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The importance of personality in students' perceptions of the online learning experience

Heath Keller *, Steven J. Karau

Department of Management, Southern Illinois University, Carbondale, IL 62901-4627, USA

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ABSTRACT

The current research examined the relationship between the Big Five personality dimensions and five specific types of online course impressions (engagement, value to career, overall evaluation, anxiety/frustration, and preference for online courses). Results revealed that conscientiousness was the most consistent predictor of an individual's impressions of online courses. Specifically, conscientiousness was significantly related with each of the five online course impressions studied. In addition, agreeableness and openness were both positively related with the perceived value of online courses to one's career. Work experience was positively associated with engagement, value to career, and overall evaluation, and negatively associated with anxiety/frustration. Undergraduates reported stronger preferences for online courses than did graduate students, and married students reported lower levels of anxiety/frustration with online courses. Results are interpreted with the intent of providing an enhanced understanding of the importance of personality in students' impressions of the online learning experience.

1. Introduction

Increasingly, colleges and universities are adding internet and web-based offerings to their curriculums. Previous research has focused mainly on the academic performance of online students compared to students in more traditional, face-to-face environments, with many studies finding no significant difference in academic performance between online and traditional methods of delivery (for a review, see Russell, 2001). Recently, some research in the area has started to examine student perceptions of the online learning environment (Falloon, 2011; Phelan, 2012). As online programs evolve and proliferate throughout traditional higher education, the focus in practice as well as research has begun to shift away from faculty described best practices and technical aspects of how to develop and deliver instruction online to a focus on quality and student perceptions of the experience. In short, it's not only about the grades that students earn, but also about their perceptions of the experience. Indeed, it is possible for student performance to be high despite negative perceptions of the online learning environment, or vice versa (Nemanich, Banks, & Vera, 2009). A better understanding of how different types of students react to online courses could be very useful in better designing, evaluating, and marketing online courses and programs.

In a recent review, Arbaugh et al. (2009) noted the practical importance and recent emergence of research on online perceptions and impressions, and identified it as a promising area for future work. The current research contributes to this emerging stream of literature by examining the role that the Big Five personality traits play in the development of students' impressions of the online learning experience. Although other studies of online learning have considered individual differences and academic performance (e.g. Rogers, 2011; Rogers & McNeil, 2009; Schniederjans & Kim, 2005), the present study offers a unique perspective by measuring personality's effect on perceptions of the online learning experience rather than performance. We also selected five course impressions with practical implications, rather than focusing on just one perception, such as general satisfaction. This has the potential to provide valuable insight for educational institutions concerned with recruiting and retaining students for their online offerings. Our use of the Big Five traits to predict online course impressions also has advantages. Namely, because the Big Five are widely regarded as broad, important dimensions of personality with application to a wide range of settings (Judge & Ilies, 2002), our findings might be more readily applicable than a selection of several more narrowly-defined traits or individual differences.

1.1. Theoretical background

Theoretically, we based our hypotheses on the concept of person-job fit that emphasizes the relationship between employee personalities and the corresponding fit with certain job

* Corresponding author. Address: Department of Management, Murray State University, Murray, KY 42071, USA. Tel.: +1 270 809 6207; fax: +1 270 809 3704.
E-mail addresses: rkeller@murraystate.edu (H. Keller), skarau@business.siu.edu (S.J. Karau).

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characteristics. In their 2005 meta-analysis, Kristoff-Brown, Zimmerman, and Johnson found strong positive relationships between person-job fit and job satisfaction and organizational commitment as well as a strong negative relationship between person-job fit and intention to quit. In the academic context, Feldman, Smart, and Ethington's (1999) utilized a similar theoretical approach in their study of the fit between student personality traits and choice of academic major and found a relationship between student personality and types of majors chosen. They noted that achievement is a function of the "'fit' between personality type and environment" (p. 643), and also theorized that fit is related to not only achievement but also satisfaction and educational stability. In this research, we apply the logic of this theory to examine the relationship between student personality and perceptions of the online learning environment and contend that certain individual student personality traits "fit" more positively with an online learning environment; consequently, the degree of congruence or fit between personality and components of the online learning environment influences perceptions. Similarly, cognitive fit theory (Vessey & Galletta, 1991) in information systems research examines the relationship between the visual presentation of information and problem solving task and argues that, when a fit exists between the presentation and type of task, more efficient and effective decisions become possible. In a similar vein, researchers in the area of multiple intelligences (e.g. Gardner, 1983; Sternberg, Torff, & Grigorenko, 1998) have suggested that student performance increases when a fit exists between a student's abilities and the teaching method. More specifically, we adopt Komarraju and Karau's (2005) assumption that academic motivation will be higher when students' personality-influenced cognitive and interaction preferences are matched with the academic environment. Based on the convergence of these various points of view, we reason that students will have more favorable impressions of online courses when their personality is well-matched to the learning environment.

1.2. Literature review

Previous research has focused on individual differences as they relate to student perceptions in various contexts and applications. For example, studies have considered student perceptions of individual components of the course design (Kim, Liu, & Bonk, 2005; Stewart, Hong, & Strudler, 2004); degree of interactivity (Ku, Tseng, & Akarasriworn, 2013; Sun & Hsu, 2013); and various demographic variables such as age, gender, ethnicity (Arbaugh, Bento, & Hwang, 2010), grade point average, and previous experience with online courses (Marks, Sibley, & Arbaugh, 2005). One study examined the influence that student-to-student interaction had on the perceptions of working adults in an online MBA program and found that the perceptions of working adults are different from the student perceptions typically captured in academic research (Kellogg & Smith, 2009). Gender has also been considered an influential demographic variable in studies considering personality traits and different contexts related to online and technology usage such as computer self efficacy (Saleem, Beaudry, & Croteau, 2011) and social networking use (Muscanell & Guadagno, 2012).

Regarding individual differences, personality researchers have expressed a general consensus on the value of the Big Five dimensions (Conscientiousness, Openness, Agreeableness, Extraversion, and Emotional Stability) for studying personality. For example, Judge and Ilies (2002) refer to the Big Five as "the most widely accepted structure of personality in our time" (p. 798). Similarly, in their meta-analysis of the Big Five and job performance, Barrick and Mount (1991) refer to this consensus in the field, and note the widespread use and empirical importance of the Big Five. For this reason, we focus on the Big Five as the major predictors of online course impressions in the current study.

The Big Five personality dimensions have long been used as a predictor of individual preferences and performance in various educational contexts in academic research (for a review, see Poropat, 2009). The vast majority of work in this area has focused on the relationship between personality and student performance, and has focused on traditional methods of delivery.

Personality has been linked to student performance in a variety of disciplines, including economics (Borg & Shapiro, 1996; Chowdhury & Amin, 2006), pharmacy (Shuck & Phillips, 1999), and medicine (Lievens, Coetsier, De Fruyt, & De Maeseneer, 2002). The general conclusion from these studies is that a student's personality influences the way in which he or she learns and performs academically, although studies have differed in their findings regarding specific personality dimensions. Several reviews (De Raad & Schouwenburg, 1996; Harris, 1940; Margrain, 1978) have reported inconsistent findings relative to specific traits in the personality/academic performance relationship, with conscientiousness being the most consistent exception. For example, Zhang (2003) found that conscientiousness and openness were the best predictors of five aspects of one's learning approach. In a meta-analysis, Poropat (2009) concluded that conscientiousness, agreeableness, and openness were all significantly related with academic performance across studies.

1.2.1. Personality in online education

Recently, the relationship between personality and academic performance has been examined in the context of distance and online education (Butler & Pinto-Zipp, 2006; Irani, Telg, Scherler, & Harrington, 2003; Kanuka & Nocente, 2003; Kim & Schniederjans, 2004; Lee & Lee, 2006; Rovai, 2003; Schniederjans & Kim, 2005). Results have been mixed, but generally support a significant relationship between personality and performance. For example, Schniederjans and Kim (2005) found a significant relationship between performance and each of the Big Five dimensions except extraversion; Lee and Lee (2006) found a relationship between personality and interaction in web-based threaded discussion; and Butler and Pinto-Zipp (2006) found "several significant relationships which were consistent with personality traits" (p. 199).

Research on student attitudes has focused mainly on perceptions of individual components of the course design (Huang, 2002; Kim et al., 2005; Stewart et al., 2004; Wang, 2003). Most relevant to the current study, Kanuka and Nocente (2003) found a lack of support for their hypothesized relationship between personality type and perceived satisfaction with web-based learning, concluding that students' strong attraction to the convenience and flexibility associated with online learning caused them to be satisfied with the online course regardless of their personality. In addition, Downing and Chim (2004) found that students that might be identified as introverts in the traditional classroom were often regarded as extroverts in online settings.

1.3. The current study: Big Five dimensions and online course impressions

The current research was designed to directly explore relationships between each of the Big Five dimensions and five types of impressions of online courses. We based our predictions on the general logic that students would have more favorable impressions of the online learning environment as indicated by the online course impressions (OCI) instrument when their characteristics were well-matched with the learning environment. The OCI consists of five scales: two assessing overall feelings and preferences about online courses (overall evaluation and preference for online courses), two assessing positive impressions of online courses (engagement and value to career) and one assessing negative impressions (anxiety/frustration). The overall evaluation and pref-

erence for online course scales were constructed to provide measures of fairly global reaction to online courses, to assess general relationships between the Big Five and overall reactions to online courses, and also for their potential practical value as global measures in future research. The remaining three scales were constructed to assess more specific reactions to online courses. The specific reactions of engagement, value to career, and anxiety/frustration were chosen because: (a) we expected each to have a relationship with one or more Big Five dimensions based on the logic of person-job fit theory, (b) they have received prominent mention in scholarly discussions of potential advantages and disadvantages of online courses for students (e.g., Gibbs & Gosper, 2006; Li & Irby, 2008), and (c) they appear to reflect important aspects of the learning environment in prior research (e.g., Clayton, Blumberg, & Auld, 2010; Liao, 2006; Palmer & Holt, 2010).

For the current study, we predicted that conscientiousness, openness, and agreeableness would all be related with positive impressions of online courses. First, given that conscientious people are dependable and have a desire to succeed, we expected people high in conscientiousness to take responsibility for their learning and develop more positive perceptions of the online learning experience. Such an outcome would also be consistent with prior findings in traditional learning contexts (De Raad & Schouwenburg, 1996; Poropat, 2009). Furthermore, conscientious students spend less time on the internet for pleasure (Landers & Lounsbury, 2006; Wang, Lin, & Liao, 2012) and on social network sites (Hughes, Rowe, Batey, & Lee, 2012), but do access these outlets to complete tasks and gather information (Hughes et al., 2012) as is required in an online course. Second, people that exhibit high levels of openness are curious and enjoy engaging in new experiences and situations. Schniederjans and Kim (2005) found a similar relationship and suggested that students high in openness generally have positive moods about new learning experiences in general, and because online courses currently represent a relatively new approach to higher education, we predicted that students high in openness would have more positive perceptions of online courses. Third, because agreeable individuals tend to be pleasant and cooperative, and may be more open to collaborative approaches to learning (De Raad & Schouwenburg, 1996) we predicted that agreeableness would be positively related with favorable impressions of online courses. Thus, we predicted positive relationships of conscientiousness, openness, and agreeableness with the four positive factors of the OCI, and negative relationships with anxiety/frustration.

Predictions regarding extraversion and emotional stability were less straightforward, as there is the potential for multiple conflicting processes to influence online course impressions. Given that neurotic individuals are prone to perceptions of stress and anxiety, they might find the ambiguity and uncertainty that can be associated with online learning unappealing (Schniederjans & Kim, 2005). Neurotics have also been found to possess low levels of computer self-efficacy (Saleem et al., 2011), and to the extent that neurotic students are uncomfortable with and perceive online technologies as difficult to master we would expect this to have a negative impact on perceptions of online courses. However, online courses that provide a high level of structure and organization might well appeal to neurotic individuals if they are able participate and complete coursework in familiar environments where sources of anxiety and evaluation apprehension might be minimized, such as one's home or office. Considering these distinct possibilities, we predicted that neurotics (i.e., those low in emotional stability) would report higher levels of anxiety/frustration, and we tentatively predicted that they would also report lower levels of the four positive components of the OCI. Finally, extraverts strive to be the focus of attention in group settings, are often talkative, and desire social interaction. Because online learning is often an independent activity with little opportunity for social activity or face-to-face interaction, extraverts may find the inability to fulfill their desire for social interaction unappealing. However, it is also possible that extraverts could use the convenience of an online course to enhance other social relationships in their lives or to view online courses as another mechanism for communicating with large numbers of other people more easily. The discrepancy inherent in extraversion as a predictor in online contexts is noted in previous studies in that overall internet usage is lower with extraverts (Hills & Argyle, 2003), but social uses of the internet like blogging (Wang et al., 2012) and social networking sites (Hughes et al., 2012) is higher. Given these conflicting points of view, we predicted that extraversion would not have a significant relationship with any of the specific components of the OCI.

2. Method

2.1. Participants and procedures

250 online students (68 men and 182 women) participated in this study. The mean age of participants was 35 years and ranged from 19 to 57 years. A majority of participants were employed full time (65.2%), had at least one child (61.2%), were married (65.2%), and classified as undergraduate students (59.2%). The mean work experience of participants was 14.6 years. The online instruments (Big Five and OCI) were distributed to students enrolled in one or more online courses at a traditional, state-funded university in the southeast of the United States. Several academic disciplines such as business (35.6%), nursing/healthcare (26.4%), integrated studies (13.2%), education (10%), and telecommunications systems management (6%) were represented in the sample. (The remaining 8.8% of participants were from various other academic disciplines such as sociology, communications, psychology, history, and political science.) Courses included in this study were offered totally via the web and at a distance. The learning management system, Blackboard, was used as the development and delivery platform by all instructors and all courses included in this study. Blackboard allows for a range of electronically-mediated course functions, including email, online discussion, chat, and the posting of lectures, lecture notes, videos, and links. At this university, students may take multiple courses online while earning their degree with some students earning degrees completely online. Instructors placed a link to the online instruments on the course designated website and encouraged students to participate.

2.2. Measures

2.2.1. Big Five

Students' personality characteristics were measured using the 50-question version of the lexical Big-Five factor structure (Goldberg, 1992). This measure is part of the International Personality Item Pool (IPIP), a widely accepted and utilized source of various personality scales. Goldberg et al. (2006) confirm the widespread use of IPIP measures. We chose this instrument due to its convenient availability, ease of administration, and widespread application. Respondents were asked to rank, on a five-point scale (very inaccurate to very accurate), the extent to which brief statements such as "am the life of the party" or "feel little concern for others" described their personality. Goldberg (1992) reported the following alpha coefficients: extraversion .87, agreeableness .82, conscientiousness .79, emotional stability .86, and openness to experience .84. Alphas in the current study were: extraversion .87, agreeableness .83, conscientiousness .81, emotional stability .86, and openness to experience .77, suggesting good to very good internal consistency.

2.2.2. Online course impressions (OCI)

Due to the lack of existing measures of students' perceptions of online courses, we created the online course impressions (OCI) instrument with the goal of developing face-valid, internally consistent measures of five important aspects of perceptions of online learning: engagement, value to career, overall evaluation, preference for online courses, and anxiety/frustration. Table 1 shows the mean and standard deviation of each of the items as well as alpha values for each of the five subscales.

3. Results

3.1. Correlation analysis

Correlation analyses were conducted and yielded several significant relationships that were largely consistent with predictions between the Big Five traits and the five OCI scales (see Table 2). Specifically, conscientiousness was positively related with engagement, value to career, overall evaluation, and preference for online courses, and was negatively related to anxiety/frustration. Similarly, agreeableness and openness to experience were both positively and significantly related to engagement, value to career, and overall evaluation. A significant and positive relationship was also found with emotional stability and value to career. Finally, as predicted, no significant relationships were found between extraversion and any of the specific components of the OCI.

3.2. Regression analyses

We conducted a series of five hierarchical regression analyses with each of the five scales of the OCI as the dependent variables to determine which dimensions of the Big 5 were most strongly related with each of the five OCI constructs. Demographic control variables (gender, work experience, academic level, and marital status) were entered in Model 1 before the Big Five dimensions were added in Model 2 to determine the extent to which each of the Big Five dimensions explained significant variance in each OCI construct over and above that explained by demographics alone. The significant predictors and R^2 values from each regression model are shown in Table 3.

For engagement, when the Big Five traits were introduced, 23% of the variance was explained, representing a 14% increase over the amount of variance explained by demographics only. The R^2 of both models was significant, and conscientiousness and work experience were significant predictors.

For value to career, when the Big Five traits were introduced, 19% of the variance was explained, representing a 10% increase in the variance explained by demographics only. The R^2 of both models was significant, and conscientiousness, agreeableness, openness to experience, and work experience were significant predictors.

In terms of overall evaluation, when the Big Five traits were introduced, 17% of the variance was explained, which was a 10% increase in the variance explained by demographics. The R^2 of both models was significant, and conscientiousness and work experience were significant predictors.

For anxiety/frustration, when the Big Five traits were introduced, 10% of the variance was explained, which was a 4% increase in variance explained by demographics only. The R^2 of both models was significant. However, the incremental change in R^2 after the Big Five traits were introduced was not significant. Conscientiousness, work experience, and marital status were significant negative predictors, indicating that students with higher levels of these characteristics were less anxious or frustrated with online courses.

Table 1
Online course impressions.

Scales, alpha coefficients, and items	Item mean	Item SD
Engagement (α = .86)		
Online courses are very motivating to me	3.61	1.05
I find online courses engaging	3.38	1.22
Online courses motivate me to do my best	3.83	1.12
Online discussions motivate me to participate	3.08	1.09
I tend to disengage from online courses[a]	3.24	1.15
Not having other students present hurts motivation in an online course[a]	3.56	1.14
Value to career (α = .83)		
I think online courses will help me in my career.	3.92	.93
Online courses will have little or no value to my career[a]	3.60	1.15
I will be able to apply what I learn in my online courses to my job	4.26	.90
Taking courses online will help me get a better job	3.52	1.08
Online courses will make me more competitive for raises and promotions	3.94	.91
I sometimes doubt the work relevance of my online courses[a]	3.18	1.07
Overall evaluation (α = .91)		
My experience with online courses has been positive	4.08	.93
I would recommend online courses to my family or friends	3.89	1.24
I feel online courses are valuable	4.21	1.17
I enjoy being able to take courses online	4.14	1.03
I hate online courses[a]	4.18	.87
I've had bad experiences with online courses[a]	4.12	.94
Anxiety/frustration (α = .73)		
Online courses make me anxious	2.49	1.18
The anonymity of online courses makes me less anxious than traditional, face-to-face courses[a]	1.90	1.10
Online courses involve too much uncertainty	2.45	1.15
I lose sleep worrying about my online courses	3.21	1.13
Online courses lessen my anxieties about learning[a]	3.01	1.11
Preference for online courses (α = .82)		
I learn better online than I do in a traditional classroom	2.67	1.17
I am more comfortable participating in discussions online	3.05	1.30
I prefer online courses over traditional courses	3.11	1.31
Given the choice, I would always choose an online course over a traditional course	3.32	1.16

[a] Indicates items that were reverse-coded for the scale in question.

Table 2
Correlations between Big Five dimensions and OCI scales.

OCI dimension	Extraversion	Agreeableness	Conscientiousness	Emotional stability	Openness to experience
Engagement	.04	.17**	.39**	.09	.18**
Value to career	.05	.25**	.26**	.18**	.21**
Overall evaluation	.12	.15*	.32**	.12	.14*
Anxiety/frustration	.03	.01	−.24**	−.10	−.03
Prefer online	−.02	.03	.17**	.02	.05

* $p < .05$.
** $p < .01$.

Table 3
Summary of R^2 model values and significant predictors from hierarchical regression analyses.

OCI dimension	Model	Predictor	Beta	Model R^2	Change in R^2
Engagement	1	Work experience	.14*	.09**	
	2	Conscientiousness	.30**	.23**	.14**
Value to career	1	Work experience	.11*	.09**	
	2	Conscientiousness	.12*	.19**	.10**
		Agreeableness	.13*		
		Openness	.14*		
Overall evaluation	1	Work experience	.15*	.07**	
	2	Conscientiousness	.25**	.17**	.10**
Anxiety/frustration	1	Work experience	−.10*	.06*	
		Marital status	−1.2*		
	2	Conscientiousness	−.12**	.10*	.04
Prefer online	1	Academic level	−1.0*	.05	
	2	Conscientiousness	.10*	.07	.02

* $p < .05$.
** $p < .01$.

For the preference for online courses scale, when the Big Five traits were introduced, 7% of the variance was explained, which added 2% to the variance explained by demographics only. However, the R^2 was not significant for either model, and neither was the increase in R^2 after adding the Big Five. Conscientiousness and academic level (undergraduate or graduate) did emerge as significant individual predictors. It should be noted that the class level relationship was negative, suggesting that undergraduate students had a stronger preference for online courses than did graduate students.

In summary, hierarchical regression analyses showed that demographic variables and the Big Five dimensions each explained significant variation in perceptions of four of the five OCI scales, and that the Big Five explained significant variation over and above demographics for the OCI components of engagement, value to career, and overall evaluation. Among the Big Five, conscientiousness was positively associated with all four positive impressions of online courses, and was negatively associated with feelings of anxiety/frustration, and agreeableness and openness were both positively associated with value to career. Work experience was associated with more favorable (or less unfavorable) perceptions of online courses on four of the five OCI components, and undergraduates reported a greater preference for online courses than did graduate students. Finally, married students reported lower levels of anxiety/frustration with online courses than did unmarried students.

4. Discussion

Our study demonstrates that personality and certain demographic variables have an effect on students' impressions of online courses. Most notably, as predicted, conscientiousness showed significant relationships with all five OCI scales. This suggests that conscientiousness may be an especially important trait for getting the most from online courses. Noting that conscientiousness has also emerged as the most consistent predictor of learning in many studies of traditional courses (e.g., Poropat, 2009), it seems that conscientious students may be better able to more fully exploit any course environment. Likewise, conscientiousness has been to shown to be a predictor of academic motivation and academic achievement in traditional class settings (Komarraju, Karau, Scmeck, & Avdic, 2011) as well as online settings (Schniederjans & Kim, 2005). Conversely, these findings could also suggest that individuals with low levels of conscientiousness are less likely to have a favorable view of online courses, and may face challenges in making the most of such learning environments.

Consistent with our hypotheses, the personality traits of agreeableness and openness to experience were found to be significant predictors of value to career. This indicates that agreeable and open students are more likely to see positive implications of online courses for their careers. However, contrary to predictions, agreeableness and openness were not significant predictors of the other OCI scales in the hierarchical regressions, although each did show a significant simple correlation with both engagement and overall evaluation. Noting that agreeableness and openness have been found to be predictors of academic achievement in prior research (Komarraju, Karau, & Scmeck, 2009; Komarraju et al., 2011; Schniederjans & Kim, 2005), this suggests that agreeable and open students may generally perform well and that their perceptions might be influenced by connections to career related goals and aspirations that are beyond performance. Thus, agreeable and open individuals may have slightly more favorable impressions of some aspects of online courses, and have significantly more favorable perceptions of the value of online courses to their career prospects. Finally, consistent with our predictions, neither extraversion nor emotional stability showed any significant relationships with any of the specific components of the OCI in the regression analyses.

Of the demographic variables, work experience was the most consistently significant. Work experience was found to be a significant predictor for each of the OCI scales except for preference for

online courses. This may well be due to a premium placed on convenience by working students as Kellogg and Smith (2009) found in their study of working adult business students taking online courses. Due to work schedules and obligations, these individuals may find it difficult to attend traditional classes during working hours and may view online courses favorably due to flexibility and convenience. These results are also consistent with Harris and Gibson's (2006) findings that full-time employment was significantly associated with the likelihood of enrolling in online courses, and Jenkins and Down's (2003) conclusion that workplace demands are a common reason for choosing online courses. We also found that undergraduate students were more likely to prefer online courses over traditional courses. This might be due to a large number of graduate students having completed their undergraduate degrees traditionally and being less accustomed to online learning environments. It is interesting that class level was not a significant predictor of overall evaluation. This suggests that although graduate students preferred traditional courses, it did not affect their overall impression of their online experience. Marital status was found to have a significant negative relationship with anxiety/frustration, indicating that married students were less likely to become frustrated or anxious in online courses. This may be due to the additional social support that married students receive from their spouses.

Our research has several strengths. First, we used a well-established, validated measure of the Big Five. This contributes not only to the personality literature, but also the online education literature. Second, we developed the online course impressions (OCI) instrument for measuring different aspects of students' perceptions of online learning environments. Our study established that the OCI has good internal consistency and is capable of detecting relationships with various personality dimensions, making it a promising instrument for future research in this area. The broader scales of overall evaluation and preference for online courses might be useful in a wide range of future studies of online courses; whereas, the narrower scales assessing engagement, value to career, and anxiety/frustration might be useful for studies that wish to explore these more specific aspects of online learning. Third, the participants in our study represented a broad range of academic disciplines, enhancing the potential generalizability of our findings across academic departments and disciplines. Fourth, participants in the study were actual students in online courses. Thus, participants were able to provide direct impressions of specific courses in which they were enrolled instead of relying on general beliefs or attitudes about online courses.

Yet, our study does have some limitations that might be addressed in future research. Most notably, our findings rely on self-report and are also open to potential common method bias due to the independent and dependent variable data both being collected from the same source. Future research could supplement the current approach by including measures of actual student behavior, such as participation in online discussions, group assignments, and other course activities. We also did not endeavor to assess the degree to which the relationships we have established are related with tangible learning outcomes. Future research could attempt to assess the interrelationships between personality, online course impressions, and learning outcomes all within the same study. It should also be noted that although results were significant, proportion of variance explained was limited. This suggests that personality is just one of many possible influences the perceptions of online learning environments. For example, interactivity, media variety, and perceived flexibility have been noted in previous research as variables influencing satisfaction in online courses (Arbaugh, 2005; Arbaugh & Rau, 2007).

There are also various additional opportunities for future research to build on the present findings and potential implications for instructors and schools offering online programs. First, future research might examine conscientiousness in finer detail by using longer, more detailed scales or seek to determine exactly what components of conscientiousness contribute most directly to favorable online course impressions. Future research might also consider what types of behaviors conscientious students tend to engage in during online courses. It would also be intriguing to examine conditions under which the other Big Five dimensions may have a stronger impact. Issues of pedagogy and course design should also be considered. Along these lines, future research could compare online courses with different design features, such as the use of synchronous chat and video conferencing versus asynchronous or email communication. For example, online courses may well be more appealing to extraverts when they emphasize discussion and more active student interaction rather than solo activities such as reviewing lectures or completing individual assignments. In this same vein, future research could also consider the type of course (e.g. subject, level, etc.) and examine how specific characteristics of the course influence the relationship with certain aspects of the OCI. For example, course level, area of study, and online methods deployed might all affect impressions. Indeed, it seems likely that the specific mix of online methods chosen by the instructor (posted lectures, discussion, videos), as well as the effectiveness of their implementation, should predict significant variance in perceptions, and may also interact with personality in influencing reactions to online courses.

Finally, the OCI might also be used to help predict what different types of students might demand or desire in an online course. This would have obvious applications in practice for academic institutions interested in developing and creating online courses or programs. These findings could help online instructors develop online courses relative to the components of the OCI found to be the strongest influencers of perception. For example, our findings suggest that career related variables like the OCI component value to career and the demographic variable of work experience both influence perception. This suggests the importance of online instructors making clear connections between course content, activities, and assessments to career related aspects. Furthermore, this information may also be helpful at the program level in terms of targeting courses and programs towards groups of students more inclined to "fit" the online environment and specific programs offered. We hope that the current study provided a good foundation for practice and stimulates future work in this area.

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