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Short Report (Original Research)

Student personality, classroom environment, and student outcomes: A person–environment fit analysis

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ABSTRACT

This study examines whether congruence between classroom environment and student personality is associated with increases in student satisfaction and performance. Data were collected from students ($n = 1763$) at a comprehensive state university and analyzed using mixed-level maximum likelihood polynomial regression analysis and surface response methodology. Results indicate that student personality is a consistent predictor of student satisfaction, classroom environment is a consistent predictor of performance, and the interplay between the two is important in predicting satisfaction and performance. The personality characteristics of agreeableness and conscientiousness and the classroom environment dimension of structure were all positively related to both satisfaction and performance. Congruence between several personality traits and classroom environment elements was found to increase satisfaction, performance, or both. The implications of these results for instruction and research on person–environment fit in higher education are discussed.

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1. Introduction

Although enrollment rates have been rising, graduation rates have been stagnating in higher education in the U.S. (US College Dropout Rates Spark Concern, 2006). A study performed by American College Testing (ACT) revealed that one in every four college students drops out before finishing their sophomore year (Whitbourne, 2010). Research conducted by the National Center for Education Statistics indicated that slightly over half of first-time college students attending 4-year institutions full-time completed a bachelor's degree or equivalent at that institution within 6 years (U.S. Department of Education & National Center for Education Statistics, 2010). Because there is a vast amount of variation in individual differences among students in post-secondary education, we must develop a better understanding of the interaction between individual factors and the environment in the learning process in order to understand the predictors of academic success and improve student outcomes. In 1958, Pace and Stern suggested that the "congruence between personal needs and environmental press will be more predictive of (student) achievement, growth and change than any single aspect of either the person or the environment" (p. 277). However, relatively little research has been done in higher education on this subject to date (Joiner, Malone, & Haimes, 2002). This study addresses this oversight, and examines the impact of person–environment congruence in the higher education classroom, more specifically the influence of personality and classroom environment on student satisfaction and performance.

1.1. Person–environment fit

Person–environment (P–E) fit assumes that (a) meaningful and reliable differences can be assessed between individuals and (b) between environments, and (c) considers that matching individuals and environments will increase the likelihood of positive outcomes (Chartrand, 1991). Since individuals and environments differ in meaningful and reliable ways, P–E fit theory allows us to recognize important patterns and utilize them to organize individuals and environments to achieve optimal outcomes (Swanson & Fouad, 1999), including achievement, performance, satisfaction, tenure, retention, and stability. And conceptualizing congruence as a relationship that can happen along the continuum between individuals and their environments allows different forms of congruent relationships to be evaluated. This allows for situations where positive outcomes, such as performance and satisfaction, are highest (i.e., maximized) at different points along the congruence continuum (i.e., both the individual and environment have a substantial amount of complementary or mutually beneficial characteristics) than at other points of person–environment congruence (Edwards, 1991, 1994). P–E fit research shows promise in benefitting education (Flynn & Rapoport, 1976; Fraser & Fisher, 1983), but determining what specific

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factors will have the most influence in a higher education setting has yet to be comprehensively examined and discussed.

1.2. Personality as the "person" factor of P–E fit

Personality research has vast potential to provide researchers and educators information as to why so many students fail to succeed in the current postsecondary educational system (Woszczynski, Gutherie, & Shade, 2005). Although seldom used to study P–E fit (Ehrhart, 2006), research that spans five decades has shown that personalities relate systematically and predictably to a range of educational outcomes (Furnham, Christopher, Garwood, & Martin, 2008). For example, personality has been generally related to academic performance (Caspi, Chajut, Saporta, & Beyth-Marom, 2006), college attrition and dropout rates (Lounsbury, Saudargas, Gibson, & Leong, 2005), learning styles (Zhang, 2006), student preference for grading or evaluation method (Furnham et al., 2008), residence hall placement, orientation outcomes, leadership development, and advising (Lounsbury et al., 2005). Essentially, personality information may be influential in nearly every college situation where a student has to make a choice concerning commitment, involvement, membership, and/or participation (Lounsbury et al., 2005). Researchers have generally agreed that five dimensions (commonly referred to as the Big Five (Barrick & Mount, 1991; Costa & McCrae, 1995; McCrae & Costa, 1987) can be used to represent the structure of normal personality. The traits identified in the five factor model are the result of decades of factor analytic research and their robustness is well-established (Costa & McCrae, 1994; Zhang, 2006). The big five personality dimensions are extraversion, neuroticism, openness to experience, agreeableness, and conscientiousness (Barrick & Mount, 1991) (Table 1).

1.3. Classroom environment as the "environment" factor of P–E fit

Classroom environments have been argued to carry great influence in student collegiate learning (Feldman, Smart, & Ethington, 2004; Westerman & Simmons, 2007). The research foundations examining the effects of environment on learning include Kirtz and Moos (1974), who assert that dimensions of environmental stimuli are distinct, have distinguishing effects on physiological processes, and suggest the use of environmental measurement to determine which dimensions may be beneficial (or disadvantageous) to particular groups of people. However, the empirical research on the effects of classroom environment is less established. In one of the few such studies, Fry and Addington (1984) examined the effects of open versus traditional classrooms and found that participants in the open-classroom exhibited higher achievement in social problem-solving cognitions as well as higher ego-strength and self-esteem over participants in the traditional classroom. Fraser and Fisher (1983) found that when students had a preference for their environment, they exhibited greater achievement than students who had a lower preference for their environment. Furthermore, Nielsen and Moos (1978) examined high exploration classroom environments and found that students who preferred high exploration classroom environments were better adjusted and more satisfied than students who preferred low exploration classroom environments. The Classroom Environment Scale (CES) developed by Trickett and Moos (1973), was developed to more comprehensively measure the dimensions of a classroom environment from a student's perspective. The CES measures a student's perspective of the structure and focus of the classroom environment, the emphasis on participative learning, classroom involvement, and student competition, and the availability of instructor support (Table 2).

1.4. Interaction between personality and classroom environment

Although personality and classroom environment are important as independent factors, there is a gap in higher education research examining whether their interaction produces meaningful outcomes beyond those they can produce individually. A study conducted by Chamorro-Premuzic, Furnham, and Lewis (2007) found that students high in neuroticism were found to dislike small groups and group discussions, while agreeable and open students had a preference for these types of environments. Student outcomes have also been examined in research on personality–environment fit in distance/online learning formats, demonstrating that different personality profiles are successful in online versus traditional college classrooms (Schniederjans & Kim, 2005; Williamson & Watson, 2007). While these studies provide limited evidence that a relationship exists between personality and classroom environment, a more comprehensive approach is needed. Consistent with the P–E fit paradigm, it is expected that student outcomes will be highest (i.e., maximized) when there is congruence or fit between certain personality traits and certain elements of the classroom environment. We next introduce the personality dimensions and classroom environment dimensions utilized by this study, upon which we build our hypotheses.

1.5. Hypotheses

In the following sections, we review findings that suggest possible personality–classroom environment combinations for which fit may be associated with course outcomes.

1.5.1. Extraversion

Extraversion is associated with ambition, sociability, gregariousness, talkativeness, assertiveness, impulsivity, and vigor. Because extraverts crave interpersonal interaction, it has been suggested that they seek environments with a high degree of relationship orientation (Westerman & Simmons, 2007) and affiliation (Buunk, Nauta, & Molleman, 2005) and also have a preference for working in groups (Furnham & Chamorro-Premuzic, 2005). Thus extraverts may respond positively to environments with high participative learning. Further, in educational settings, extraversion has been found to be positively related to appropriate assessment, clear goals, and good teaching (Nijhuis, Segers, & Gijselaers, 2007). This indicates that extraversion may be positively associated with environments providing high structure and focus as well as instructor support and suggests that a student with high levels of

Table 1
Five factor model factor descriptions.

Dimension	Features
Extraversion	Ambitious, sociable, gregarious, talkative, assertive, impetuous, active
Neuroticism	Depressed, anxious, angry, emotional, embarrassed, insecure, worried
Openness to experience	Imaginative, curious, cultured, broad-minded, original, artistically sensitive, intelligent
Agreeableness	Flexible, courteous, good-natured, trusting, forgiving, cooperative, tolerant, soft-hearted
Conscientiousness	Dependable, thorough, careful, organized, responsible, achievement-oriented, hardworking, persevering

Table 2
Classroom environment factor descriptions.

Dimension	Description
Structure and focus	The extent to which the classroom is organized and course material is emphasized
Participative learning	The degree to which learning is a social activity in the classroom.
Classroom involvement	The degree to which students show interest in and provide input concerning the activities in the classroom
Instructor support	The extent to which the instructor takes an interest in the students and material unrelated to the course
Student competition	The level of emphasis placed on academic competition between students within the classroom

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