



# Personality, learning, and the mediating role of epistemic curiosity: A case of continuing education in medical physicians



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## ABSTRACT

This study examined the relation between personality and learning as well as the mediating role of the trait epistemic curiosity in the context of continuing education. Data were collected from 150 medical physicians attending various training programs in Pakistan. The results indicate that conscientiousness directly positively predicts whether an individual will learn from training. The relation between conscientiousness and learning is also explained through epistemic curiosity. In addition, openness to experience also indirectly and positively affects learning through epistemic curiosity. The findings also suggest that dispositional traits that aid learning be given consideration in the hiring and training of medical physicians in Pakistan. Theoretical and practical implications are also discussed.

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## 1. Introduction

Medical physicians' continuing medical education (CME) has been linked to improved behavioral outcomes for patients (e.g. Davis et al., 1999). Studies have suggested that it is the personal responsibility of medical practitioners to ensure their own continuous learning (Mazmanian & Davis, 2002). However, less is known about the factors that explain interindividual differences in continuous learning. Owing to the lack of studies and lack of scholarly suggestions thereof, hiring decisions also cannot account for the issue of why some physicians strive to learn, whereas others are reluctant. The present study investigated personality variables as potential determinants of learning as well as the potential mediating effect of epistemic curiosity on learning from training. As the majority of studies on CME have generally focused on learning methodologies, this study contributes to the literature by investigating learners' dispositional factors.

Apart from excessive research on personality and its dimensions (e.g. see Goldberg, 1981; McCrae & John, 1992), a reasonable number of studies have examined the impact of personality on organizational outcomes, such as job performance (Barrick & Mount, 1991; Blickle et al., 2012; Morgeson, Reider, & Campion, 2005; Rothmann & Coetzer, 2003), organizational commitment (Kumar & Bakhshi, 2010), psychological contracts (Raja, Johns, & Ntalianis, 2004), work-family conflict

(Bruck & Allen, 2003), and job satisfaction (Judge & Bono, 2001; Judge, Heller, & Mount, 2002), among others.

Baldwin and Ford (1988) suggested a significant impact of trainees' personality on learning. This relation has also attracted the attention of researchers in subsequent years (Barrick & Mount, 1991; O'Connor & Paunonen, 2007; Poropat, 2009; Trapmann, Hell, Hirn, & Schuler, 2007). Studies have also examined the mechanism through which personality affects learning by exploring different mediators such as academic motivation (De Feyter, Caers, Vigna, & Berings, 2012), approaches to learning (Diseth, 2003; Furnham, Christopher, Garwood, & Martin, 2008; Swanberg & Martinsen, 2010), goal setting (Klein & Lee, 2006), self-regulation (Bidjerano & Dai, 2007), self-efficacy (Lee & Klein, 2002), and expectancy (Colquitt & Simmering, 1998). However, these studies have generally focused on pedagogical settings.

A few studies have investigated personality–learning relations in the work environment. For example, Martocchio and Judge (1997) investigated self-efficacy and self-deception as possible mediators of the effect of conscientiousness on learning from training. By contrast, much less is known about the role of epistemic curiosity, which might function as a mediator because research has suggested that personality is a strong predictor of epistemic curiosity (Fleischhauer et al., 2010; Mussel, 2010; Tuten & Bosnjak, 2001; Woo, Harms, & Kuncel, 2007), which in turn ensures better learning (Arnone, Grabowski, & Rynd, 1994; Kang et al., 2009; Mussel, 2013b).

This study attempts to contribute to the extant literature by exploring the role of epistemic curiosity as a mediator between the Big Five factors of personality and learning from training as little is known about the mechanics through which personality traits affect learning

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through training (Perlow & Kopp, 2004). An added offshoot of this study is the analysis of the direct personality–learning relation, which holds significance in various work settings. It also has implications for the learning of health professionals (Doherty & Nugent, 2011; Molinuevo & Torrubia, 2013) because systematic investigations are required to test the personalities and learning of health professionals (Ferguson, James, & Madeley, 2002).

## 2. Theory and hypotheses

### 2.1. The impact of the Big Five personality dimensions on learning

Research on personality dimensions gained prominence after Allport and Odbert's (1936) seminal work. Contributions by various influential studies ultimately led to the development of the Big Five personality model, which includes extraversion, conscientiousness, agreeableness, neuroticism, and openness to experience (Digman, 1990; Digman & Takemoto-Chock, 1981; Goldberg, 1981; McCrae & John, 1992; Norman, 1963). As theorized by Baldwin and Ford's (1988) transfer of training model and Ackerman's (1996) theory of adult intellectual development, these personality traits have been found to affect learning in the workplace.

As far as each of the Big Five personality traits is concerned, extraversion is the personality dimension that embodies sociability, enthusiasm, and pleasurable arousal (Atkinson, Richard, Edward, Daryl, & Susan, 2000). Extraversion is generally found to have a positive impact on the motivation to learn (Rewold, 2007) and the motivation to improve one's work through learning (Naquin & Holton, 2002). However, some studies on academic performance have reported that successful students are generally introverted (Broadbent, 1958; Furneaux, 1957), and Goff and Ackerman (1992) also found a negative relation between extraversion and students' GPA. Molinuevo and Torrubia's (2013) study, which specifically focused on medical students, reported a positive relation between extraversion and learning. Thus, although the literature is not unambiguous, we expected a positive relation for the group of medical physicians:

**Hypothesis 1.** Extraversion is significantly positively related to learning from training.

Agreeableness encompasses kindness, cooperativeness, and considerateness (Atkinson et al., 2000). The relation between agreeableness and learning has been found to be mixed in different studies. For instance, some studies have held that agreeableness is negatively associated with academic performance (Paunonen, 1998; Rothstein, Paunonen, Rush, & King, 1994). However, Rewold (2007) found a positive relation between agreeableness and the motivation to learn and transfer. Learning motivation is affected by high degrees of agreeableness (Naquin & Holton, 2002). Academic performance is an outcome of learning, and findings by Farsides and Woodfield (2003) suggest that academic performance is directly affected by agreeableness. Along the same lines, Rogers (2005) found support for the agreeableness–learning relation in medical graduates. Accordingly, we formulated the following hypothesis:

**Hypothesis 2.** Agreeableness is significantly positively related to learning from training.

Conscientiousness reflects persistence, the ability to plan ahead, and goal-directed behavior (Atkinson et al., 2000). Conscientiousness has been found to be one of the strongest predictors of academic performance (Furnham, Chamorro-Premuzic, & McDougall, 2002; O'Connor & Paunonen, 2007; Poropat, 2009; Trapmann et al., 2007). Similarly, Colquitt and Simmering (1998) found that the motivation to learn and conscientiousness were positively correlated. Conscientiousness was also found to predict the constructs of learning and training proficiency (Herold, Davis, Fedor, & Parson, 2002). A recent study by Studer-Luethi, Jaeggi, Buschkuhl, and Perrig (2012) revealed that people high on

conscientiousness achieved high scores on learning from training. Similar findings on academic performance among medical students were found in a study by Lievens, Coetsier, Fruyt, and Maeseneer (2002). Thus, we formulated our next hypothesis as:

**Hypothesis 3.** Conscientiousness is significantly positively related to learning from training.

Neuroticism refers to a broad range of negative feelings, including anxiety, sadness, irritability, and nervous tension (McCrae & Allik, 2002). On the other hand, emotionally stable people are less anxious in tense situations (Atkinson et al., 2000). This personality trait has also yielded mixed results in relation to academic performance as some research has suggested that neuroticism may positively impact academic performance with respect to intelligent students in nonarousing situations. Geen (1985) and Zeidner (1998) found that in relaxed conditions, anxiety may be positively related to performance, possibly because it can increase motivation, serving as a drive (Spielberger, 1962). However, neuroticism has also often been found to be negatively associated with learning. As such, emotional stability has been found to predict academic performance among medical graduates (Rewold, 2007; Rogers, 2005). In training programs designed for pilots, emotional stability was found to predict learning performance (Herold et al., 2002). Raad and Schouwenburg (1996) found a strong association between emotional stability and learning such that neurotics benefitted the least from learning activities (Chamorro-Premuzic & Furnham, 2003a,b; Studer-Luethi et al., 2012). Accordingly, we hypothesized:

**Hypothesis 4.** Neuroticism is significantly negatively related to learning from training.

Openness to experience reflects curiosity, imagination, and creativity and a preference for the new and different in various aspects of life (Goldberg, 1990; McCrae & Coasta, 1987). Individuals with high levels on this trait are imaginative, broad-minded, and artistic. Although some studies have reported no relation between openness to experience and academic performance (Busato, Prins, Elshout, & Hamaker, 2000; Wolfe & Johnson, 1995), there is also evidence that openness to experience might predict academic performance (Farsides & Woodfield, 2003; O'Connor & Paunonen, 2007; Poropat, 2009). Rogers (2005) also found a significant positive relation between openness to experience and academic performance among medical graduates. In the context of training proficiency, Barrick and Mount (1991) found that openness to experience was related to training success, a finding that was later corroborated by Herold et al. (2002). Hence, we hypothesized:

**Hypothesis 5.** Openness to experience is significantly positively related to learning from training.

### 2.2. Epistemic curiosity as a mediator between personality and learning

Epistemic curiosity is the desire to obtain new knowledge and is expected to stimulate intellectual interest or eliminate conditions of informational deprivation (Litman, 2008). Because curiosity is described as arising from a perceived lack of knowledge (Loewenstein, 1994), it has been the major driving force behind scientific research and other disciplines of human study (Berlyne, 1954, 1960; Litman, 2008). Knowledge and its learning are key concepts related to epistemic curiosity as described repeatedly in the literature. Berlyne (1954) differentiated perceptual curiosity from epistemic curiosity, describing the latter as bearing fruits of knowledge. From an individual difference perspective, people with higher levels of trait-related epistemic curiosity will be more likely to seek out, explore, and conquer situations that are appraised as novel, complex, and ambiguous; therefore, such people more often possess behaviors such as information seeking, learning, and thinking, all of which finally lead to higher levels of competence (Mussel, 2013b).

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