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The dynamic microstructure of organizational commitment

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In this study, we examine how the classic elements of affect, cognition, and behaviour combine to form within-person trajectories of organizational commitment. We test several key features of this 'dynamic microstructure' of commitment in an experience sampling setting (25 weekly measurements) among 72 organizational entrants and 23 exiters. We find support for the idea that within-person change in affect is *slower* than within-person change in cognition and behaviour. We find no support for the notion that affect would influence cognition and behaviour at the within-person level. In fact, we have strong indications that the episodes of committing (organizational entry) and uncommitting (organizational exit) are mainly *cognition* driven. We discuss the implications of our study for tripartite attitude theory and commitment theory.

Practitioner points

- Organizational commitment can generally best be fostered via rational appeals. If a long-term investment and sustained commitment is called for, emotional appeals work best.
- Alumni officers may suffice with focusing purely on emotive appeals in upholding residual commitments of their alumni.

The current research on commitment is predominantly concerned about static cause–effect relationships ('what causes what') and does not detail how the most basic ingredients of commitment – affect, cognition, and behaviour – relate *over time*. This is a pity, because such research is highly actionable (Langley, Smallman, Tsoukas, & Van de Ven, 2013). For example, if the affective base of commitment is more resistant to change and more prominent after employees have left the organization (evidenced here), then alumni officers should focus on emotional appeals when making their requests. To be able to give such actionable advice, one must first do basic research and develop a theory on how the dynamic microstructure of commitment works. The major goal of this study is therefore to examine how the classic elements of attitude – the affective, cognitive, and behavioural types of attitudinal information – combine to form trajectories of organizational commitment. We draw inspiration from general attitudes literature to formulate hypotheses on how the separate elements are causally linked and how their development

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may or may not diverge. Next, we empirically test the resulting hypotheses using an experience sampling design (25 weekly measurements).

Theoretically, this study extends the tripartite perspective of attitude, by showing that the three bases of attitude relate to one another *dynamically*. In particular, we demonstrate that the relative salience of the affective, cognitive, and behavioural bases of attitude is not fixed, but can change over time and context. Also, by drawing inspiration from the dual-process theory of attitude, we demonstrate that the affective base of attitude changes at a slower rate compared to the cognitive and behavioural bases. Such new knowledge on the attitudinal microstructure connects to substantive discussions regarding the place of affect, cognition, and behaviour in the emergence of commitment (e.g., Brickman, 1987; Brown, 1996; Judge & Kammeyer-Mueller, 2012; Kell & Motowidlo, 2012; Klein, Molloy, & Brinsfield, 2012; Solinger, Van Olffen, & Roe, 2008). Namely, our results indeed substantiate the view of commitment as a cognition-based attitude, where (un)committing to the organization seems to result from a conscious choice to do so.

Theory and hypotheses

A brief overview of the organizational commitment literature

An ongoing debate in the commitment literature revolves around what organizational commitment really means (Becker, Klein, & Meyer, 2009). Historically, a commitment was a solemn vow of service to God, romantic partners, or other objects that are important to the self (Ashman & Winstanley, 2006; Schlesinger, 2008). Since its introduction to managerial arenas in the second half of the 20th century, the term commitment became focused on the ‘organization’ as a focal object of one’s service. This led to quite a dynamic shift in meaning. To organizational scholars, a commitment was seen as a prime explanation for why some desire to remain employed while others do not (e.g., Allen & Meyer, 1990; Mowday, Porter, & Steers, 1982). Different theories on why people commit to organizations emerged, emphasizing commitment as an affective attachment, as a calculative cost-benefit analysis, or as a moral bond with the employer (Allen & Meyer, 1990; for a review). To integrate these theories, organizational commitment was re-defined as combination of three ‘bases’: An affective base (‘I want to stay’), a normative base (‘I feel I ought to stay’) and a continuance base (‘I need to stay’; Allen & Meyer, 1990). While the affective base of commitment has been generally well supported by empirical evidence (Meyer, Stanley, Herscovitch, & Topolnytsky, 2002; Solinger *et al.*, 2008), the two other bases remained controversial. This led some critical commitment scholars to conclude that normative and continuance bases should no longer be seen as parts of commitment, but as distinct motivations to remain employed (Klein *et al.*, 2012; Solinger *et al.*, 2008).

Several re-definitions of commitment have since entered the debate. One approach presents commitment as a one-dimensional construct where commitment is seen as a psychological bond which is expressed by a dedication to and responsibility for a target (Klein *et al.*, 2012). Another approach is to define commitment in strictly attitudinal terms, where commitment is ‘an attitude of an employee vis-a-vis the organization, reflected in a combination of affect (emotional attachment, identification), cognition (identification and internalization of its goals, norms, and values), and action readiness (a generalized behavioral pledge to serve and enhance the organization’s interests)’ (Solinger *et al.*, 2008, p. 80; see also Judge & Kammeyer-Mueller, 2012). In this study, we build on and extend the attitudinal view of commitment. As an aside, an attitudinal

definition of commitment is consistent with early and influential work on commitment (e.g., Buchanan, 1974; Mowday *et al.*, 1982) and with recent empirical evidence (e.g., Harrison, Newman, & Roth, 2006). Moreover, seeing commitment as an attitude opens up great theorizing opportunities because it connects to a very rich literature on general attitudes in social psychology. The attitudinal definition of commitment resembles what is known as 'affective commitment' in the earlier three-component model of organizational commitment (Allen & Meyer, 1990). Note that Allen and Meyer's (1990) 'affective commitment' refers to the commitment attitude as a whole. This should not be confused with our use of the term 'the affective base of attitude', which only denotes affective information in the dynamic microstructure of commitment.

General attitudes theory on the tripartite attitude structure

An attitude is classically defined as a *psychological tendency to evaluate an object* [i.e., the organization] *with a particular degree of favour or disfavour* (Eagly & Chaiken, 1993, p.1, parentheses added). This definition is quite open and still permits a wide array of theories on how attitudes operate (Eagly & Chaiken, 2007), such as dual-process theory (Bohner & Dickel, 2011), connectionist perspectives (e.g., Smith, 1996), and the most classic theory of attitude, which is tripartite attitude theory (our focus). Tripartite attitude theory assumes that individuals develop attitudes on the basis of three types of information: Affective, cognitive, and behavioural information (Albarracin, Johnson, & Zanna, 2005; Eagly & Chaiken, 1993; Fabrigar, MacDonald, & Wegener, 2005; Petty, Wegener, & Fabrigar, 1997; Zanna & Rempel, 1988).

In tripartite attitude theory, the affective base of attitude refers to learnt feelings towards an object, called evaluative affect (Hofmann, De Houwer, Perugini, Baeyens, & Crombez, 2010). For example, if one *hates* the employing organization (i.e., negative evaluative affect), frustration, anger, or fear are learnt emotive reactions to the organization. The cognitive base of attitude refers to mental operations that associate the object (i.e., organization) with a truth statement (Fishbein & Ajzen, 1975). For example, if one thinks: 'My organization is corrupt', this represents a truth statement about the organization. Finally, the general tendency to approach or avoid contact with the organization (as in volunteering or shirking) is viewed as a behavioural base of the attitude. In attitude theory, the behavioural base comprises more than just overt behaviour. It also includes intentions to act; it includes a desire to approach/support or avoid/destroy an object in some way; and it includes activation, which is being ready for action but not knowing what action (Armitage & Conner, 2001; Breckler, 1984; Frijda, 1988).

Our contribution to the tripartite view of attitude is that we re-interpret it from a dynamic viewpoint. For example, a (within person) trajectory of commitment might have an affective 'flavour' (affect is high, while cognition and behaviour are low) if affective information is the most salient during a given span of time, such as when saying goodbye to leave the organization. At another point in time, cognition and behaviour may be high, while affect low, such as when one has just joined a new organization and started to assume responsibilities, but one still needs to develop affective attachments with the people in the organization.

In Industrial and Organizational Psychology, affect, cognition, and behaviour are sometimes treated as separate constructs (Johnson, Morgeson, & Hekman, 2012; Klein *et al.*, 2012; Schleicher, Watt, & Greguras, 2004; Weiss, 2002) and sometimes as latent subcomponents of attitude (Breckler, 1984). Our own position is the following: If one is interested in the overall attitude only (i.e., organizational commitment), researchers

usually suffice with a summary measure where affective, cognitive, and behavioural information is mixed (Petty *et al.*, 1997). However, if one is interested in how different bases of information combine to make a trajectory of commitment (as we are), then affect, cognition, and behaviour should be treated as separate constructs.

The relative development of trajectories in the dynamic microstructure

Thinking of attitudes in dynamic terms requires process thinking where theory is aimed at understanding how something emerges, changes, and declines within persons over time (cf. Langley *et al.*, 2013). Unfortunately, process thinking in Industrial and Organizational Psychology sciences is severely underdeveloped, especially among the quantitative studies (Langley *et al.*, 2013). At this moment, we need to work with what is available. In the area of attitudes, we have found a process theory in *dual-process models* of attitude structure (Smith & DeCoster, 2000; Wilson, Lindsey, & Schooler, 2000). We therefore choose to develop our expectations from there.

Attitudes change within persons over time when a person's experiences with the attitude object accumulate (Allport, 1935; Cunningham & Zelazo, 2007; Fabrigar *et al.*, 2005). In that sense, attitudes are like reservoirs of impressions that have been filled up through interactions with the object. Dual-process theory holds that attitudes develop by way of two different learning mechanisms, namely learning based on automatic association and learning based on reasoning (Bohner & Dickel, 2011). Automatic learning is responsible for shaping the learning of affective reactions to an object. This assumed connection is based on evidence from neuropsychological studies where automatic attitudes have repeatedly been associated with activity taking place in the subcortical brain, locations in which affective processes (more so than cognitive processes) are implicated (Cunningham & Zelazo, 2007; Cunningham, Raye, & Johnson 2004; Öhman, 2002; Phelps *et al.*, 2000; Zald, 2003). *Affective learning* can therefore be seen as a type of learning, which is associative and driven by conditioning processes (Hofmann *et al.*, 2010). For example, one learns to react affectively to an organization when 'coming to the office' (neutral stimulus) is consistently paired with 'feeling good, happy, or proud' (unconditioned response). Over time, one simply needs to think of the organization (conditioned stimulus) to feel happy, or proud (conditioned response). Learning in this mode occurs automatically with awareness only of the *result* of processing (e.g., being aware *that* you feel proud when you think of the organization) and it builds up only gradually over repeated instances of exposure¹ with the organization (cf. Hofmann *et al.*, 2010; Smith & DeCoster, 2000).

Our argument that affective learning is slower seems counterintuitive. We would normally reason that feeling sensations like fear, joy, disgust, or anger come and go rather quickly while cognitions and behaviours seem to be more stable. The upshot here is that the affective element of attitude (evaluative affect; see Hofmann *et al.*, 2010) is a particular kind of affect, which behaves differently compared to the more general affect, which also includes emotions. The difference is that evaluative affect towards objects is *learned* (and accumulates through association mechanisms) and, thus, has a more permanent quality, while more general feelings like fear, joy, disgust, or anger are not

¹ We thank an anonymous reviewer for noting that in exceptional instances, the association is so positive or negative that affective learning happens instantly. For example, a traumatic experience in the organization can cause employees to turnover, just as repeated negative experiences can (see Lee & Mitchell, 1994). In our view, instant learning of affective information is exceptional while gradual accumulation of experience is the rule.

learnt and, thus, are more ephemeral. For more information on evaluative affect and the role of automatic learning (conditioning), see Hofmann *et al.*'s (2010) meta-analysis.

'Controlled' learning, in contrast, adjusts through *cognitive* effort, that is: Through (re) thinking and reasoning, where the individual develops new judgments about the organization (cf. Cunningham & Zelazo, 2007; Gawronski & Bodenhausen, 2006). As opposed to affective learning, *cognitive learning* happens via language and logic, involving more cortical brain activity (e.g., Cunningham & Zelazo, 2007; Cunningham, Raye, & Johnson 2004). New information can be learnt quickly and is incorporated in just one or a few experiences. This contrasts with affective learning discussed earlier, which usually takes a considerable number of trials (Smith & DeCoster, 2000). More controlled learning occurs when capacity and motivation are present, and one is generally aware of these steps of processing (Smith & DeCoster, 2000). For this reason, typical behavioural responses of the controlled learning system are more complex, nuanced, contemplated, consciously endorsed, and hence more sensitive to context, personal long-term goals, and social desirability (Cunningham, Raye, & Johnson, 2004; Cunningham, Johnson *et al.*, 2004; Gawronski & Bodenhausen, 2006; Wilson *et al.*, 2000). Thus, the automatic system is characterized by 'quick reaction and slow learning', whereas the controlled system is characterized by 'slow reaction and quick learning' (Smith & DeCoster, 2000; Strack & Deutsch, 2004). In short, what we learn from combining dual-process and tripartite attitude theory is that affective learning is relatively slow and associative while cognitive learning is relatively fast and reflective.

Hypothesis 1a: The affective base of the attitude microstructure will demonstrate a slower pace of change than the cognitive base.

Up to this point, it is unclear how the behavioural base of attitude should be considered. In attitude literature, behaviour has mainly been treated as a behavioural intention (Ajzen & Fishbein, 1980; Armitage & Conner, 2001), which implies a relatively 'controlled' process. In line with this general attitudes view, commitment is an investment in the group that one is part of. This investment in the group ('committing oneself') results from a deliberate choice to do so (Klein *et al.*, 2012). A commitment is a 'pledge' to serve one's long-term goals with regard to an entity (Brickman, 1987; Brown, 1996; Roe, Solinger, & Van Olffen, 2009; Solinger *et al.*, 2008). Given this self-regulatory function of commitment, we expect that behaviour dynamically gravitates towards 'cognition' (controlled attitude) more than towards 'affect' (automatic attitude). Therefore, we expect cognition and behaviour to show greater within-person similarity across time than cognition-affect and behaviour-affect.

Hypothesis 1b: Within-person trajectories of the cognitive and behavioural bases of the attitude microstructure correlate more strongly than do the cognitive-affective and behavioural-affective trajectories.

Temporal influence relationships in the dynamic microstructure of attitude

Having established differences in the rates of change in the dynamic microstructure of commitment, it is now time to examine which element temporally influences the others. Available theories, however, are equivocal. In particular, attitude-behaviour models, neuropsychology, and cognitive dissonance theory argue for the primacy of cognition, affect, and behaviour, respectively. Below, we attempt to synthesize these

insights and formulate the most likely temporal influence model for organizational commitment.

Fishbein & Ajzen's theory of planned behaviour is perhaps the most established theory involving affect, cognition, and behaviour in psychology literature (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975; Ajzen, 1991). It outlines the connections of affect and cognition first to an intention and subsequently to actual behaviour. Behavioural intention is central in the theory (Armitage & Conner, 2001). Intentions are defined as individuals' willingness to try to exert effort to perform the focal behaviour (Ajzen, 1991, p.181). They are typically captured via verbal statements on individuals' likelihood, desire, or plan to perform a specific act in appropriate circumstances (Armitage & Conner, 2001). Thus, the affective and cognitive bases temporally influence the behavioural base in this view.

In contrast, neuropsychological attitude research and emotion theory tend to emphasize the temporal influence of the affective base. Their expectations are mainly derived from evolutionary psychology. In this view, individuals generally do not have the time, energy, or ability to cognitively process all environmental information; instead, they navigate on rules of thumb. In non-routine contexts, affective reactions are the rules of thumb to navigate on (Izard, 2009, p.5; Pessoa & Adolphs, 2010). In this view, therefore, the affective base informs cognitions and motivates for action, thus it influences both the cognitive and behavioural bases of attitude (see also Bechara, Damasio, & Damasio, 2000; Haidt, 2001; Kunda, 1990; Talmi & Firth, 2007).

In contrast to the two positions discussed above, cognitive dissonance theory (Festinger, 1954) would argue for the primacy of behaviour in attitude change. Building on cognitive dissonance theory, commitment theorists (e.g., Brickman, 1987; Brown, 1996; O'Reilly & Caldwell, 1981) have formulated a 'behavioural' view on how a commitment is formed. A commitment, in this view, is a post-hoc rationalization for behaviour already exerted.

Can we think of a model where all of the assumptions of these models hold simultaneously? It appears that both cognitive dissonance theory (behaviour → cognition) and theory of planned behaviour assumptions (cognition → behaviour) may hold simultaneously in a reciprocal causal relationship. If this relationship exists, there is still room for a third variable (the affective base of attitude) which influences them both. After all, momentary attitudinal reactions to objects first tend to be encoded by the subcortical brain because of the affective learning which has come before.² Cognitive and behavioural types of information then 'overwrite' the initial affective information but are nevertheless 'coloured' by it (Cunningham & Zelazo, 2007; Haidt, 2001; Kunda, 1990; Talmi & Firth, 2007). The resulting causal microstructure of commitment is displayed in Figure 1 below. Note that affective information may temporally influence other types of attitudinal information from one moment to the next even though the rate of change in the affect trajectory as a whole is slower (Hypothesis 1a). These two notions (cross-lagged influence vs. the shape of the trajectory as a whole) are analytically unrelated.

Hypothesis 2a: In the dynamic microstructure of commitment, the cognitive and behavioural bases of attitude reciprocally influence one another over time within persons.

² We thank an anonymous reviewer for pointing this out.

Figure 1. Hypothesized within-person effects in the causal microstructure of commitment. Note. For clarity purposes, this figure does not show concurrent correlations. *T* represents baseline time, *T*–1 represents baseline time minus one.

Hypothesis 2b: In the dynamic microstructure of commitment, the affective base of attitude in the previous period influences the cognitive and behavioural base of attitude in the next period within persons.

Existing meta-analyses on attitudes have revealed the affective and cognitive bases of attitude might be inconsistent (e.g., negative feelings, yet positive beliefs) especially when attitudes are unstable (see Cooke & Sheeran, 2004; Kraus, 1995; Glasman & Albarracín, 2006). To expose the dynamic microstructure of commitment, it is therefore useful to look for situations where attitudes are not yet crystallized and a new stance needs to be found. Such situations are likely encountered in organizational entry and organizational exit situations. We therefore choose these entrants and exiters as samples to test our hypotheses.

Methods

Entrants and exiters samples

We chose Dutch and Flemish Ph.D. graduates in their final phases of their Ph.D. projects as an initial subject pool ($N = 277$). This group generally has a programmed end-of-contract date with the alma mater university. In this way, a sample of entrants joining new organizations and a sample of exiters leaving their alma maters could be extracted from a single pool of individuals. We chose to focus either on the episode of exiting (where we measured only the exiter's commitment to the organization one is leaving) or on the episode of entering (where we measured only the commitment to the organization one is joining). Those who joined new organizations between January and October 2008 were selected as 'entrants' ($N = 72$; 26% of the initial subject pool), while participants were selected as exiters if their exit date would still fall between November 2008 and February 2009 ($N = 23$; 8% of the initial subject pool). Other participants were discarded because they did not experience an exit or entry episode (e.g., they were still finishing their Ph.D.'s with their alma mater universities, were promoted by their alma maters, or no longer responded to our e-mails). Sampled entrants and exiters ranged from a wide range of scientific disciplines, came from all 17 universities in the Netherlands (74%) and Flanders

(26%) and had roughly equal proportions of females (entrants: 53% female; exiters: 57% female). They were all in the age category between 26 and 35. There was no significant effect of scientific discipline on the within-subject mean level of commitment towards their new organizations ($F = .22$; n.s.). Likewise, university of origin did not have a significant effect on the (trajectory) average level of commitment ($F = 1.5$; n.s.). In the Dutch system (and to some extent in the Flemish system as well), Ph.D. students are formally acknowledged as 'employees'. Their status is closer to that of faculty than that of a student.

Research design for sample 1: Entrants

Considering our interest in how affective, cognitive, and behavioural types of information combine to form trajectories of commitment, we applied an experience sampling design where the duration of the research is relatively long and the number measurement waves is relatively high. We chose weekly measurements because they seem frequent enough to capture change during organizational entry and exit, but not so frequent to be burdensome. Thus, we performed around 25 weekly measurements across a time frame of half a year. As we were interested in trajectory histories before and after formal employment, we started measuring organizational commitment 4 weeks prior to entering the new organization in our sample of entrants ($N = 72$). In the sample of entrants, recorded commitment histories had an average of 14 measurement occasions ($SD = 7.7$); 36% of the respondents yielded histories with more than 20 completed measurement occasions. The entrants' sample had a total number of 994 observations.

Research design for sample 2: Exiters

In our sample of exiters, we started around 11 weeks before the end of the employment contract and continued measurement up until 11 weeks after the formal end of the employment contract. In the sample of exiters ($N = 23$), respondents yielded patterns with an average of 12 measurement occasions ($SD = 5.1$); 17% yielded histories with more than 17 completed exit patterns; one participant reached a number of 20 completed sessions. The total number of observations in the exiters sample amounts to 273.

Data collection procedure

To contact this pool of Ph.D. graduates, we sent all Dutch and Flemish Ph.D. candidates in their final years an invitation e-mail. The incentive for continued participation was that participants would receive 1 Euro payment for every completed session. To control for selection bias on our main construct (commitment), our initial call for participation contained two links to a sign-up questionnaire. One stated 'Yes, I belong to the target population, and I want to participate', and the other stated 'Yes, I belong to the target population, but I do not want to participate'. The non-response link directed to a 5-item survey measuring organizational commitment to their alma maters (employing universities), general job satisfaction, and supervisor satisfaction. Independent samples *t*-test showed that there was no significant difference between non-participants ($N = 92$) and initial participants ($N = 277$) on organizational commitment ($t = .65$; n.s.), supervisor satisfaction ($t = -1.5$; n.s.), or overall satisfaction ($t = .26$; n.s.). Given these results, we

feel confident that no self-selection effects had occurred on our focal variable to bias our results.

After inclusion in the research sample, participants received weekly invitations to respond by e-mail prompting them to open a hyperlink which referred them to an online work experience monitor, called LOCUST (i.e., Longitudinal Occupational States Tracker). LOCUST is a console running on a web server that was especially built for temporal data gathering. Before starting the first LOCUST session, a baseline questionnaire (response for entrants: $N = 69$; for exiters: $N = 15$) inquired after stable personal characteristics (i.e., gender, Big-5 personality traits, positive and negative affectivity, and job expectations). Upon completion of all 25 sessions, participants filled out a follow-up questionnaire in English asking for experiential and situational information (i.e., job satisfaction, perceived organizational support, met expectations, Person-Organization fit). The latter questionnaire was filled out by 53 entrants and eight exiters. A summary of the total of four survey moments used in our research is presented in Table 1.

LOCUST is built based on a temporal philosophy where the respondent can see his/her own trajectory as it takes shape over time. Our reason for invoking pattern-based (instead of point-based) responses is that we wanted to create a more temporally sensitive measurement instrument. This measurement procedure is a particular form of self-anchored scaling which minimizes the chance that change or disruption is reported while there is actually no real change going on (Hofmans, Theuns, & Van Acker, 2009; Solinger, Van Olffen, Roe, & Hofmans, 2013).

High-frequency measurement of organizational commitment

We have chosen to develop a new 3-item Commitment Attitude Scale (called 3CAS) for conceptual and practical reasons. That is, the 3CAS measure that we used is specifically geared to fit the tripartite attitudes perspective and the challenges of an experience sampling (25 weekly measures) research design. To avoid the (anticipated) massive sample attrition, we decided to use single items for each attitude base. Note that this practice is more easily allowed in experience sampling settings where the function of reliability is in the service of temporal validity (e.g., de Boer *et al.*, 2004; Fisher & To, 2012; Mehl & Conner, 2012).

For sake of comparability and content validity, these single items were carefully crafted to closely parallel those that appear in other measures of commitment (Allen & Meyer, 1990; Mowday *et al.*, 1982). As such, the affective base of attitude was phrased as 'What I feel about [my organization]: I am proud', the cognitive base was phrased as 'What I think about [my organization]: I belong to it', and behavioural base was phrased as 'What I do for [my organization]: I engage'[participate].³ Each time we measured these items, the upper left of the window contained a brief instruction on the item content (e.g., *To 'engage' is have a readiness to act for the organization's benefit, e.g., do what is needed*). Further, the instruction contained some information on how the 'organization' should be interpreted: 'You can think of your organization as your department, the manage-

³ Note that the phrase 'I engage' is a translation of an active Dutch expression ['ik doe mee'], which might also be translated as: 'I join in', 'I take part', or 'I participate'.

Table 1. Chronological overview of the four survey moments in this study

	Fall 2007	January–October 2008	January 2008–April 2009 LOCUST tool for experience sampling research	June 2008–April 2009
	Sign-up survey (and non-response check)	Baseline survey		Follow-up survey
Administration procedure	Filled out in the final year of Ph.D. project, while still working for alma mater	4 weeks prior to the start of the new job; before starting LOCUST	Start: 4 weeks prior to the start of the new job (entrants)/12 weeks prior to leaving (exiters) End: After 5 months on the job (entrants)/3 months after leaving (exiters). 25 weeks in between.	1 week after ending LOCUST
Number of respondents	92 non- participants and 277 participants (of which 72 qualified as entrants and 23 as exiters).	N entrants = 69 N exiters = 15	N entrants = 72 N exiters = 23	N entrants = 53 N exiters = 8
Constructs measured	1. commitment to former organization, 2. Satisfaction with the former job, 3. Satisfaction with supervision	Gender, Big-5 personality domains, Positive Affectivity, Negative Affectivity	OC to the new organizational mood, and organizational events.	Perceived organizational support (POS), Person-organization fit (P-O fit), Job satisfaction, psychological contract breach/violation, met expectations

Note. LOCUST, Longitudinal Occupational States Tracker.

ment, but also the sum of all documents, structure, people and symbols that represent it.' Lastly, the instruction emphasized that it is a momentary measure: 'Score according to how it is for you at this moment' The resulting 3-item Commitment Attitude Scale (called 3CAS) used a 0–100 response format (see de Boer *et al.*, 2004). Note that using a 0–100 slider is a best practice for experience sampling research (Fisher & To, 2012).

Construct validity

To address anticipated concerns with respect to the construct validity of 3CAS, we performed a series of tests. First, we used a single-item question asking for the respondent's mood as a time-varying criterion to assess the construct validity of the single-item measures. This measure was based on a Visual Analogue Scale (de Boer *et al.*, 2004) and simply reads: 'What is your mood at the moment' (0: *very bad*; 100: *very good*). The regression coefficients of a two-level regression model (with measurements nested within persons) showed that mood–affect ($F = 41.2$; $p < .000$), mood–cognition ($F = 4.8$; $p = .038$), and mood–behaviour relations ($F = .79$; n.s.) reflected sharply decreasing covariations. To corroborate these findings, we computed simple partial correlations between the person-centred scores of mood and each of the attitude bases, controlling for the two other bases. Again, mood–affect ($r = .25$; $p < .000$), mood–cognition ($r = .10$; $p = .002$), and mood–behaviour ($r = -.07$; $p = .04$) showed sharply decreasing covariations. This confirms the general tenets of attitudes research (e.g., the affect-infusion model; see Forgas & George, 2001), namely that mood states most strongly influence the experience of other types of affect, then impact on cognition (e.g., through misattribution effects) and then in the last instance impact on actions (See e.g., Forgas & George, 2001; Schwarz & Clore, 1983, among many others). This confirms our confidence that the three single-item questions indeed tap into affective, cognitive, and behavioural bases of attitude.

Second, to check whether the combined measure indeed measures organizational commitment, we computed the trajectory average commitment score per participant (i.e., averaged across components and across time) and correlated it with a set of known commitment covariates for which meta-analytic findings are available. In the measurement of variables in the 'nomological net' of organizational commitment, we have chosen brief questionnaires to limit the compliance burden as much as possible. To save space, the measures and the correlations with the 3CAS measure are summarized in Table 2.

As can be seen in Table 2, the relationships for the entrants and exiters are highly similar to those found in previous meta-analytic research. Note that, because of the small number of exiters, some correlations are non-significant, although their magnitude is generally in line with the relationships found for the entrants in the meta-analytic findings (only the correlation with positive affect for the exiters differs). As support for the high degree of convergence between the relationships of the entrants, exiters, and the meta-analytic findings, the correlation coefficient between the corresponding correlations equals .92 ($N = 11$; $p < .001$) between entrants and exiters, .87 ($N = 12$; $p < .001$) between entrants and meta-analytic findings, and .77 ($N = 11$; $p = .005$) between exiters and meta-analytic findings (see Kuppens, Oravecz, and Tuerlinckx, 2010 for a similar procedure). In sum, we feel we found sufficient support for construct validity (convergent/nomological validity) to proceed with our 3CAS measure as an alternative to conventional commitment scales.

Table 2. Nomological validity of the 3-item Commitment Attitude Scale

Construct	Measure name and authors	Number of items	Type of scaling	Sample item	Cronbach α	Correlations with 3CAS for entrants (N = 53–69)	Correlations with 3CAS for exiters (N = 8–15)	Meta-analytical correlations with commitment
Conscientiousness	TIPI (Gosling, Rentfrow, & Swann, 2003)	10	7-point Likert	2 items: 'Dependable, self-disciplined' and 'Disorganized, Careless' (R)	n.a.	.22*	.17	.32 ^a
Positive and Negative Affectivity	PANAS scale (Watson, Clark, & Tellegen, 1988)	10	7-point Likert	PA: Inspired, alert, excited, enthusiastic, and determined NA: Afraid, upset, nervous, scared, and distressed	PA: .83 NA: .91	PA: .45** NA: -.22	PA: .01 NA: -.33	PA: .32 ^a NA: -.18 ^a
Met expectations	Obtained from ROA, a socio-economic research centre in Maastricht University	10	7-point Likert	Expectations regarding: Autonomy, job security, opportunities to learn, interesting work, new challenges, promotional opportunities, time for leisure activities, usefulness to the community, social status, and possibility to combine work and family	.81	.63**	.58	.39 ^b
Person-organization fit	P-O fit. Saks and Ashforth (2002).	4	7-point Likert	'To what extent does your personality match the personality or image of the organization?	.93	.74**	.68**	.25 ^a
Perceived organizational support	POS. Rhoades and Eisenberger (2002)	8	7-point Likert	'My organization cares about my well-being'	.80	.35**	.18	.63 ^a

Continued

Table 2. (Continued)

Construct	Measure name and authors	Number of items	Type of scaling	Sample item	Cronbach α	Correlations with 3CAS for entrants (N = 53–69)	Correlations with 3CAS for exitters (N = 8–15)	Meta-analytical correlations with commitment
Psychological contract breach	Robinson and Rousseau (1994)	5	7-point Likert	'I have not received everything promised to me in exchange for my contributions'	.92	-.40**	-.32	-.38 ^{a/c}
Psychological contract violation	Conway and Briner (2005)	4	7-point Likert	'I feel frustrated by how I have been treated by my organization'	.85	-.34**	-.45	-.52 ^{a/c}
Job satisfaction	Wanous & Hudy, 2001; Wanous et al., 1997	1	7-point Likert	'In general, I am satisfied with my job.'	n.a.	.61**	.64*	.65 ^a

Note. * $p < .05$; ** $p < .01$; Superscript a, Meyer et al. (2002); b, Wanous, Poland, Premack, and Davis (1992); c, Zhao, Wayne, Glibkowski, and Bravo (2007).

Results

Sample 1: Entrants

Figure 2A illustrates what the different logic of change in the affective base of attitude may empirically look like. For example, newcomer #7 (Figure 2A) reacts to Christmas break by reducing the cognition and behaviour, but not affect. This illustrates the different types of change involved: The cognitive and behavioural base of attitude (based on reasoning) need not remain high during a holiday break while this holiday event is irrelevant for the affective base of attitude (association-based learning).

To test Hypothesis 1a – *the affective base of the attitude microstructure has a slower rate of change than cognitive base of the attitude* – we first carried out a series of multilevel regression analyses in which we predicted affect, cognition, and behaviour trajectories on the basis of t , t^2 , and t^3 . These trajectories reflect the relative rates of change in the affective, cognitive, and behavioural bases of the dynamic microstructure of attitude. Moreover, we allowed trajectories of t , t^2 , and t^3 to vary across individuals (i.e., random intercept, random slopes models). This is based on previous research that has shown that individuals differ widely in the type of commitment trajectories they follow during organizational entry (Solinger et al., 2013).

Entrants

Note that for the entrants, the time-variable was centred around the moment the person entered the organization (i.e., $t = 0$ refers to the start of the job; $t = 1$ refers to the week

Figure 2. (A) Two examples of individual entrants. Newcomer # 7 reacts to Christmas Break. Newcomer #36: A relatively stable pattern, with slightly declining affect. (B) Two examples of individual exiters. Exiter #17: A volatile reaction to leaving the office with affect lingering high. Exiter # 21; affect follows a different path after filing for unemployment.

after they started the job). This ensures that the time variable has exactly the same meaning for everyone and trajectories are comparable between persons (Hox, 2010). For exploratory purposes, the behavioural base of attitude was also included in these tests.

We then compared the random slopes that resulted from these analyses using paired-sample *t*-tests. The results of these tests revealed that for the entrants, the linear, quadratic, and cubic slope coefficients were significantly higher for the cognitive and behavioural base of attitude than for the affective base (see Table 3). However, because the linear, quadratic, and cubic slopes are not orthogonal, the three effects are to some extent related (the fact that the linear and quadratic slopes followed the same pattern of findings is partly implied by this). As a result, the cubic slope matters most. Our results show that the cubic slope for cognition and behaviour was significantly larger than that the cubic slopes for affect. As can be seen in Table 3, we demonstrated slower rates of change of the affective base of attitude, thus supporting Hypothesis 1a.

To test Hypothesis 1b – *within person trajectories of the cognitive and behavioural bases of the attitude microstructure correlate more strongly than do the cognitive-affective and behavioural-affective trajectories* – we computed correlations between the person-centred scores of the affective, cognitive, and behavioural bases of attitude. Because we wanted to test the extent to which the respective trajectories resemble each other, we first mean-centred each of the trajectories of the affective, cognitive, and behavioural bases of attitude per participant using their person-specific averages (Hox, 2010). Such a procedure fixes the average level for each person on all three attitudinal bases of commitment to 0, and, as a result, the remaining variance pertains solely to the shape (and not the level) of the three trajectories. To then test whether the cognitive and behavioural base of attitude show greater similarity across time than cognitive-affective and behavioural-affective trajectories, we computed the correlations between the three person-centred attitude trajectories. Finally, we used Steiger's *Z*-test (Steiger, 1980) to statistically compare these correlations.

These correlations are shown in Table 4 below the diagonal for the entrants and above the diagonal for the exiters. For the entrants, trajectories of cognitive and behavioural base of attitude relate more strongly to each other than to the affective base of attitude: $r_{\text{cog-beh}}$ is significantly higher than $r_{\text{aff-beh}}$, $z(69) = 2.567$; $p = .010$, and marginally higher than $r_{\text{aff-cog}}$, $z(69) = 1.733$; $p = .083$; there is no significant difference between $r_{\text{aff-cog}}$ and $r_{\text{aff-beh}}$, $z(69) = .881$; $p = .378$. This supports Hypothesis 1b in the Entrants sample.

Finally, to test Hypothesis 2a and 2b concerning the temporal influence of bases of attitude in the dynamic microstructure, we performed a series of multilevel regression

Table 3. The rate of affective change compared to cognitive and behavioural change

	Entrants			Exiters		
	Affect trajectory	Cognition trajectory	Behaviour trajectory	Affect trajectory	Cognition trajectory	Behaviour trajectory
t	1.187 ^{cog beh}	2.748 ^{aff}	2.190 ^{aff}	-.131 ^{beh}	-.762	-1.109 ^{aff}
t^2	-0.096 ^{cog beh}	-0.208 ^{aff}	-0.164 ^{aff}	-0.009	0.003	-0.009
t^3	0.002 ^{cog beh}	0.005 ^{aff}	0.004 ^{aff}	0.001	0.001	0.005

Note. The numbers indicate the average time-sensitivities (i.e., averaged across individuals), that is: The average of the random slope coefficients of the linear, quadratic, and cubic time component in predicting the level of each attitude base over time. Superscripts refer to significant differences with the respective coefficients of the other attitude bases (Paired-sample *t*-tests).

Table 4. Within-person correlations for the dynamic microstructure of commitment

	Affect trajectory	Cognition trajectory	Behaviour trajectory
Affect trajectory	—	.40**	.45**
Cognition trajectory	.63**	—	.76**
Behaviour trajectory	.58**	.76**	—

Note. * $p < .05$; ** $p < .005$. Numbers below the diagonal apply to entrants; above the diagonal: exiters.

analyses to test for cross-lagged relationships. The multilevel nature of these models allowed us to account for non-independence in the data resulting from having multiple measurements per person (i.e., the data have a nested structure with measurements nested within persons) (Hox, 2010). In these multilevel regression analyses, we predicted for the three bases of attitude the score on time t (i.e., baseline time) from the score on $t-1$ (i.e., baseline time minus one) and from the score on the other two attitude bases on $t-1$.

Because Hypotheses 2a and 2b pertain to the within-person level (i.e., they refer to the temporal influence relationships in the dynamic microstructure), we first removed all between-person variation from the data. This was done by in a first step averaging the affective, cognitive, and behavioural bases into a single commitment component and by then centring the three time-lagged commitment components around the person-specific mean of this average commitment component. Using this type of centring, between-person differences in the level of the three commitment components (as a set) were removed from the data, while within-person differences in the level of the three commitment components were retained (note that differences in level between the three components would also be removed when using traditional group-mean centring as each component would then be centred relative to its own person-specific average). Moreover, random slopes were tested on a one-on-one basis using the likelihood ratio test and only those random slopes that were significant were included in the final model (Hox, 2010). The results of these analyses are shown in Table 5 (only the fixed effects are reported).

Regarding Hypothesis 2a – *in the dynamic microstructure of commitment, the cognitive and behavioural bases of attitude reciprocally influence one another over time within persons* – the cognitive base of attitude at time $t-1$ predicted the behavioural base at time t , but there was no reciprocal temporal influence (i.e., the behavioural base did not impact on the cognitive base of attitude). Thus, there is mixed support for Hypothesis 2a. The results of our tests are shown in Table 5.

Table 5. Within-person influence in the dynamic microstructure of commitment

	Entrants			Exiters		
	Affect _{t}	Cognition _{t}	Beh _{t}	Affect _{t}	Cognition _{t}	Beh _{t}
Intercept	75.18***	76.37***	78.73***	64.65***	62.24***	64.09***
Affect _{$t-1$}	.56***	.05	.03	.33**	-.05	-.14
Cognition _{$t-1$}	-.00	.53***	.12*	.21*	.37**	.43**
Beh _{$t-1$}	.03	.04	.35***	.09*	.25*	.36*

Note. *** $p < .001$; ** $p < .01$; * $p < .05$; † $p < .10$. Beh, the behavioural base of attitude; t represents baseline time, $t-1$ represents baseline time minus one.

Regarding Hypothesis 2b – *in the dynamic microstructure of commitment, the affective base of attitude in the previous period influences the cognitive and behavioural base of attitude within persons in the next period* – the results were unsupportive. The affective base of attitude on time $t-1$ did not predict cognition on time t , nor behaviour on time t (see Table 5).

Sample 2: Exiters

We followed the exact same testing procedures as used in the Entrants sample. To prepare the data for hypothesis testing, we centred time around the moment the person left the organization (i.e., $t = 0$ refers to the moment the person leaves the job; $t = -1$ refers to the week before he/she left the job). Figure 2B shows two Exiter trajectories of the three bases of commitment. Exiter #17 (Figure 2B) illustrates rapid and volatile decline in cognition and behaviour, while decline in affect is more conservative (for slower rates of change).

Our test of Hypothesis 1a – *the affective base of the attitude microstructure has a slower pace of change than the cognitive base of the attitude* – shows that only the difference between the linear slope of affective and behavioural bases was statistically significant (see Table 3). However, this is partly due to the low sample size ($N = 23$), which causes the statistical power of this test to be low. Closer inspection of Table 3 indeed shows that for the Exiters, a similar pattern of slower rates of change in the affective base of attitude can be observed as for the Entrants, thereby providing support for Hypothesis 1a.

The results of our tests of Hypothesis 1b – *trajectories of the cognitive and behavioural bases of the attitude microstructure correlate more strongly than do the cognitive-affective and behavioural-affective trajectories* – can be inspected above the diagonal in Table 4. A similar pattern shows up for the Exiters as compared to the Entrants; $r_{\text{cog-beh}}$ is significantly higher than $r_{\text{aff-cog}}$, $z(20) = 2.074$; $p = .038$, and marginally higher than $r_{\text{aff-beh}}$, $z(20) = 1.784$; $p = .074$; $r_{\text{aff-cog}}$ and $r_{\text{aff-beh}}$ do not differ significantly, $z(20) = .343$; $p = .732$. In all, for both the Entrants and the Exiters, our results indicate that trajectories of the cognitive and behavioural base of attitude in the dynamic microstructure relate more strongly to each other than to the affective base of attitude, which supports Hypothesis 1b.

Regarding Hypothesis 2a – *in the dynamic microstructure of commitment, the cognitive and behavioural bases of attitude reciprocally influence one another over time* – we observed that the cognitive base of attitude at time $t-1$ predicted behaviour at time t , while behaviour at time $t-1$ predicted cognition at time t (see Table 5). This supports Hypothesis 2a. However, considering the evidence in the sample of Entrants, there is only mixed support for a reciprocal influence relationship overall. In both the Entrants and Exiters samples, it appears that the cognitive base of attitude is the strongest and most consistent ‘predictor’ in the dynamic microstructure of commitment. In both samples, the cognitive attitude base temporally influenced the behavioural base of attitude.

Regarding Hypothesis 2b – *in the dynamic microstructure of commitment, the affective base of attitude in the previous period influences the cognitive and behavioural base of attitude in the next period* – the results were unsupportive in the Exiters sample as well. Taken together, Hypothesis 2b is clearly rejected in the two samples. In fact, among Exiters, both the cognitive and the behavioural base of attitude influenced the affective base.

Discussion

The purpose of this paper was to develop new theory on how the basic ingredients of attitude – affect, cognition, and behaviour – combine to form trajectories of commitment. We have now empirically tested some key features of what we call the ‘dynamic microstructure’ of commitment. First, within-person change of affective attitudinal information is indeed *slower* than the within-person change of cognitive and behavioural information (H1a). Based on different types of learning (associative vs. reflective), the affective base of attitude follows a different ‘logic’ over time (i.e., has a clearly distinct within-person change trajectory) compared to cognitive and behavioural bases of attitude (H1b). Further, individuals seem to follow their ‘minds’ rather than their ‘hearts’ when (un)committing to an organization (H2a/b). This result supports the perspectives of cognitive dissonance theory and the theory of planned behaviour more than the neuropsychological theory to attitude development.

Implications for tripartite attitude theory

These findings contribute to our current knowledge of the tripartite theory of attitude. First, the relative weight of the affective, cognitive, and behavioural bases change over time and context and they do so at different rates (trajectories). During organizational entry, the cognitive and behavioural bases adjust faster than the affective base because one still needs to affectively bond with the organization. During organizational exit, the behavioural base is the fastest to adjust while the affective base tends to linger on for a while at higher levels. As an aside, the notion of an affective ‘residue’ of commitment after leaving is consistent with prior evidence that a form of post-exit sentiment may endure after incumbents have left their organizations (cf. Baeyens, Crombez, Van den Bergh, & Eelen, 1988; Mael & Ashforth, 1992; Sutton, 1987; Walsh & Glynn, 2008). The fact that within-person change of affective information is significantly slower than within-person change in cognitive and behavioural information resonates with the dual-process view of attitude. Future studies on the distinction of affect and cognition in other job attitudes, such as satisfaction (e.g., Schleicher *et al.*, 2004; Weiss, 2002) and organizational identification (e.g., Johnson *et al.*, 2012) will want to pay attention to this distinction.

Second, attitudinal change at two different rates (purportedly coming from association- and reasoning-based learning) may have different adaptive functions for the individual: It helps to accommodate the sometimes conflicting demands posed by emotional investments in groups and individual goal pursuit in times of change. This is consistent with earlier work on disbanding organizations, which has shown that there tend to be two seemingly paradoxical processes at work: Disbanding and reconnecting (Sutton, 1987). The controlled learning system (the cognitive base of attitude) aids adaptation by securing the individual’s long-term goals, in this case by disbanding a defunct commitment. At the same, the automatic learning system (the affective base of commitment) helps to ‘reconnect’ with past identities, colleagues, and organizational objects (cf. Munro, 1998; Sutton, 1987; Wildschut, Sedikides, Arndt, & Routledge, 2006).

Implications for commitment theory

The most conspicuous finding for commitment theory is that the cognitive base of attitude had the strongest and the most consistent temporal influence on the other bases of attitude in times of transition. The results are especially telling in the organizational entry

situation where it is only the cognitive base of attitude that has a temporal influence over the two other bases of commitment. The primacy of cognition may, however, be specific to the contexts organizational entry and exit. Not committing to a new organization, one economically depends on or holding on to a defunct commitment after exit is maladaptive. Some degree of cognitive effort is therefore called for to steer the commitment attitude in a direction, which is more congruent with the long-term goals of the individual. Finally, it is also possible that a time interval of 1 week used in this study is too large to pick up on the temporal influence of the affective base. That said, our results currently suggest that it is possible that affective information is of little importance for the within-person development of commitment. This idea supports the notion of commitment as a cognition-based attitude, where (un)committing oneself tends to be based on deliberation (e.g., choice) rather than on automaticity or behavioural routine (supporting the view of Klein *et al.*, 2012). Committing oneself to the organization remains first and foremost a conscious choice (a pledge) to dedicate oneself and serve the purposes of organization (Solinger *et al.*, 2008). Feelings of pride with respect to the organization are not irrelevant, but appear only later in the organizational entry process.

Fostering commitment

Our results provide two angles to thinking about how commitment can be fostered. The first angle is based on the finding that the affective base of attitude is more resistant to change. Based on this information, practitioners are advised to invest in making an emotional connection with the employee if a long-term investment of the employee in the organization is called for. Thus, create units with an upbeat team spirit, uphold satisfying relationships with colleagues, and invest in inspiring (e.g., charismatic) leaders. Second, given the apparent primacy of cognition in times of transition, one should also try to communicate well, provide clear and detailed information, and secure the employee's long-term goals. In other words, it is safest to make use of both emotional and rational appeals in attempts to foster and uphold organizational commitment. This is, in fact, consistent with earlier work on attitudes, which has shown that among attitudes which have a strong 'cognitive' emphasis, one should use both emotive and rational appeals to foster them (cf. Edwards, 1990). This is different for employees who have already left the organization. Edwards (1990) found that for affective attitudes (i.e., those purely based on affective information), it suffices to use emotive appeals. Alumni officers who must to gain buy-in from alumni are therefore advised to focus purely on emotional appeals – create an alumni network with an upbeat *esprit de corps*, instill feelings of pride and work on positive, warm relationships.

Limitations

First, our exiter group consisted of Ph.D. candidates leaving their alma maters. It might be that the peculiarities of this setting have influenced our results. One peculiarity is the reputational value that universities have for their departing doctoral students and the second is the nature of the university-doctoral student bond which generally is that of a relational contract, namely that of mentorship, nurturing, and professional education. Such peculiarities make generalization of particular findings (e.g., the 'nostalgic' rise of affect observed just before the date of exit) questionable. For example, exit episodes in more transactional worker–organization contracts may not show this pattern.

The second limitation relates to our single-item measurement. Because of this practice, it is possible that our single-item measures have not fully (or selectively) captured the content domains our constructs of interest (affect, cognition, and behaviour). That said, our choice for single-item measurement resulted from the practical trade-off one always faces in high-density experience sampling research between enhancing the reliability of a pattern (through many waves of measurement) versus that of a point (through multi-item scales; see also Fisher & To, 2012; Solinger *et al.*, 2013). For this reason, single items are relatively more easily endorsed in experience sampling research compared to cross-sectional research (e.g., Fisher & To, 2012; Mehl & Conner, 2012). Previous research shows that single-item questions have sufficient construct validity (de Boer *et al.*, 2004; Wanous & Hudy, 2001; Wanous, Reichers, & Hudy, 1997 but see also van Hooff, Geurts, Kompier, & Taris, 2007). Further, we carefully selected those words that have literally appeared in previous commitment scales (i.e., Allen & Meyer, 1990; Mowday *et al.*, 1982). Moreover, our single items showed construct validity in relation to (time varying) measures of mood, which also implies sufficient temporal reliability (Fisher & To, 2012). Having said all this, further exploration of the dynamic microstructure of commitment using different items (single and multi-item) is called for. Also, it is still to be investigated how the 3CAS measure of commitment relates to previously established scales of commitment (cf. Allen & Meyer, 1990; Klein, Cooper, Molloy, & Swanson, 2014; Mowday *et al.*, 1982).

Conclusion

In this paper, we examined how the classic elements of attitude – affect, cognition, and behaviour – combine to form trajectories of commitment. We discovered that this ‘microstructure’ of commitment is not fixed, but can change over time and context. Further, in times of transition, the change of affective information is relatively slow, while the change of cognitive and behavioural information is relatively fast. This difference exists for a reason: It makes for a flexible attitude, which allows individuals to balance the need to both feel part of the group and the need to pursue personal long-term goals in the vicissitudes of the workplace. During these instances, (un)committing has a controlled, self-regulatory quality.

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