarchical factor models (Maydeu-Olivares & Shi, 2017). *Dysfunctional intentions* showed the lowest inter-factor correlation, which suggested that the manifest variables were not as strongly associated with the umbrella construct of *Goal commitment* as the other factors.

While the intention with this article is not to inspect the difficulty of endorsing items, it is worth mentioning that a person-item map was derived from the data using Rasch analysis, which revealed that the items of *Dysfunctional intentions* were more difficult to endorse relative to other items related to intentions (Bond & Fox, 2015). *Dysfunctional intentions* might, therefore, reveal something about commitment at a much higher intensity.

### Confirmatory factor analysis

Four confirmatory models – a first-order factor, a single-factor, a higher-order factor, and a bifactor structure – were investigated (Credé & Harms, 2015). A first-order factor solution was specified by loading the 18 manifest variables on the orthogonalised group factors. Apart from *Cognitive commitment* and *Affective commitment*, the covariances of the group factors were fixed to zero. Model identification for the orthogonal first-order model was achieved by fixing the variance of a manifest variable's loading on each of the group factors to unity. With respect to a single-factor solution, all 18 manifest variables were specified to load onto a unidimensional factor. Model identification for the single-factor solution was achieved by fixing the variance of a manifest variable's loading onto the single-factor to unity. With the higher-order factor solution, the second-order factors loaded indirectly onto the manifest variables, via the group factors. Model identification for the higher-order factor solution was achieved by fixing the variance of a manifest variable's loading on each of the group factors to unity and, in turn, fixing the variance of a group factor's loading on the second-order factor to unity. *Cognitive commitment* and *Affective commitment* were specified to correlate in the higher-order factor model. Finally, with the bifactor solution, the manifest variables were specified to simultaneously load on an orthogonalised general factor and orthogonalised group factors. Apart from *Cognitive commitment* and *Affective commitment*, the covariances of the general factor and the group factors were fixed to zero. Model identification for the bifactor model was achieved by fixing the general and group factors' variances to unity. The results of each model are reported in Table 3.

The CFI, TLI, SRMR, and RMSEA reported in Table 3 convey that a first-order and single-factor model fit the data poorly, whereas acceptable fit for a higher-order factor and bifactor model provided evidence of the existence of a hierarchical structure. Even though a significant difference between the higher-order and bifactor model was found for the  $\Delta\chi^2$  statistic, the difference between the other indices of fit suggested that the hierarchical models fit the data equally well. However, in higher-order factor models, the relationship between the manifest variables and a second-order factor is

**TABLE 2:** Correlations and covariances of goal commitment factors.

Factors	Gco	Gaf	Gvo	Gob	Gdi	Gdy
Gco	-	0.83*	0.60*	0.45*	0.51*	0.34*
Gaf	0.92*	-	0.60*	0.41*	0.52*	0.38*
Gvo	0.68*	0.68*	-	0.57*	0.75*	0.52*
Gob	0.57*	0.53*	0.74*	-	0.62*	0.44*
Gdi	0.60*	0.62*	0.90*	0.83*	-	0.61*
Gdy	0.41*	0.47*	0.64*	0.60*	0.78*	-
Alpha	0.89	0.95	0.93	0.86	0.89	0.79
OmegaH	0.89	0.95	0.93	0.87	0.89	0.77

Gco, cognitive commitment; Gaf, affective commitment; Gvo, volitional commitment; Gob, constructive obligatory intentions; Gdi, constructive discretionary intentions; Gdy, dysfunctional intentions. Unstandardised coefficients reported above diagonal.

\*,  $p < 0.05$ .

mediated by group factors (Beaujean, 2014). As a result, the second-order factors do not explain unique variance in the manifest variables over and above group factors (Beaujean, 2014; Mcabee, Oswald, & Connelly, 2014). Bifactor models, in contrast, account for the unique variance explained in the manifest variables by specifying an orthogonalised general factor, over and above the variance explained by the orthogonalised group factors (Beaujean, 2014; Mcabee et al., 2014), which is why this study then focused on the bifactor model of goal commitment. A more detailed investigation of the loadings in the model is provided in Table 4.

A bifactor analysis of the data revealed a strong general factor and comparatively strong residualised group factors for *Cognitive commitment*, *Affective commitment*, *Constructive obligatory intentions*, and *Dysfunctional intentions*. Furthermore, two weaker residualised group factors were present for *Volitional commitment* and *Constructive discretionary intentions*.

Bonifay, Lane, and Reise (2017) indicate that the superiority of bifactor models' fit indices, relative to other confirmatory factor models, could be a symptom of overfitting. Rodriguez et al. (2016) recommend that bifactor statistical indices are calculated to determine the practical meaningfulness of group factors, such as the explained common variance (ECV), coefficient omega hierarchical ( $\omega_h$ ), construct replicability (H), factor determinacy (FD), percentage of uncontaminated correlations (PUC), and relative parameter bias (RPB).

Group factors of goal commitment were considered plausible when  $\omega_h$ , H, and FD<sup>2</sup> were > 0.50, 0.70, and 0.70 (Reise, Bonifay, & Haviland, 2013; Dueber, 2017). The ECV for the general factor greater than 0.70 and PUC greater than 0.80 were indicative of unidimensionality (Reise et al., 2013). The ARPB values of between 10% and 15% were indicative of little difference in the factor loadings between a single-factor model and the general factor in a bifactor model (Rodriguez et al., 2016). Bifactor statistical indices were calculated from the standardised factor loadings reported in Table 4 using Version 0.2.0 of the Bifactor Indices Calculator package (Dueber, 2020) in R. The bifactor statistical indices are reported in Table 5.

**TABLE 3:** Fit statistics for a first-order, single-factor, higher-order factor, and bifactor model of goal commitment.

Statistic	First-order	Single-factor	Higher-order	Bifactor
df	134	135	128	116
$\Delta df$	-	1	7	12
$\chi^2$	7444.38	2098.16	404.52	318.90
$\Delta \chi^2$	-	5346.22	1693.64*	85.62*
CFI	0.35	0.83	0.98	0.98
$\Delta CFI$	-	0.48	0.15	0
TLI	0.26	0.80	0.97	0.98
SRMR	0.46	0.12	0.04	0.04
$\Delta SRMR$	-	0.34	0.08	0
RMSEA	0.35 (0.35; 0.36)	0.18 (0.18; 0.19)	0.07 (0.06; 0.08)	0.06 (0.06; 0.07)
$\Delta RMSEA$	-	0.17	0.11	0.01

Confidence interval of RMSEA is reported in brackets. CFI, comparative fit index; TLI, Tucker-Lewis index; SRMR, standardised root mean square residual; RMSEA, root mean square error of approximation. \*, p for  $\chi^2 < 0.05$ .

All the bifactor statistical indices in Table 5 suggest a strong common factor (g) that most likely approximates a unidimensional model. Only *Cognitive commitment* and *Affective commitment* may represent substantive group factors. The findings suggest a 'primarily unidimensional' model with a small multidimensional element present and diminished biasing effect for other group factors (ARPB = 0.15, PUC = 0.88, and ECV of g = 0.65).

## Discussion

### Outline of the results

The objective of this study was to find a midpoint in proposals in existing literature on goal commitment, by determining whether the cognitive, affective, volitional, and behavioural intentions were differentiable, yet part of a general factor of goal commitment. In comparison to a first-order, single-factor, and higher-order factor model, a bifactor model of goal commitment represented the data better, which

**TABLE 4:** Standardised factor loadings of a bifactor model of goal commitment.

Manifest variables	g	Gco	Gaf	Gvo	Gob	Gdi	Gdy
<b>Gco</b>							
1	0.65*	0.63*	-	-	-	-	-
2	0.51*	0.68*	-	-	-	-	-
3	0.59*	0.70*	-	-	-	-	-
<b>Gaf</b>							
4	0.63*	-	0.68*	-	-	-	-
5	0.65*	-	0.71*	-	-	-	-
6	0.62*	-	0.74*	-	-	-	-
<b>Gvo</b>							
7	0.88*	-	-	0.32*	-	-	-
8	0.89*	-	-	0.31*	-	-	-
9	0.91*	-	-	0.25*	-	-	-
<b>Gob</b>							
10	0.68*	-	-	-	0.50*	-	-
11	0.74*	-	-	-	0.41*	-	-
12	0.73*	-	-	-	0.60*	-	-
<b>Gdi</b>							
13	0.87*	-	-	-	-	0.22*	-
14	0.90*	-	-	-	-	0.24*	-
15	0.88*	-	-	-	-	0.18*	-
<b>Gdy</b>							
16	0.64*	-	-	-	-	-	0.46*
17	0.41*	-	-	-	-	-	0.78*
18	0.62*	-	-	-	-	-	0.47*

g, General factor of commitment; Gco, cognitive commitment; Gaf, affective commitment; Gvo, volitional commitment; Gob, constructive obligatory intentions; Gdi, constructive discretionary intentions; Gdy, dysfunctional intentions.

\*, p < 0.05.

**TABLE 5:** Bifactor statistical indices for model of goal commitment.

Factors	ECV	OmegaH	H	FD
g	0.65	0.90	0.97	0.97
Gco	0.09	0.52	0.72	0.93
Gaf	0.10	0.54	0.76	0.96
Gvo	0.02	0.09	0.22	0.68
Gob	0.05	0.30	0.53	0.88
Gdi	0.01	0.05	0.13	0.52
Gdy	0.07	0.44	0.68	0.88

g, General factor of commitment; Gco, cognitive commitment; Gaf, affective commitment; Gvo, volitional commitment; Gob, constructive obligatory intentions; Gdi, constructive discretionary intentions; Gdy, dysfunctional intentions; ECV, explained common variance; H, construct replicability; FD, factor determinacy.

contained a strong general factor. However, the bifactor statistical indices indicate that only perceptual factors, namely *Cognitive* and *Affective commitment*, might cover unique aspects of goal commitment. *Cognitive commitment* and *Affective commitment* had high inter-factor correlations, which supported the notion of Klein et al. (2012), Phelps (2006), and Thagard (2008) that these perceptual facets of goal commitment are more intertwined than previously thought. As expected, *Dysfunctional intentions* forms part of the general factor of *Goal commitment*, albeit at a higher level of intensity when compared to other intentions. *Dysfunctional intentions* might be reflective of the too-much-of-a-good-thing effect if high commitment is continuously generated in order to achieve challenging goals (Pierce & Aguinis, 2013).

## Practical implications

Subordinates' cognitive motivation to pursue goals is of paramount importance in the effective functioning of organisations (Steers, Mowday, & Shapiro, 2004). Subordinates' goal commitment, as a result, has important everyday relevance for managers, subordinates (and their representatives), and human resource specialists.

### Managers

Managers should be encouraged to consider nuances in subordinates' commitment to goals. For example, managers should be cautious about prompting commitment from subordinates through challenging goals, as an overzealous following of goals might have dysfunctional consequences for the subordinate in question, as well as the organisation at large. Furthermore, managers should become attuned to subtle indications of the early formation of commitment, such as cues about subordinates' cognitive and affective evaluations of the goals set before subordinates decide on actions to be taken. More psychologically attentive managers might be better able to recognise these cues and, subsequently, proactively adapt their styles of goal setting in order to facilitate suitable behavioural outcomes (Van Lill, 2019).

### Subordinates

Subordinates should also be able to recognise different cues about their own motivation to pursue managers' goals, such as their initial perceptions of and their eventual intentions toward the goals. Subordinates may then be better able to self-regulate their reactions to goals set by managers, and actively engage in constructive social exchanges with managers to identify and address inhibitors of their motivation. Ultimately, adjustments to their self-regulation through self-insight into their commitment to goals should increase civil cooperation with the manager, in such a way that sensible organisational goals are effectively and efficiently achieved.

### Human resource specialists

Goal commitment could be viewed as a cognitive-motivational state (Macey & Schneider, 2008), which is reasoned to be, to some extent, influenced by several antecedents. Human resource specialists could utilise the objective criteria of

commitment in a more nuanced way than before to predict and enhance performance on goals. Better predictive models of performance on goals could be obtained by structuring the elements of goal commitment in a serial multiple-mediator model, as outlined by Klein et al. (2012), to better account for the processes underlying goal commitment and, hence, performance in the workplace (Van Lill, Roodt, & De Bruin, 2018). Mediational models might also account for the bifactor structure of goal commitment (Gonzalez & MacKinnon, 2018). More nuanced training programmes or coaching sessions on the achievement of high-performance goals can be provided, in order to create awareness of the different cues (perceptual and intentional) related to motivation, which would help clients to better self-regulate towards attainment of goals.

## Limitations and recommendations

Self-report measures of psychological constructs have been criticised as carrying the risk of common method bias (Podsakoff, MacKenzie, & Podsakoff, 2012). However, in the present study, it was essential that the subjective experiences of subordinates be investigated. Care was taken to prevent method bias by carefully developing items based on sound theory, as recommended by Spector (2019). Possible ambiguity of items was further investigated by conducting an item-sort exercise with subject-matter experts (Podsakoff et al., 2012). Items with low substantive validity were subsequently adjusted or removed from the measures, as suggested by Howard and Melloy (2016). Different factor models were further inspected to investigate the possibility of hierarchical structure, in accordance with the suggestion of Credé and Harms (2015).

High alpha coefficients ( $\alpha > 0.90$ ) reported for affective and volitional commitment in Table 2 might be indicative of item content redundancy (Rodriguez et al., 2016). Future studies might consider eliminating items or forming item parcels to create a more parsimonious model (Rodriguez et al., 2016).

The present study measured the cognitive-motivational mechanisms underlying subordinates' goal commitment. Future studies might benefit from employing more experimental designs that expand on goal commitment's cognitive-motivational mechanism by including it as a multiple mediator in predictive studies.

In this respect, it might be interesting to investigate the indirect effect of environmental stimuli (through, e.g., vignettes about different managers' goal setting styles) on high performance, via the different cognitive-motivational mechanisms of goal commitment.

It might also be interesting to determine whether there is within-subject consensus with respect to subordinates' commitment to goals. This could provide valuable information about the consistency or fluctuations in subordinates' subjective experiences of goals over time. In order to investigate within-subject consensus, the same



measurements can be administered at different time intervals, using latent curve modelling (McArdle, 2012).

## Conclusion

The objective of this study was to determine whether there is evidence that subordinates' commitment to goals is more multifaceted than previously proposed, while maintaining that a general factor of goal commitment exists. The results provided partial evidence that goal commitment could be viewed as a bifactor model, which is composed of a strong general factor ( $g$ ) and a small multidimensional element for the perceptual factors of goal commitment, namely *cognitive and affective commitment*. Empirical evidence also suggests that the general factor of goal commitment might be related to unintended negative consequences, such as dysfunctional behavioural intentions. The factor structure should be considered in multiple-mediator models in the prediction of high performance and could be used in coaching to help subordinates better self-regulate their reactions to goals set by managers.

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### Authors' contributions

X.v.L. and G.R. developed the conceptual framework. G.P.d.B. contributed to the research method.

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### Data availability statement

Dataset is available on request.

### Disclaimer

The views and opinions expressed in this article are those of the authors and do not necessarily reflect the official policy or position of any affiliated agency of the authors.

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