

## **Exploring the influence of cognitive styles on people's feedback-seeking patterns: what can educational practice learn from workplace contexts?**

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### **ABSTRACT**

This study examined the relationship between people's cognitive styles and their feedback-seeking behaviours, using a sample of 457 employees from four different organisations (two Human Resources consulting companies and two Information Technology consulting firms) in Belgium. This way, we respond to repeated calls in the cognitive styles literature to link individuals' cognitive style differences to observable behaviours. In addition, this study extends feedback-seeking literature by demonstrating that individual differences in cognitive styles have differential effects on people's feedback-seeking patterns. Cognitive styles were measured by means of the Cognitive Style Indicator (CoSI; Cools and Van den Broeck, 2007), whereas an adapted version of the scale by Ashford and Tsui (1991) was used to assess people's feedback-seeking behaviours. Generalised linear models (GLMs) were used to analyse the data. We found that people with a knowing style solely use self-appraisal to seek feedback, while planners also inquire feedback from their supervisors. People with a creating style tend to use a broad range of feedback-seeking patterns, involving both self-appraisal and monitoring and inquiry from diverse sources. Drawing on these findings, we argue that organisations and learning institutes alike should take into account individual cognitive profiles to enhance the learning process and outcomes for all and in this sense develop a lifelong learning attitude. Whereas feedback seeking is a well-acknowledged strategy in the workplace context to optimise one's performance, the lifelong learning paradigm additionally demands a focus on feedback seeking in education to equip students with the necessary skills and competences to face today's business needs.

### **INTRODUCTION**

With the rapid rise of the knowledge economy, the way we have traditionally approached learning and development should be fundamentally revisited (Armstrong and Fukami, 2009). In a world of work where career success largely depends on employees' ability to efficiently process large amounts of information and on their ability to continuously adapt to changes, it is widely accepted that learning does not only take place in the classroom

during one's formal education, but that many of the skills that employees need in their career are developed beyond the formal confines of the classroom (Demirel, 2009). Given these evolutions, there have been repeated calls by scholars, practitioners, and policy makers that we should move away from the traditional view of education as a rite of passage towards a lifelong learning perspective in which learners are largely responsible for their own learning process (De Graaff and Kolmos, 2003; European Commission, 2010; Ferguson, 1995; Liu, 1997). One of the basic tenets of the lifelong learning perspective is that many of the competencies that employees need in the modern workplace are developed through informal learning opportunities within the day-to-day work context. Indeed, the modern workplace is characterised by ambiguous and complex task objectives and role expectations (Hulin and Glomb, 1999; Uhl-Bien and Graen, 1998). Within such a context, demonstrating a 'learning attitude' on the job becomes increasingly important (Ernesto, 2010; Marginson, 2010). One key competence that is needed to develop this learning attitude on the job is an interest of employees to actively seek feedback so that they can detect their personal strengths and areas for development (Garofano and Salas, 2005). By actively seeking feedback, people can clarify their role expectations (Wanberg and Kammeyer-Mueller, 2000), evaluate their goal progress (Morrison and Weldon, 1990), develop high-quality relationships with their supervisors (Lam et al., 2007), improve their performance (Chen et al., 2007), and self-regulate their creativity (De Stobbeleir et al., 2011).

While the individual and organisational benefits of feedback-seeking behaviour (FSB) are widely recognised, research attempting to link individual-level cognitive differences to this impactful behaviour has been quite unsystematic (see Anseel et al., 2007; Ashford et al., 2003, for reviews). Prior work has mainly focused on how individual differences in cognition influence specific forms of feedback seeking, but has tended to neglect how these differences more generally shape employees' feedback-seeking *patterns*. For example, due to the literature's narrow focus on primary sources of feedback (e.g., the coach, supervisor or trainer) and on overt forms of feedback seeking (e.g., inquiry), scholars have disregarded that individuals can choose between a wide variety of feedback sources (e.g., peers, fellow-students and co-workers) and feedback-seeking tactics (e.g., monitoring) (Grant and Ashford, 2008). Given the emphasis placed on horizontal knowledge sharing, social networks (e.g., peer feedback) and new interaction styles in today's education contexts and organisations (Cartney, 2010; Higgins and Kram, 2001), this is an important research gap to be filled. In addition, whereas past research has demonstrated the importance of studying the *content* of people's cognitions in explaining FSB, more research is needed regarding the general cognitive *processes* that influence FSB (Ashford et al., 2003). For instance, a body of work indicates that individual differences in cognitive styles influence information gathering, processing and use in important ways (Cools, 2012; Kirton, 2003; Kozhevnikov, 2007). Therefore, the aim of this study is to provide a more systematic account of how people benefit differently from certain feedback forms by taking into account individual differences in cognition that affect people's feedback-seeking patterns. More specifically, we hypothesise that cognitive styles will have an impact on two patterns of feedback seeking: (1) the strategy of seeking (inquiry or monitoring) and (2) the sources from whom feedback is sought (self or others). Gaining insights into how individuals with different characteristics use

different feedback-seeking patterns will deliver meaningful information for educators to optimise the coaching process to develop a lifelong learning attitude in all learners.

## THEORY DEVELOPMENT AND HYPOTHESES

### Feedback-seeking behaviour

Typically conceptualised as a multifaceted construct, FSB is far from a straightforward phenomenon (Ashford et al., 2003). Decisions about how frequently to seek, the *tactics* to use and from whom to seek feedback, all may be shaped by the seeker's individuality. People can, for instance, seek feedback using either the tactic of inquiry, which involves direct and verbal requests for performance evaluations, or they can scan their environment for indirect feedback cues, i.e. monitoring (e.g., Ashford and Cummings, 1983). People can also seek feedback from a variety of *feedback sources*. Feedback can be sought from social sources, such as individuals in the seeker's immediate role set (e.g., lecturers and fellow students), from other feedback sources within the organisation (e.g., lecturers from other class groups), and from extra-organisational sources (e.g., peers from other schools, parents) (e.g., Ashford and Tsui, 1991; Miller and Jablin, 1991). Another source of feedback is the "self" (Ashford and Cummings, 1983), for example, people can also track their goal progress through self-appraisal, without the consultation of any social sources in addition to the social feedback sources.

The importance of studying FSB as a multifaceted construct has received much conceptual attention (e.g., Ashford et al., 2003; Grant and Ashford, 2008; VandeWalle, 2003), but empirical work has mainly operationalised specific patterns of seeking, which has resulted in an incomplete understanding of the link between individual-level differences and FSB. For example, examining the impact of individual differences in goal orientation on feedback inquiry, VandeWalle and Cummings (1997) found a positive relationship between a learning-goal orientation (an orientation towards development) and feedback inquiry, while a performance-goal orientation (an orientation towards achievement) was negatively related to the inquiry of feedback. However, VandeWalle and Cummings (1997) did not examine whether individual differences in goal orientation also influenced individuals' choices between the inquiry and the monitoring method for feedback seeking. For example, it may be that individuals with a performance-goal orientation eschew the overt inquiry of feedback, but gather evaluative information about their performance using more covert tactics of feedback seeking, such as monitoring (VandeWalle and Cummings, 1997). As far as we know, no research of this type has been conducted.

In addition, more research is needed about the general cognitive processes that underlie individuals' feedback-seeking patterns (Ashford et al., 2003). Even though VandeWalle and colleagues (2002) demonstrated the importance of studying the *content* of people's cognitions in explaining FSB, cognitive style theory also suggests that the cognitive *processes* underlying those goals may be important in explaining employee behaviours (Brigham et al., 2007). Although the stability of feedback-seeking behaviour depends on

how individuals perceive the task (Evans and Waring, 2011), it is very valuable to look at the general patterns in cognitive processes that underlie individuals' FSB. For example, people's generalised information-processing preferences may shape their choice of FSB tactics. As far as we know, up till now, only two studies have been conducted that investigated the impact of broader individual aspects on feedback-seeking behaviour (i.e., Evans and Waring, 2011; Krasman, 2010), although these studies both neglect the more covert methods of feedback (i.e., monitoring). Krasman (2010) concludes that a person's feedback-seeking behaviour is only partly explained by his or her personality. Therefore, other stable individual characteristics (e.g. cognitive styles, ability, motivational attitudes, etc.) should be investigated to further unravel the individual aspects that influence person's feedback-seeking behaviour. In this regard, cognitive styles theory appears to offer a promising framework for explaining individuals' FSBs, taking both overt as well as covert tactics into account.

### **Cognitive styles**

Cognitive styles refer to people's preferred ways of perceiving, organising and using information (Cools, 2009). The value of cognitive styles research lies in its integration of two psychological areas that have evolved quite independently from each other: cognition and personality (Sternberg and Grigorenko, 1997). Given that FSB has been conceptualised as a largely cognition-driven phenomenon aimed at gathering (evaluative) information, cognitive styles theory may be a relevant perspective for studying the cognitive dynamics underlying FSB. Cognitive styles should be distinguished from goal orientations, which have been studied extensively in the feedback-seeking literature. Goal orientation theory essentially focuses on the content of individuals' cognition (i.e., the content of their goals), whereas cognitive styles pertain to the *ways* individuals prefer to achieve those goals.

Cognitive styles have been extensively studied in education and experimental psychology (Grigorenko and Sternberg, 1995; Rayner and Riding, 1997) and have more recently gained prominence in the organisational behaviour and management literature as well (e.g. Armstrong and Cools, 2009; Armstrong et al., 2011; Cools, 2012). Scholars have identified two general categories of cognitive styles: analytical thinking, referring to a deductive, rigorous, constrained and critical way of information processing, and intuitive thinking, which involves a synthetic, inductive, divergent and creative manner of information processing (Hodgkinson and Sadler-Smith, 2003). These two categories of styles have typically been conceptualised as two extremes of a bipolar construct. Recently, however, there has been considerable debate about the adequateness of conceiving cognitive style as a one-dimensional concept (Coffield et al., 2004; Cools, 2009; Kozhevnikov, 2007; Sadler-Smith, 2009a, 2009b), with accumulating research evidence suggesting that cognitive styles are more complex than previously assumed (e.g., Beyler and Schmeck, 1992; Hodgkinson et al., 2009; Leonard et al., 1999). Much of the debate has centred on the problem that within one-dimensional conceptualisations, the two poles of the continuum are often treated as a dichotomy, thereby excluding the possibility that individuals can simultaneously show a strong or weak preference for both poles of the dimension (Miron et al., 2004; Sadler-Smith, 2004).

Following these recent evolutions in the style field supporting a multidimensional rather than a unidimensional perspective (Kozhevnikov, 2007; Sadler-Smith, 2009a, 2009b), we opted for a multidimensional construct of cognitive style, namely the Cognitive Style Indicator model developed by Cools and Van den Broeck (2007). In their construct validation study, they identified three cognitive styles: a knowing style, a planning style, and a creating style. Whereas the creating style is most compatible with the intuitive style, the distinction between a planning and knowing style is seen as a further split of the analytic style (Cools and Van den Broeck, 2007). People with a *knowing style* are characterised by a preference for facts and details. Obtaining accurate information and figuring out (exactly) how things work is of critical importance to these individuals. As a result, their primary mode of information processing is mainly logical and impersonal. *Planners* tend to prefer structure and order. They favour an objective, structured, conventional, and efficient problem-solving approach and prefer to organise and control. In their view, goals can only be attained with good preparation and planning. Individuals with a *creating style* value ambiguity and freedom. They have a preference for creative, unconventional, and flexible ways of thinking and do not necessarily stay within the boundaries of a goal, but rather extend and stretch those goals (Cools and Van den Broeck, 2007, 2008a; Cools et al., 2009). Following the multidimensional perspective, people can score high on more than one style, resulting in a unique cognitive styles profile. Previous research in diverse Western and non-Western samples (e.g., students, managers, employees, entrepreneurs) found strong support for the construct validity and predictive validity of this model (Cools et al., 2011; Cools and Van den Broeck, 2007, 2008a, 2008b; Cools et al., 2009).

### **Cognitive styles and the feedback-seeking process**

We expect that the feedback-seeking patterns that individuals engage in will be partly determined by their scores on the three cognitive style dimensions. Although very little research has been done in this area, we build on some relevant studies to develop hypotheses about how cognitive styles are expected to affect FSB. We subsequently elaborate on how each of the styles will be related to (1) feedback inquiry in general, (2) specific sources of feedback inquiry, (3) feedback monitoring, and (4) self-appraisal.

*Knowing and feedback seeking.* Intuitively, one might expect a positive relationship between a knowing style and FSB, as knowers value information and facts and figures. This suggests that they would also value evaluative information about their own performance and see feedback seeking as a strategy to obtain this information: see(k)ing is knowing. However, we contend that an argument could be made to support the opposite view. Some tactics of feedback seeking, such as the tactic of inquiry, imply interacting with others. The knowing style, however, is characterised by an *impersonal* mode of information processing. It, therefore, seems highly unlikely that individuals with a knowing style would spontaneously use such a tactic to obtain feedback. Moreover, knowers tend to be more introverted and more socially inhibited (compared to individuals scoring low on this dimension) (Cools and Van den Broeck, 2007, 2008a; Riding and Rayner, 1998). Introversions in its turn decreases an individual's appeal for feedback

inquiry (Krasman, 2010). As a result, knowers may avoid (in their view) unnecessary interactions, such as inquiring about their performance (Cools and Van den Broeck, 2007). Hence, we hypothesise:

*Hypothesis 1:* The knowing style will be negatively related to feedback inquiry in general.

This logic also implies that knowers should be less likely to seek feedback from social sources. This is supported by research showing that, because of their preference for facts and accurate information, knowers tend to be less inclined to rely on others' opinions (Van den Broeck et al., 2002), probably because they tend to perceive others' opinions as being biased and, therefore, inaccurate. In addition, research shows that people with an analytical dominance tend to be more task-oriented, more impersonal and more self-controlling in their interactions (Armstrong, 2000; Armstrong and Priola, 2001; Priola et al., 2004). Based on these findings, we expect that knowers will see little value in seeking feedback from social sources. Hence:

*Hypothesis 2:* The knowing style will be negatively related to feedback inquiry from (a) the supervisor, (b) other organisational sources, and (3) extra-organisational sources.

From the above logic and hypotheses, one could wrongfully conclude that knowers' social inhibitions and lower tendency to inquire for feedback would make them more inclined to use more covert tactics to obtain feedback, such as monitoring. However, as pointed out by Ashford et al. (2003), the information obtained via monitoring is more likely to be biased and inaccurate. As knowers have a clear preference for facts and accurate information, it seems unlikely that they would engage in a behaviour that could provide them with information of questionable accuracy. We thus hypothesise:

*Hypothesis 3:* The knowing style will be negatively related to feedback monitoring.

However, we do expect that knowers will engage more in self-appraisal than individuals scoring low on the knowing dimension. Knowers have been found to be highly individualistic and more independent in their thoughts and actions (Van den Broeck et al., 2002). In the same vein, Riding and Rayner (1998) suggested that those individuals with analytic strengths tend to be more self-reliant in their social relations with others. Given their self-controlling mode of operating and their limited reliance on others' opinions, it seems likely that they would engage more in self-appraisal. Furthermore, a recent study of Evans and Waring (2011) concludes that those with analytic dominance in comparison with the ones with an intuitive dominance score higher on proactively searching out feedback on the basis of self-regulatory mechanisms. Thus:

*Hypothesis 4:* The knowing style will be positively related to self-appraisal.

*Planning and feedback seeking.* As the planning and knowing cognitive styles are further distinctions of the analytic cognitive style (Cools and Van den Broeck, 2007), planners

and knowers have similarities as well as differences. Like knowers, planners tend to be introverted, analytical thinkers with a clear preference for a rational and logical approach towards information gathering and processing (Cools and Van den Broeck, 2008a). As a result of their introverted nature, and in line with Krasman (2010), it can be expected that like knowers, planners tend to avoid overt forms of information gathering, since their preferred way of information gathering is not via interactions. We, therefore, expect that, in general, planners will avoid feedback inquiry about their performance. Hence:

*Hypothesis 5:* The planning style will be negatively related to feedback inquiry in general.

However, unlike knowers, planners tend to be less independent in their thoughts and actions. As a result, they value (and rely on) others' opinions, especially the opinions of those in authority positions, because authority figures exert formal control over goals (Van den Broeck et al., 2002). Given that planners tend to adapt their values to those of their superiors to reach their goals, we can also expect that evaluative feedback from their supervisors should be very important to planners. This may trigger a need to seek feedback from their supervisor(s). On the other hand, the felt necessity to seek feedback from sources that are not formally in charge of goals (e.g., team members and peers) should be lower. So, although planners will shun most forms of overt feedback inquiry because of their introverted nature, they may feel the necessity to inquire for evaluative feedback from their supervisor. Hence:

*Hypothesis 6:* The planning style will be positively related to feedback inquiry from the supervisor, but negatively related to feedback inquiry from other organisational sources and extra-organisational sources.

From the above logic and hypotheses, we also expect that planners will be more inclined to use more covert tactics of obtaining feedback, such as monitoring. Although the information obtained via monitoring is more likely to be biased and inaccurate (Ashford et al., 2003), which would suggest that planners would be less likely to monitor their environment for feedback, we expect that their reliance on their supervisor will override their need for unbiased and impersonal information. Indeed, research has shown that planners have a pronounced need for their supervisors' opinions (Van den Broeck et al., 2002). We thus hypothesise:

*Hypothesis 7:* The planning style will be positively related to feedback monitoring.

We also expect that people scoring high on the planning style will engage more in self-appraisal than individuals with lower scores on the planning dimension. Like knowers, planners tend to be relatively individualistic, self-controlling, and introverted (Van den Broeck et al., 2002). Given that the introverted attitude of planners is one of caution and reflection, it seems likely that they would also engage more in self-appraisal. Thus:

*Hypothesis 8:* The planning style will be positively related to self-appraisal.

*Creating and feedback seeking.* Unlike knowers and planners, creative thinkers tend to be extraverted and intuitive, rather than introverted and rational (Cools and Van den Broeck, 2007). As a result of their extraverted nature, creative thinkers tend to derive their energy from interactions with others (Cools and Van den Broeck, 2007; Jacobs, 1986). As Krasman's study (2010) concludes, extraverts will depend more heavily on feedback inquiry than introverts. In addition, research shows that creators are sensitive to what others think of them, i.e. how others evaluate them (Van den Broeck et al., 2002). Linking this finding to creators' tendency to have a personal rather than impersonal information processing style (Priola et al., 2004), it seems plausible that they would also seek evaluative information about their own performance via social exchanges. Support for this has been given by the study of Evans and Waring (2011), in which they conclude that those with a strong intuitive style focus heavily on personal feedback. Accordingly:

*Hypothesis 9:* The creating style will be positively related to feedback inquiry in general.

Although research shows that creators tend to be more independent in their thoughts and actions and less reliant on others (compared to planners) (Van den Broeck et al., 2002), their extraverted and open-minded nature implies that creators do value other people's opinions and recognition. Research also shows that intuitive people, such as creators, are more interpersonally oriented in their social interactions (Armstrong, 2000; Armstrong and Priola, 2001; Priola et al., 2004). However, unlike planners, they might feel less dependent and less forced to only seek feedback from sources that have formal control, such as authority figures and supervisors. Instead, they might feel the freedom to seek feedback from a wider variety of sources. This view is supported by research indicating that individuals scoring high on creating tend to consider a wider variety of options when making decisions and solving problems (Cools and Van den Broeck, 2007). Furthermore, Evans and Waring (2011) found that those with a strong intuitive style value peer feedback more than those with a strong analytic style. Linking these findings to the fact that creators value others' opinions, it seems likely that they would also solicit feedback from a wider variety of feedback sources than just their supervisor, as this would provide them with more options for future self-management. Hence:

*Hypothesis 10:* The creating style will be positively related to feedback inquiry from (a) the supervisor, (b) other organisational sources, and (3) extra-organisational sources.

As creators do not tend to refrain from social interactions, one might expect that they would be less inclined to seek feedback using covert and indirect tactics like monitoring. However, as pointed out by Ashford et al. (2003), individuals may avoid overtly inquiring for feedback when they expect that such seeking would entail image costs. Given that conveying a positive and competent image to others is very important to creators (Van den Broeck et al., 2002), they may use the monitoring strategy to obtain feedback when they feel that direct inquiry would be costly. Although the feedback obtained via monitoring is more likely to be biased and inaccurate (Ashford et al., 2003),



creators should not be disturbed by this, as they tend to demonstrate a high tolerance for ambiguity and vagueness (Cools and Van den Broeck, 2007). Accordingly:

*Hypothesis 11:* The creating style is positively related to feedback monitoring.

Finally, because of their extraverted nature, people with a creating style are primarily externally oriented and action-driven, rather than internally focused and reflective (Cools and Van den Broeck, 2007). They prefer to act quickly and show a high tolerance for ambiguity and as a result do not mind leaving their options open while more information accumulates (Cools and Van den Broeck, 2008a, 2008b). Accordingly, it seems likely that people scoring high on the creating style would engage less in self-appraisal than individuals scoring low on this dimension. Thus:

*Hypothesis 12:* The creating style will be negatively related to self-appraisal.

## **METHOD**

### **Sample and procedure**

This study draws on data collected during the course of PhD research by the second author. Standard university procedures for ethical approval were adhered to. Formal approval was granted by the doctoral guidance committee and each of the participating companies confirmed arrangements for ensuring participant anonymity.

Data were collected through an online English survey in each of the companies. It was clearly explained to the participants that the survey was for research purposes only and that their participation was voluntary. The target population of this study consisted of employees working in four service organisations (two Human Resources consulting companies and two Information Technology consulting companies in Belgium). For each of the selected organisations, we developed a sampling frame, consisting of a list of employees. All employees were invited to participate in the study. With 457 employees taking part in the study, the response rate was 64%. The mean age of the sample was 33 years; 58% were men, and 70% were employed full time.

### **Measures**

For each measure, the item responses were averaged to calculate an overall score. The descriptive statistics, reliability coefficients (Cronbach's alpha), and correlations among the variables are provided in Table 1. Reliability, item, and factor analyses confirmed the internal consistency of our scales.

*Cognitive styles.* Employees' cognitive styles were measured using a reduced version of the 18-item Cognitive Style Indicator (CoSI), developed by Cools and Van den Broeck (2007). For each of the three cognitive styles, we selected the 4 items from the original scale that showed the highest factor loadings in Cools and Van den Broeck's construct validation study. A sample item of the knowing style ( $\alpha = .87$ ) is 'I like to analyse

problems'; an example of an item measuring the planning style ( $\alpha = .81$ ) is 'I prefer clear structures to do my job'; and an item capturing the creating style ( $\alpha = .83$ ) is 'I like to extend boundaries'.

*Feedback-seeking behaviour.* Direct inquiry, monitoring, inquiry from direct co-workers (role-set), inquiry from other organisational sources, inquiry from extra-organisational sources, and self-appraisal were each measured with four items. To assess the sources from which individuals seek feedback, we adapted a scale that was validated by Ashford and Tsui (1991). However, as Ashford and Tsui's scale only distinguished between co-worker feedback seeking and supervisor feedback seeking, we re-worded the items so that feedback seeking from other sources also could be assessed. Sample items include: 'When seeking performance feedback, how frequently do you seek feedback from your *supervisor*?'; 'When seeking performance feedback, how frequently do you seek feedback from your *immediate co-workers*?'; 'When seeking performance feedback, how frequently do you seek feedback from *co-workers in other departments*?'; and 'When seeking performance feedback, how frequently do you seek feedback from *people outside your organisation (e.g. clients)*?'. To assess the extent to which employees used inquiry as a general tactic, we calculated an overall inquiry score, averaging respondents' scores on all sources of feedback inquiry.

## DATA ANALYSIS AND RESULTS

Table 1 displays the means, standard deviations and correlations among the variables of interest. The coefficient estimates for the hypotheses are presented in Table 2. As can be seen, correlations between inquiry from various sources and direct inquiry is high, because direct inquiry is the average of respondents' scores on each of the feedback sources. Moreover, a significant but low correlation was also found between the different cognitive styles, as was the case in previous research (e.g., Cools and Van den Broeck, 2007, 2008a, 2008b). However, item and factor analyses justify the distinction between the three styles. Interestingly, the three cognitive styles show diverse relationships (insignificant to low and moderate) with the tactics and sources of feedback seeking, which was further examined using regression analyses to test our hypotheses. The knowing style showed the strongest correlation with self-appraisal (cfr. H4), which is also the case for the planning style (cfr. H8). The creating style correlated moderately high with all feedback-seeking behaviours, indicating that people who score high on this style seem to have the strongest tendency to seek feedback of all cognitive styles (cfr. H9 to H11). Highest correlations are found in this regard with direct inquiry and self-appraisal, the latter being in contrast with our hypothesis (cfr. H12).

Next to these correlations, we found significant correlation between FSB behaviour and the demographic variables. More specifically, the older employees are and the more tenure they have, the less they make use of FSB. Furthermore, men showed less feedback-seeking behaviour than women. As these correlations were significant, we controlled for age, tenure and gender in the further analyses.

			1	2	3	4	5	6	7	8	9	10
	<i>M</i>	<i>SD</i>										
1 Direct inquiry	2.6	.68	(.69)									
2 Monitoring	3.4	.63	.38**	(.69)								
3 Supervisor inquiry	2.8	.82	.40**	.27**	(.88)							
4 Role set inquiry	3.1	.93	.68**	.20**	.14**	(.91)						
5 Organisational inquiry	2.2	.92	.75**	.29**	.21**	.39**	(.80)					
6 Extra-organisational inquiry	2.1	1.0	.72**	.19**	.07	.39**	.33**	(.91)				
7 Self appraisal	3.6	.72	.33**	.34**	.21**	.24**	.22**	.24**	(.76)			
8 Knowing	4.0	.57	.10**	.08*	.06	.11**	.08*	.04	.25**	(.86)		
9 Planning	4.0	.55	.07*	.13**	.14**	.09**	.04	.00	.20**	.27**	(.81)	
10 Creating	3.8	.60	.19**	.11**	.13**	.15**	.10**	.17**	.26**	.19**	.08*	(.83)

*Note:* Reliability coefficients are presented on the diagonal.  
 \*\*. Correlation is significant at the 0.01 level, two-tailed.  
 \*. Correlation is significant at the .05 level, two-tailed.

**Table 1:** Means, standard deviations, and inter-correlations for hypothesis testing

We performed two standard regression analyses (generalised linear models (GLMs) including feedback-seeking patterns as the dependent variables and cognitive styles as the independent variables. In each equation, the three cognitive styles (and their interactions) were entered simultaneously as predictors. Gender, tenure, and the age of the respondents were included as control variables, as well as the company they worked for. In the first GLM, we assessed the impact of the cognitive styles on the tactics used by individuals to seek feedback: inquiry versus monitoring. In the second GLM, we assessed the impact of the cognitive styles on the sources from whom feedback was sought: (1) supervisor; (2) co-workers within the role-set; (3) co-workers in other departments; (3) extra-organisational sources; and (4) the self. The independent variables were centred to eliminate multicollinearity stemming from the interactions (Aiken and West, 1991).

	Main effects		
	Knowing style	Planning style	Creating style
<u>GLM 1: Linking cognitive styles to feedback-seeking tactics</u>			
Inquiry	.06	.05	.12*
Monitoring	.06	.12*	.12*
<u>GLM 2: Linking cognitive styles to the sources of feedback seeking</u>			
Supervisor	.02	.21**	.17**
Role-set	.09	-.004	.16*
Organisation	.11	-.02	.26**
Extra-organisational	.10	-.17*	.33**
Self-appraisal	.22**	.14*	.24**

*Note:* None of the interactions were significant. \*  $p < .05$ ; \*\*  $p < .01$

**Table 2:** Coefficient estimates

The knowing style was unrelated to direct feedback inquiry ( $\beta = .06$ , ns), inquiry from the supervisor ( $\beta = .02$ , ns), co-workers in the role set ( $\beta = .09$ , ns), other organisational sources ( $\beta = .11$ , ns), and extra-organisational sources ( $\beta = .10$ , ns), thereby disconfirming Hypotheses 1 and 2, which predicted a negative relationship between a knowing style and feedback inquiry in general as well as from the different specific sources of feedback inquiry. As the knowing style was unrelated to feedback monitoring ( $\beta = .06$ , ns), Hypothesis 3 was also not supported, which predicted a negative relationship between knowing and monitoring. The knowing style was positively related to self-appraisal ( $\beta = .22$ ,  $p < .01$ ), thereby supporting Hypothesis 4.

Hypothesis 5, predicting a negative relationship between planning and direct feedback inquiry, was not supported ( $\beta = .05$ , ns). Hypothesis 6 was partially supported, with a positive impact of planning on inquiry from the supervisor ( $\beta = .21$ ,  $p < .01$ ) and a negative relationship between planning and inquiry from extra-organisational sources ( $\beta = -.17$ ,  $p < .05$ ). However, the planning style was unrelated to inquiry from co-workers within the role-set ( $\beta = -.004$ , ns) and other organisational sources ( $\beta = -.02$ , ns). In support of Hypotheses 7 and 8, we found a positive relationship between planning and feedback monitoring ( $\beta = .12$ ,  $p < .05$ ) and between planning and self-appraisal ( $\beta = .14$ ,  $p < .05$ ).

Finally, we also found support for Hypotheses 9 and 10, predicting a positive relationship between the creating style and direct inquiry ( $\beta = .12$ ,  $p < .05$ ), inquiry from the supervisor ( $\beta = .17$ ,  $p < .01$ ), inquiry from co-workers in the role-set ( $\beta = .16$ ,  $p < .05$ ), inquiry from other organisational sources ( $\beta = .26$ ,  $p < .01$ ), and extra-organisational sources ( $\beta = .33$ ,  $p < .01$ ). The creating style was also positively related to feedback monitoring ( $\beta = .12$ ,  $p < .05$ ), confirming Hypothesis 11, and self-appraisal ( $\beta = .24$ ,  $p < .01$ ), which is in contrast to Hypothesis 12.

## DISCUSSION AND CONCLUSION

The lifelong learning paradigm, which explicitly puts the responsibility for learning and development with learners themselves, necessitates the use of feedback-seeking behaviours in education as well in work contexts. Hence, given the increased emphasis on student-centred and personalised learning environments (Cools and Bellens, 2012; Evans and Cools, 2011; Evans et al., 2010; Whetten et al., 2009), we aimed to provide more insights about the differential feedback-seeking behaviours of diverse cognitive profiles. This study complemented and extended both cognitive styles research and the feedback-seeking literature in two important ways. First, by demonstrating that cognitive styles impact FSB, this study has provided additional insight into the cognitive processes that underlie FSB, which broadens the focus of previous research on goal orientation in this regard (Ashford et al., 2003; VandeWalle et al., 2002). By focusing on the influence of general cognitive style differences within the feedback-seeking field, we extend the feedback-seeking literature by making a significant contribution in building understanding of the role of individual differences in feedback-seeking behaviours. Second, by showing that the three cognitive styles had a differential impact on

individuals' feedback-seeking patterns, our results confirm the usefulness and relevance of conceptualising cognitive style as a multi-dimensional construct (Sadler-Smith, 2009a, 2009b). Moreover, we respond to various calls in the cognitive styles literature to link style differences to observable behaviours (Cools, 2009; Leonard et al., 1999).

Although this study was conducted in a workplace context, valuable implications can be drawn for educators. Generally speaking, taking into account the influence of individual differences (i.e., a person's cognitive style) on people's feedback-seeking patterns will enable educators to more consciously consider the effects of their feedback given to students. First of all, it is striking that all cognitive styles show a positive relationship with self-appraisal, indicating a tendency to reflect on one's behaviour and its effects. As suggested already by Ashford and Cummings in 1983, the "self" can be an important source of feedback in addition to feedback sought from other people. This seems to be in line with the strong emphasis on 'metacognition' in current education research (Sadler-Smith, 2012). Although self-assessment is only a newly emerging assessment method in education (De Marcos et al., 2010; Griesbaum and Gortz, 2010; Hattie and Timperley, 2007; Ley and Young, 2001), this study gives evidence for the usefulness of this approach. Awareness of the value and relevance of self-appraisal for self-evaluation and self-direction in education can lead to the further design of a student-centred curriculum and strengthen the development of a lifelong learning attitude.

Furthermore, this study shows the differential feedback-seeking patterns of people and might in this sense offer a possible explanation for the gap that has been found between feedback given and feedback used in a recent education study (Cartney, 2010). Presumably, because of the differential feedback-seeking patterns of people, students will pick up and value certain forms of feedback differently. Our results show, for instance, that people with a creating style will search for inquiry from extra-organisational sources, in contrast to people with a knowing style. This stresses the importance of offering and valuing different forms of feedback, instead of limiting feedback in education to feedback given by the lecturer. Additionally, our study shows that people with different cognitive styles seek feedback to a different extent and from different sources: people with a creating style demonstrate the most diverse feedback-seeking behaviours from a wide range of sources; knowers seem to predominantly introspect, using self-appraisal; and planners mostly seek feedback from supervisors, in addition to self-appraisal. Overall, these results illuminate the importance of building up a curriculum in which different feedback forms are embedded to meet the feedback needs of all students and in this sense optimise the learning process of all learners.

To conclude, although we believe that the results found in this study can be generalised to an education context, it can be argued that formal educational settings are characterised by specific features that differ from the workplace context and in this sense might influence students' FSB. As such, a limitation of this study is that data were collected in a workplace context. Further research that specifically investigates feedback-seeking patterns in the educational context is suggested to further unravel the specific aspects of FSB in education. Do learners for example, use other feedback-seeking tactics when positioned in a formal learning context compared to a working context? Furthermore, this

study examined the influence of cognitive style on FSB. More research is needed that looks at additional factors that might influence FSB and that also takes into account the interaction of these factors. VandeWalle et al. (2002) for example, found that the relationship between persons' cognitive characteristics and their feedback-seeking behaviour was moderated by the leadership style of the supervisor. Hence, by also taken contextual elements into account, further insights can be gained in the differential strategies for seeking feedback.

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