The relationship between Kolb's experiential learning styles and Big Five personality traits in international managers

Abstract

This study investigates the relationship between learning style and personality in international managers. Two-hundred-and-sixty-nine managers completed the NEO Five Factor Inventory (NEO-FFI) and Kolb's Learning Style Inventory (KLSI 3.1). Regression analyses revealed that extraverted managers: have a preference for grasping new experience by engaging in concrete experience rather than abstract conceptualization; prefer to transform experience via active experimentation rather than reflective observation; and tend to have an accommodative learning style. It was concluded that whilst Kolb's experiential learning style construct is associated with personality, it is also distinct from personality.

Keywords: Personality, Learning Style

1. Introduction

Individual differences in learning style and personality have long been considered a fundamental factor determining individual behavior and performance (Armstrong, Cools & Sadler-Smith, 2012; Penney, David & Witt, 2011). Yet whether or not learning style is a wholly integral part of personality theory remains unclear (Kirton, 1999, p. 120). Some studies concluded that learning style is a sub-set of personality based on consistent correlations between the two constructs (e.g., Furnham, 1992; Jackson & Lawty-Jones, 1996) whereas others have concluded learning style is distinctive and worthy of investigation separately from personality due to shared variance between the two constructs being low (e.g., Busato, Prins, Elshout & Hamaker, 2000; Chamorro-Premuzic, Furnham & Lewis, 2007; Riding & Wigley, 1997; von Wittich & Antonakis, 2011; Zhang, 2003, 2006). Whilst sample, sample size, analytical methods adopted by different studies, and interpretations by researchers all contribute to different conclusions from previous studies, further investigations that can contribute to this scholarly debate is needed (Chamorro-Premuzic & Furnham, 2009).

A majority of the studies that have contributed to this debate have adopted the 'Big Five' model of personality for which there has been widespread acceptance and is now regarded by some to be the most emblematic measure of personality (Chamorro-Premuzic & Furnham, 2009; Chamorro-Premuzic, 2007; McCrea & Costa, 1997; Costa & McCrea 1992). However, there is little consensus on the structure of preference based constructs such as learning styles within this ongoing debate - 'with different researchers opting for different instruments and taxonomies' (Chamorro-Premuzic & Furnham, 2009, p524). Some believe the bewildering confusion of definitions surrounding learning style conceptualizations is seen as preventing significant progress in their applications (Coffield, Mosely, Hall &

Ecclestone, 2004). The debate over the relationship between personality and learning style is further confounded by the fact that the range of instruments used were developed for a range of different contexts (e.g. school years education; further education; higher education; person-environment fit within organizations; staff development and performance enhancement in a variety of professions). Yet the majority of studies conducted so far have focused on undergraduate students from around the world and there have been attempts to generalize findings to the wider population.

The primary focus of this study is to understand the relationship between learning style and personality in international managers. This interest is driven by recent attention to the influence of Kolb's Experiential Learning Theory (ELT) (1984) on international management. Studies include the influence of learning style on cultural intelligence of global managers (Li, Mobley & Kelly, 2013), acquisition of managerial tacit knowledge (Armstrong & Mahmud, 2008) , cross-cultural learning and competencies of expatriate managers (Yamazaki & Kayes, 2004), and expatriate management training effectiveness (Lee & Li, 2008). Further investigation into the degree to which Kolb's experiential learning styles overlap with personality traits that have been more widely studied in international management literature could provide insights into whether experiential learning styles should be applied to the assessment, selection, training and development of international managers.

1.1. Experiential Learning Theory (ELT)

ELT has been widely used in management learning and development research and practice (Kolb & Kolb, 2009). Drawn from the foundational "theory of experience" of

Dewey (1938) and Lewin (1951), Kolb's (1984) experiential learning theory (ELT) is defined as:

> …the process whereby knowledge is created through the transformation of experience. Knowledge results from the combination of grasping and transforming experience (p.41).

Kolb's model combines the two bi-polar dimensions. The abstract-concrete dimension ranges from dealing with theoretical concepts to dealing with tangible objects when grasping new experiences. The active-reflective dimension ranges from direct participation to detached observation when transforming experiences. The four-stage cycle of learning is depicted in Figure 1 where immediate concrete experience (CE) serves as the basis for observation and reflection (RO), in which the experience is subsequently assimilated into abstract conceptualization (AC), and then formed into active experimentation (AE) with the world. Active experimentation both completes the cycle of learning and ensures that it begins anew by assisting the creation of new experiences (Kolb & Kolb, 2005a; Kolb, 1984).

Learning requires people to resolve tensions between the two dialectic modes of grasping experience (CE-AC) and transforming experience (RO-AE). Due to different social and learning experiences, people rarely 'touch all the bases', but instead, develop preferences for one mode over the other on each of the two dimensions. The two dimensions are orthogonal and form four quadrants that represent four different 'learning styles', defined as an individual's general preference for using two sets of learning abilities over the other two (Kolb, 1984). The four learning styles are: *Diverger*, specializing in CE (feeling) and RO (reflecting); *Assimilator*, specializing in AC (thinking) and RO (reflecting); *Converger*, specializing in AC (thinking) and AE (acting); *Accommodator*, specializing in CE (feeling) and AE (acting). Divergers reflect on specific experiences from a number of different

perspectives; Assimilators develop a theoretical framework on the basis of that reflection; Convergers test the theory in practice; Accommodators use results of that testing as a basis for new learning. The matching between learning context and learning style leads to enhanced learning performance (Kolb & Kolb, 2005).

Insert Figure 1 about here

1.2. The Big Five Personality Factors

Personality is "an individual's characteristic pattern of thought, emotion, and behavior, together with the psychological mechanisms – hidden or not – behind those patterns" (Funder, 1997). As the study of personality evolved, the five-factor model (FFM) has come to be considered one of the most frequent representations of personality trait structure (Costa & McCrae, 1992a; McCrae & Costa, 1997; McCrae & John, 1992). The five factors are neuroticism (anxious, worried, insecure and emotionally unstable), extraversion (talkative, sociable, cheerful and active), openness (curious, imaginative, insightful, original, and broad-minded), agreeableness (altruistic, caring, kind, supportive and sympathetic) and conscientiousness (careful, thorough, responsible, organized, and self-disciplined). The advantage of trait theory of personality is that personality traits remain stable over long periods of time (McCrae & Costa, 1997; McCrea & John, 1992), and is therefore widely adopted for assessment and selection of employees.

Kolb (1984) previously defined the relationship between ELT and personality types according to Jung's (1971) theory and asserted that "the strongest and most consistent relationships appear to be between concrete/abstract and feeling/thinking and between active/reflective and extravert/introvert" (p.81). The feeling/thinking and extravert/introvert

dimensions of Jung's personality type are also significantly related to the five factor model of personality (e.g., Furnham, 1996). We therefore anticipate correlations between the FFM and Kolb's learning styles.

2. Method

2.1. Participants

Research participants were two hundred and sixty-nine international managers and international MBA students with work experience and exposure to different cultures. The average age was 32.2 years. Males accounted for 54.6% of the sample. Multiple nationalities were represented in the sample. Ninety-five percent of the sample held a university degree. They represented a variety of previous or current managerial functions and positions.

2.2. Measures

2.2.1 Learning Style

Learning Style was measured using the latest version of the LSI (KLSI 3.1) (Kolb & Kolb, 2005a). The KLSI 3.1 is a forced-choice 12-item inventory that ranks an individual's relative choice preferences among the four learning modes - concrete experience (CE), reflective observation (RO), abstract conceptualization (AC), and active experimentation (AE). Four primary scores CE (α=0.75), RO (α=0.79), AC (α=0.81) and AE (α=0.75) were calculated based on the forced ratings of the 12 questions. Then two combination scores were calculated that measure an individual's preference for abstract conceptualization over concrete experience (AC-CE) and active experimentation over reflective observation (AE-RO). Subjects learning styles were then determined based on these two scores using the learning style type grid (version 3.1) provided by the Hay Group. We then created four

dichotomous learning style variables – converger, assimilator, diverger and accommodator with values "1" = yes, "0" = no.

2.2.2 Personality

The NEO-FFI published by Psychological Assessment Resources, Inc. was employed to assess the five factors of personality. It contains 60 items which are rated on a 5-point scale. In this study, the reliability estimates were .81, .74, .62, .69, .81 for neuroticism, extraversion, openness, agreeableness and conscientiousness respectively.

2.2.3 Control Variables

According to Joy & Kolb (2009) gender, culture, level of education, and educational specialization all influence experiential learning style. Therefore in the current study, we controlled for gender, country of birth, and educational background (level). Since our sample is international managers, we therefore controlled job function instead of education specialization, and their job level. We also included age as a control variable in the analysis. Education was measured according to level of education (1, did not complete high school; 2, high school; 3, Bachelor degree; 4, Master degree; 5, PhD degree or equivalent). Country of birth was measured by assigning a number to each country that was represented in the sample. Job function and job level were measured by assigning 11 codes to 11 different job functions and assigning 9 codes to 9 different job levels.

3. Results

Means standard deviations and inter-correlations of the study variables are shown in Table 1. Using SPSS software, we ran multiple regression analysis to test the relationship between the five personality factors and learning modes. Because learning style variables are

dichotomous we ran binary logistic regression analysis to test the relationship between the five personality factors and learning styles.

Insert Table 1 about here

Tables 2 contain a summary of the results of the multiple regression analyses of the relationship between five factor personality traits and four experiential learning modes. As shown in Table 2, Extraversion was positively related to Concrete Experience and negatively related to Abstract Conceptualization. Extraversion was also positively related to Active Experiment and negatively related to Reflective Observation. Table 3 contains a summary of results of the binary logistic regression analyses of the relationship between five factor personality traits and four experiential learning styles. As shown in Table 3, Extraversion was positively related to the Accommodator learning style and negatively related to the Assimilator learning style.

Insert Table 2 and 3 about here
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4. Discussion

The results of this study contribute to our understanding of individual differences with specific reference to the relationship between personality and Kolb's experiential learning style by investigating a sample of international managers. Results indicated that the only personality trait that relates to Kolb's (1984) experiential learning cycle is extraversion. Extraverted individuals' dominant learning styles are accommodator rather than diverger, assimilater, or converger. This result is consistent with related findings that extraverted

individuals tend to have an external thinking style (Zhang, 2006) and tend to be more innovative than adaptive in their cognitive style (von Wittich & Antonakis, 2011).

Results of this study also demonstrate the distinctiveness of Kolb's experiential learning style from personality. In a management context, experiential learning can be regarded as a unique construct. Overall, personality traits explained approximately 15% of the variance of the four learning modes, and approximately 10% of the variance of the four learning styles. As such, personality does not explain a significantly large portion of variance of experiential learning style and extraversion appears to be the only dominant factor. Hence in a management setting, Kolb's learning style construct can be considered to be uniquely distinct from personality, more so than the related construct, cognitive style (von Wittich & Antonakis, 2011; Riding & Wigley, 1997). Personality explains much less of Kolb's experiential learning style measured by KLSI 3.1 (R^2 approximately 10%) than cognitive style measured by Kirton's Adaption-Innovation inventory (R^2 above 50%). This indicates Kolb's experiential learning style is more distinctive from personality than Kirton's (1976) cognitive style.

The findings of this study are limited by its single source cross-sectional data. Even though self-perception theories advocate that people are often active observers of their own behavior and can more accurately measure their own behaviors than others (Bem, 1967; Shrauger & Osberg, 1981), self-report surveys are subject to the bias of social desirability, halo effects, and acquiescence (Bagozzi, Yi & Phillips, 1991). We concluded that a self-report measurement of personality was appropriate as such measures are superior to rating measures by others in the prediction of independent criteria such as personality (Shrauger & Osberg, 1981) and the well-designed NEO personality inventories are relatively impervious to socially desirable responses (Costa & McCrae, 1992b). Also KLSI 3.1 has proven its

enhanced validity and reliability to assess experiential learning style (Kolb & Kolb, 2005a, b). However, future research could include independent evaluations for personality and learning style, or adopt other instruments to test the relationship between the two constructs.

5. Conclusion

This paper examined the relationship between five factor personality and experiential learning style. Our results indicate only one of the five factor personality traits – extraversion is associated with experiential learning style. Overall, Kolb's experiential learning style construct is argued to be uniquely distinct from personality. Our study offers a "yes" answer to the question raised by Sternberg & Grigorenko (1997) "Are cognitive styles still in style?". Experiential learning styles are also clearly important for applied studies in the field of international management.

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Figure 1. Experiential Learning Cycle and Experiential Learning Style (Adapted with permission from Kolb et al., 2000)

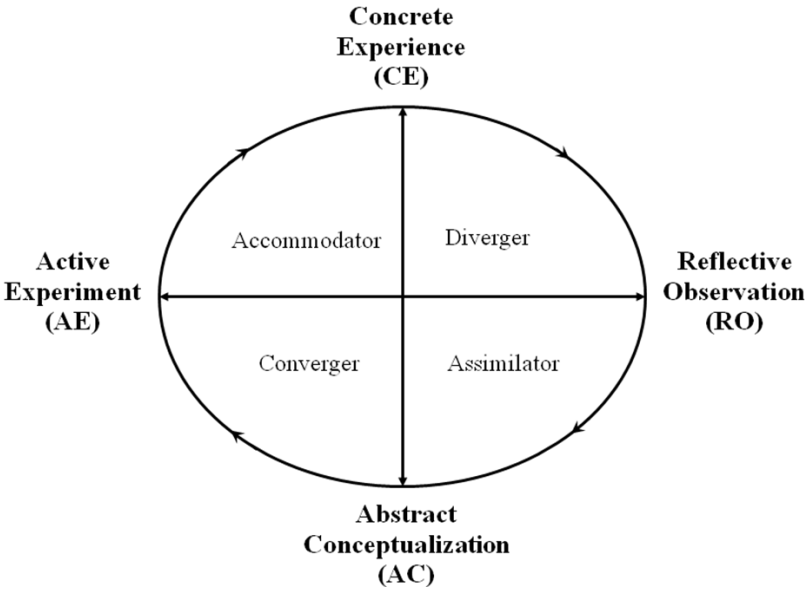

Table 1 Mean, Standard Deviations, Reliability and Correlations for All Variables Used in This Study (n=269)

		M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1	Gender	.45	.50	1																		
2	Country of Birth	11.10	7.96	-.055	1																	
3	Age	32.24	6.78	-.150*	.221**	1																
4	Education	3.48	.68	-.138*	0.102	.144*	1															
5	Job function	5.29	3.51	-.220**	-.109	.007	.013	1														
6	Job level	3.38	2.15	-.292**	.101	.449**	.225**	.077	1													
7	Neuroticism	29.45	7.16	.093	-.023	-.054	-.144*	-.144*	.007	1												
8	Extraversion	43.03	6.12	-.041	.133*	-.060	-.029	.185**	-.067	-.436**	1											
9	Openness	40.81	5.53	.019	.263**	.142*	-.034	.020	-.012	-.073	.232**	1										
10	Agreeableness	43.16	5.45	.154*	.133*	.075	.033	-.043	-.030	-.257**	.168**	.171**	1									
11	Conscientiousness	46.63	6.08	-.076	-.004	.019	.027	.105	.001	-.465**	.278**	-.012	.149*	1								
12	Concrete experience (CE)	26.35	6.55	.118	.002	.046	-.073	-.011	.023	.053	.167**	.079	-.112	-.236**	1							
13	Reflective observation (RO)	27.74	6.89	.079	-.161**	-.044	-.036	.051	-.170**	.069	-.264**	-.070	.006	-.025	-.273**	1						
14	Abstract conceptualization (AC)	32.76	7.05	-.318**	.043	.145*	.108	.010	.213**	-.038	-.139*	.026	.030	.109	-.561**	-.231**	1					
15	Active experiment (AE)	33.32	6.33	.133*	.109	-.156*	-.001	-.050	-.077	-.099	.267**	-.036	.072	.157**	-.110	-.531**	-.277**	1				
16	Diverger	.23	.42	.069	-.072	-.043	-.036	.071	-.121*	-.024	.010	-.025	-.027	-.082	.315**	.474**	-.491**	-.291**	1			
17	Assimilator	.29	.45	-.072	-.090	.052	-.017	.001	.033	.064	-.282**	-.007	-.022	-.013	-.443**	.398**	.464**	-.480**	-.350**	1		
18	Converger	.24	.43	-.158**	.100	.028	.133*	-.031	.053	-.101	.133*	-.008	.053	.156*	-.288**	-.432**	.386**	.325**	-.306**	-.357**	1	
19	Accomodator	.24	.43	.166**	.066	-.041	-.079	-.039	.031	.057	.157*	.039	-.002	-.062	.446**	-.458**	-.393**	.472**	-.309**	-.361**	-.315**	1

Note. M=mean; SD=Standard deviation; Gender (0=Male; 1=Female)

Two-tailed tests. *p<.05. **p<.01

Table 2 Regression Analysis (*N*=269)

Variable	Concrete Experience (CE)	Reflective Observation (RO)	Abstract Conceptualization (AC)	Active Experiment (AE)
Gender	0.15 *	0.03	-0.30 ***	0.13 *
Country of birth	-0.04	-0.10	0.01	0.13 *
Age	0.09	0.05	0.02	-0.15 *
Education	-0.05	0.00	0.03	0.03
Job function	-0.02	0.11	-0.04	-0.06
Job level	0.06	-0.20 **	0.10	0.03
Neuroticism	-0.01	-0.02	-0.02	0.05
Extraversion	0.28 ***	-0.31 ***	-0.21 **	0.27 ***
Openness	0.03	0.01	0.07	-0.11
Agreeableness	-0.15 *	0.05	0.07	0.01
Conscientiousness	-0.29 ***	0.03	0.13	0.12
R^2	0.16	0.14	0.17	0.15
F	4.42 ***	3.69 ***	4.79 ***	4.04

Two-tailed tests. *p<.05. **p<.01. ***p<.001

Table 3 Binary Logistic Regression Analysis (*N*=269)

Variable	Diverger	Assimilator	Converger	Accommodator
Gender	0.27	-0.44	-0.81 *	0.95 **
Country of birth	-0.02	-0.03	0.02	0.02
Age	0.01	0.01	0.00	-0.02
Education	-0.03	-0.14	0.42	-0.23
Job function	0.07	0.02	-0.06	-0.02
Job level	-0.14	-0.02	0.00	0.16
Neuroticism	-0.03	-0.02	0.01	0.03
Extraversion	0.00	-0.14 ***	0.05	0.10 **
Openness	-0.01	0.03	-0.02	-0.01
Agreeableness	-0.01	0.01	0.02	-0.02
Conscientiousness	-0.05	0.02	0.05	-0.03
Constant	2.65	3.21	-7.31 *	-3.47
-2 Log likelihood	279,212[a]	294,014[a]	271,993[a]	272,162[a]
Cox & Snell R Square	0.041	0.105	0.083	0.090
Nagelkerke R Square	0.062	0.150	0.124	0.134

*p<.05. **p<.01. ***p<.001