Title

Personality and the College Experience: How Extraversion-Introversion Measures Shape Student Involvement and Satisfaction

Author

Toma, Shannon Paige

Publication Date

2015

Peer reviewed|Thesis/dissertation

UNIVERSITY OF CALIFORNIA

Los Angeles

Personality and the College Experience:
How Extraversion-Introversion Measures Shape Student Involvement and Satisfaction

A dissertation submitted in partial satisfaction of the

requirements for the degree Doctor of Philosophy

in Education

by

Shannon Paige Toma

2015

ABSTRACT OF THE DISSERTATION

Personality and the College Experience:

How Extraversion-Introversion Measures Shape Student

Involvement and Satisfaction

by

Shannon Paige Toma

Doctor of Philosophy in Education

University of California, Los Angeles, 2015

Professor Patricia M. McDonough, Chair

The current work examines the role of individual, personality-linked characteristics in student involvement and associated outcomes. Personality characteristics of interest, tied to the extraversion-introversion trait domain, include reflectivity, responsiveness, sociability, reward sensitivity, and sensory-processing sensitivity. Four questions guided the inquiry: (1) How are introverted and extraverted students involved in college? (2) What aspects of students' extraversion-introversion are associated with their student involvement, and in what ways are they associated? (3) How do extraverts and introverts achieve congruence between their personalities and their involvement? And (4) How are involvement and congruence tied to college outcomes for extraverted and introverted students? To address the above questions, a

select population of UCLA undergraduate students completed personality inventories. From these, a sub-sample of introverts and extraverts then participated in one-on-one interviews.

Personality-linked differences surfaced in the ways students divided their time and energy across academic pursuits and non-academic extracurricular pursuits. Academic involvement of students in the extraverted group exhibited a preference for higher levels of outward activity and interaction. Stronger responsiveness continued to characterize involvement of the extravert outside of academics, as did low sensory-processing sensitivity and unique social preferences in line with reward sensitivity. Among the introverted group, involvement in and out of academics evidenced stronger preferences for reflectivity; outside of class, high sensory processing sensitivity and unique social preferences also surfaced. Students generally achieved person-environment congruence in college less through personal and more through environmental shifts. A high amount of environmental diversity at the study site helps to explain this finding. Still, personal change did occur. It was the introverted students who tended to speak of substantial challenges associated with personal shifts deemed necessary to achieve congruence. Only limited evidence supported the prediction, in line with the fourth research question, that students' satisfaction with college and progress toward the degree would be positively associated with their perceptions of congruence between their own personalities and their environments, which reflected their involvement choices. The overall conclusion arrived at is that, like socioeconomic status and ethnic or cultural background, personality is an important variable to consider when examining student involvement in college.

The dissertation of Shannon Paige Toma is approved.

Christina A. Christie

Jane E. Pizzolato

Calvin G. Normore

Patricia M. McDonough, Committee Chair

University of California, Los Angeles

2015

For my father

CONTENTS

ACKNOWLEDGMENTS

I would like to express tremendous gratitude to the students who participated in this project. Without you I would not have a study. Because you took the time to share your experiences, I was able to have data. I'm further indebted to you for the personal privilege of hearing your stories. You inspire me and give me hope for the future.

To my committee members, Pat McDonough, Calvin Normore, Tina Christie, and Jane Pizzolato, I am honored to have your guidance and mentorship throughout this process. Pat, you have the rare talent of strengthening your students' projects while opening space for their personal expression. Our interactions have transformed my work and me into better versions of our past selves. Calvin, thank you for the incredible generosity with which you have shared your time, your wit and thought-provoking insights. Although I often left our visits with more questions than answers, one thing I could always be sure of was that a day when I met with you would be a good day. Tina, I am deeply grateful for your aid with survey development and for your offering feedback that I needed to hear. Regardless of your schedule, you made time to talk and took care to uplift me with encouragement. Thank you, Jane, for the thoughtfully written comments on my drafts. Thank you also for the refreshing enthusiasm of your contributions and the personal anecdotes that brought relevance to my work. And to Marc Levis-Fitzgerald, my honorary committee member and the greatest mentor professionally and personally, I am forever indebted. You have always been behind me, always seen the good in me and the value of my interests. You made it impossible for me to give up.

I further owe much gratitude to Susan Cain, whose book on introversion led me to develop an old term paper into a dissertation. Her words reminded me of the value in quietude, and the research mentioned in her book guided my initial literature search.

At the Office of Instructional Development at UCLA, I wish to thank Larry Loeher and Joanne Valli-Meredith for the discussions and constant support. Casey Shapiro, I am indebted to you for listening and for sharing your experiences to help inform mine. To Brit Toven-Lindsey, Hannah Whang, Michael Soh, and Hilary Zimmerman, it has been an honor to juggle work and graduate school with such a caring, motivated team. Anita Han, thank you for coordinating survey distribution. Lucia Tabarez, I'm grateful to you for helping the interview participants to feel welcome and for testing the survey.

I'm further indebted to many other members of the UCLA community. The HEOC faculty has contributed in ways large and small to the completion of this project. Also, the advice of Kara Black helped me to let go of old ideas and make room for new. Thank you to Michelle Huang for diligently coordinating the meetings essential to progress. And how could I have navigated the bureaucracy of the dissertation process without the cheerful staff at the Office of Student Services in Moore Hall? Special thanks to Marisela at OSS for transcending the confines of her job description to help with my preliminary defense. At the Office of Analysis and Information Management, Kelly Wahl's assistance allowed me to identify a target student sample for survey recruitment, which was invaluable in lifting the study off the ground. Also invaluable for survey recruitment and dissemination was the Office of the Registrar. The Office of the Human Research Protection Program, through a carefully supported review process, helped me to safeguard the welfare of study participants. Off campus, I offer sincere thanks to Vicki McFadden at Psychological Assessment Resources, Inc., who granted permission to use the NEO personality inventory in my survey instrument after patiently answering many questions.

Deep gratitude goes to my friends and family. Your patience, your understanding, your heartfelt support and encouragement have sustained me. To my parents, Brenda and Ernest Toma, and my sister, T. Nicole Toma, thank you for your love and for your constant support on so many levels. You taught me essential lessons than can't be learned at a university. Any accomplishments in this life I owe to you. Thank you Moon Ko for the spiritual guidance and the DD updates, and for the companionship from a distance that nourishes a solitary process. To Stacey Linnell and Julie Lamoreaux, I'm fortunate for your unflagging optimism and forever indebted to your patience. Paul Brent, Daniel Bydlowski, and Dilek Ince, thank you for reading drafts, listening to presentations, giving feedback, and lifting my spirits. I am particularly grateful to you for inspiring me to align my life with my passions in the next chapter. To Chiara Paz and Amy Liu, it has been a privilege to share this journey with you, and I know that our somewhat less conventional paths will lead to exciting destinations, with beautiful vistas along the way. Christine O'Keefe, you have celebrated my victories and sympathized with my setbacks as if they were your own, and for your friendship I feel extremely fortunate. Lisa Farhamy, Theresa Lorch, and Carlos Torres, your strength and confident spirit pushed my work forward. Colby Moss, your compassion has impacted every aspect of my life. And Peach, thank you for the emotional support that has kept me trying each day.

VITA

Research Analyst, 2007-Present
Center for Educational Assessment
University of California, Los Angeles

MA, Education, 2007
University of California, Los Angeles

MA, Philosophy, 2005
Columbia University, New York

Instructor, 2006
Critical Thinking Center, Great Neck, NY

Advisor, 2001-2003
Covenant House, Los Angeles

BA, Psychology, 1998
University of California, Los Angeles

Therapist, 1997
Lovaas Institute for Early Intervention
University of California, Los Angeles

PRESENTATIONS

Levis-Fitzgerald, M., & Toma, S. P. (2011). Meaningful learning experiences on campus: Variability across academic divisions. Poster presented at the meeting of the Association of American Colleges and Universities, Providence, RI.

Levis-Fitzgerald, M., & Toma, S. P. (2009). University and community college partnerships: Facilitating transfer and excellence of underrepresented students. Presentation at the meeting of the Association for Institutional Research, Atlanta, GA.

Levis-Fitzgerald, M., DeAngelo, L., Garcia, T., & Toma, S. P. (2008). Community college honors programs: Learning communities on the path to four-year colleges. Presentation at the meeting of the Association of American Colleges and Universities, Austin, TX.

CHAPTER 1: PROBLEM STATEMENT

The current study explores the idea that student involvement in college and associated outcomes may vary for students depending on their personality-linked characteristics. Accounting for student personality traits may reveal complexities of student involvement and diverse needs that involvement meets to result in positive outcomes. Studying involvement thus may further shed light on the variation in processes and motives students have for becoming involved. The view set forth and examined is that, much like socioeconomic status and ethnic or cultural background, personality is a crucial variable to consider when examining student involvement in college.

Perhaps as a result of Alexander Astin's notion of student involvement (1984), it now seems obvious that student involvement in college is a key factor underlying persistence and numerous other positive outcomes. Student involvement refers to "the amount of physical and psychological energy that the student devotes to the academic experience" (Astin, p.297). Studies of involvement have taken into account factors such as place of residence, participation in campus clubs and organizations, faculty-student interactions, number of hours spent studying, on-campus employment, and participation in athletics (Astin, 1984). Students are said to derive a range of benefits from active physical and psychological involvement in the college experience. More involved students, generally speaking, are likelier to persist in college and also have greater academic, cognitive, and developmental gains than their less-involved counterparts (Astin, 1993; Berger & Milem, 1999; Gellin, 2003; Huang & Chang, 2004; Kuh et al., 1991; Moore et al., 1998; Pascarella and Terenzini, 1991; Tinto and Russo, 1994).

Astin's theory has long influenced the dominant perspectives on student success in college. The theory widens the lens beyond curriculum and introspective learning. It draws

attention to the importance of being active in campus life, in addition to narrowly focusing on subject matter, listening to lectures, and studying for classes. Student involvement encompasses numerous diverse experiences that actively and interactively engage students in the learning process and--significantly--in life on campus. Factors like interaction with peers and faculty along with novel collaborative learning techniques receive attention alongside variables that capture non-academic out-of-class experiences, perhaps illustrating a shift in educational values toward overt activity and interaction beyond scholarly pursuits. "The impact of college," according to Pascarella and Terenzini (2005), "is largely determined by individual effort and involvement in the academic, interpersonal, and extracurricular offerings on a campus" (p. 602).

In the decades since the theory's inception, Astin's notion of involvement may have become so commonplace that aspects of it are left unquestioned. Student success presupposes involvement. Further, research measures of involvement, although often accounting for quieter and solitary pursuits, commonly translate into readily observable and social behaviors—those behaviors perhaps more easily captured in research and implemented in practice. “It is not so much what the individual thinks or feels, but what the individual does . . . that defines and identifies involvement” (Astin, 1984, p. 298).

Focused time spent reading and thinking are still theoretically considered involvement for Astin. However, activities (including mental processes) that occur internally or in solitude perhaps receive less attention in literature and practical settings, where researchers and practitioners, it seems, have devoted less attention to quiet, internal, or reflective aspects of involvement. This involvement bias is evident in the body of empirical studies that largely employ social and other readily observable constructs to operationalize student involvement (Berger & Milem, 1999; Endo & Harpel, 1982; Fisher, Bagiati, & Sarma, 2014; Gellin, 2003;

Huang & Chang, 2004; Lamport, 1993; Moore, Lovell, McGann, & Wyrick, 1998; Tinto & Russo, 1994 Zacherman & Foubert, 2014; Zhao & Kuh, 2004). With little digging, a literature search will quickly uncover student involvement articles on research examining the benefits to students of co-curricular involvement, civic engagement, prosocial involvement, and interaction with peers and faculty. But where are the studies on involvement that exclusively examine the benefits of spending prolonged time focused intently in relative solitude, perhaps at the expense of time spent on more outward and social interactions? Perhaps the closest to these are the few studies that look at how much out-of-class involvement is too much--i.e., what is the limit past which active involvement outside of academics no longer helps but hurts college outcomes (Zacherman & Foubert, 2014; Huang & Chang, 2004). A consequence of the abundant attention toward outward and social student involvement is the possible risk of not only feeding into a certain arbitrary norm or culture but also of "under-capturing" the positive experiences and outcomes derived from quieter forms of involvement and from students who thrive on such involvement.

But for many, the change of tides toward greater emphasis on active involvement is a welcome one. Past curricula and teaching methods perhaps favored the reticent, so-called “passive” learner--the stereotypical scholar secluded in an ivory tower. The suggested historical shift evidenced in the rise of the active involvement construct also ties in with personality: it is the historically biased notion of the scholar that seems to represent the more introverted student. Compared to their extraverted counterparts, students higher on introversion may be more reflective. They tend to think longer before responding and draw greater energy from quieter settings. Yet evidence suggests that anywhere from half to three-fourths of individuals in the general population have traits that identify them not as introverted but as predominantly

extraverted (Barrett & Connot, 1986; Center for Applications, 2015), and further, that these traits not only exhibit far-reaching manifestations (see Aron, 2004; McCrae, 2004) but also are relatively consistent among individuals over time (McCrae & Costa, 1994; Roberts & DelVecchio, 2000). (It should be noted that throughout this paper, the spelling *extravert*--rather than *extrovert*--is used, since the former spelling is predominant in the research literature. Also, unless the context dictates otherwise, "extraversion level" and like terms are used to refer to a position along the extraversion-introversion continuum.)

Assuming that at least half of us are more extraverted than introverted, it may also follow that many of us would rather actively engage in group discussions or lively extracurricular pursuits than quietly read, absorb a lecture, write in solitude, or reflect on texts. If contemporary notions of student involvement have shifted our focus onto the sizable portion of the population that perhaps better learns through active participation and thrives in livelier social settings, then such involvement notions understandably meet with success. It is a success that could be the result simply of tapping into a substantial portion of the population that previously had been "under-reached" in college settings. Increases in the (perhaps much needed) attention to the involvement needs of the extravert may help to explain the empirical research findings and surrounding literature that have unearthed positive associations between more active forms of student involvement and a number of desirable outcomes (Astin, 1993; Berger & Milem, 1999; Endo & Harpel, 1982; Fisher, Bagiati, & Sarma, 2014; Gellin, 2003; Huang & Chang, 2004; Kuh et al., 1991; Lamport, 1993; Moore, Lovell, McGann, & Wyrick, 1998; Pascarella & Terenzini, 1991; Tinto & Russo, 1994; Zacherman & Foubert, 2014; Zhao & Kuh, 2004). But such findings alone do not justify the assumption that all "less-involved" students stand to benefit from unqualified increases in outward or active involvement in college. Nor do findings on the

positive outcomes of active involvement merit the conclusion that quieter or more solitary students are insufficiently involved in the college experience.

A large portion of the population may yet have a good deal to gain from student involvement that diverges from active participation and overt, often social, behaviors: students with introverted leanings may actually benefit less from the involvement on which extraverted students thrive and more from the quieter forms of involvement on which few studies have exclusively focused. It is important, then, for research to consider previously neglected distinctions in terms of personality traits and personal preferences as they relate to the myriad involvement activities that may benefit diverse students. It remains to be seen whether and how students with different personality dispositions find (and define) success on the college campus, both in and out of class, through a spectrum of activities--from readily observed to discreet, from solitary to social, from quiet to boisterous.

In the current study, I explore relations between student involvement and personality traits. The following four research questions guide the study:

1. How are introverted and extraverted students involved in college?
2. What aspects of students' extraversion-introversion are associated with their student involvement, and in what ways are they associated?
3. How do extraverts and introverts achieve congruence, or fit, between their personalities and their involvement?
4. How are involvement and congruence tied to college outcomes for extraverted and introverted students?

To address the above questions, a select population of university students completed personality inventories. From these inventories, a sub-sample of introverts and extraverts – of

those scoring on either side of the extraversion-introversion scale – were then invited to participate in one-on-one interviews. The interviews focused on the connections between students' personality traits and characteristics, their involvement experiences, and their college outcomes (including personal satisfaction with college and progress toward the degree).

This research is significant insofar as it has the potential to further our understanding of student involvement by examining it through the lens of personality characteristics, which may in turn increase the involvement assertion's applicability. It may provide insights that allow the student to tailor her involvement better to suit her unique personality; it also holds potential to give researchers, faculty, and student-affairs practitioners greater sensitivity for and understanding of the diverse involvement experiences linked with student satisfaction and success. The end result may be more successful outcomes for a broader range of students.

The project is also significant in its broad applicability to diverse student populations. It considers personality traits--extraversion and introversion--that inhere more or less among diverse individuals and correlate with other background characteristics. Gender, family background, and socioeconomic status, are only weakly tied to extraversion and introversion (see Bouchard & McGue, 2003; see also Bergeman, Plomin, McClearn, Pederson, & Friburg, 1988; Costa, Terraciano, & McCrae, 2001; Jonassaint, Siegler, Barefoot, Edwards, & Williams, 2011; Langinvaionio, Kaprio, Koskenvuo, & Lonngvist, 1984; Loehlin, 1989, 1992; Rowe, 1990; Nakao et al., 2000; and Shields, 1962, as cited in Twenge, 2001). But research does support a link between the traits and both age and culture.

Overall, evidence suggests consistency in personality traits among individuals over time (Costa & McCrae, 1988; McCrae & Costa, 1994; Roberts & DelVecchio, 2000; Twenge, 2001), with levels of extraversion-introversion in particular being more stable in individuals over time

than are other major personality domains (Roberts & DelVecchio). However, accounts of the age at which peak stability of extraversion is reached range from early adulthood to middle age (Costa & McCrae; Roberts & DelVecchio). It seems that as personal identity develops, so do personality traits. Furthermore, while trait consistency is high, personality traits evolve slightly even among elderly populations (Roberts & DelVecchio). Thus student involvement in college may not only reflect and promote established personality traits, it may also shape the development of traits to some degree. Examining student involvement in terms of personality may provide insight on how this development occurs in young adults.

But perhaps the most salient influence on extraversion level (outside of genetics) is not age but culture. In particular, differences in aggregate levels of extraversion emerge between nations supporting eastern and western cultures (Lucas, Diener, Grob, Suh, & Shao, 2000; McCrae, 2004; and McCrae & Terraciano, 2005). In the words of one researcher, "Asia and Africa are introverted, Europe extraverted" (McCrae, p. 10). The Western world, emphasizing individualism, is higher in extraversion. Its collectivist counterparts, mainly the developing nations of Asia and Africa, are higher in introversion.

A study focused not on personality traits but on talking and thinking gives a sense of how the broad cultural differences in extraversion may hold relevance to specific instances of student involvement (Kim, 2002). The study's author found impaired performance among Asian Americans when they had to "think aloud," or talk their way through, a cognitive problem-solving task. Performance on the task was not similarly impaired for European Americans. European American participants were more likely to both rely on language in their thinking and express the belief that talking is good for thinking. In other words, cultural differences surfaced in both performance and related ideology. The author cautioned her (Western) audience to

question the idea or assumption that talking is, for all students, a good tool for better thinking (Kim, p. 839). She concluded that "the meaning of students' silence can be the engagement in thoughts, not the absence of ideas" (Kim, p. 840). Her work on cultural differences in student engagement holds important implications for the current study insofar as the current study examines the involvement experiences of students with distinct personality traits, tied to cultural differences, that may be associated with divergent inclinations to reflect (to think *before* responding) and to act (to think *through* responding).

In considering students' extraverted and introverted tendencies, the current project thus encompasses fundamental characteristics of individuals from all walks of life in a setting that may promote the development of those characteristics. Furthermore, the project appreciates the value of individual differences across cultures, recognizing an alternative to the extraversion that pervades Western culture. A positive outcome of the project may be its suggestion of ways in which students from diverse backgrounds and cultures may capitalize on individual personality traits to maximally benefit from the college experience, and ways in which colleges and society may benefit from the involvement of diverse voices, loud and soft.

An asset of the study is also a limitation: it focuses on a dichotomously portrayed personality trait—i.e., on one's position along either end of the extraversion-introversion spectrum. In doing so, the study runs the risk of oversimplifying its subjects and painting a picture of student involvement in only two shades. Even if, as research suggests, broad personality traits like extraversion are relatively pronounced and stable over time, they are not absolute. And numerous factors complicate the study of these traits' manifestation in the college setting. Passion for a subject may rile even the most die-hard introvert toward uncharacteristically responsive action. Other subtle differences in settings, environment, or

background may matter more to students than factors typically associated with extraversion and introversion. Further, students may use the college setting to explore beyond what comes naturally to them, to stretch out of their comfort zones and develop their personalities in new directions.

The researcher plans to combat the risk of oversimplifying a complex matter through the use of qualitative methods. Specifically, one-on-one interviews will expose the nuances and complexities of participants' unique personalities, their college involvement experiences, and how the two jointly contribute to academic success. Admittedly, the potential of qualitative methods to reveal greater complexity comes at an expense: causal relations cannot be determined through these methods, nor are qualitative findings generalizable to the broader population. The rewards outweigh the costs, however, as the study promises to offer worthy insights and suggest new directions for future research and practice.

CHAPTER 2: REVIEW OF LITERATURE

This chapter presents some fundamentals of both student involvement theory and personality theory. It starts with an overview of student involvement theory and related research, explaining what the construct is, how it has come to be interpreted, and what are its practical advantages in terms of positive student outcomes. Next, personality theory and research are presented; the focus is specifically on the extraversion-introversion dimension, its associated characteristics and the underlying determiners of the traits in individuals. Relevance of extraversion and introversion to various aspects of student involvement is then discussed.

Student Involvement Theory

"The amount of physical and psychological energy that the student devotes to the academic experience" constitutes student involvement (Astin, 1984, p. 297). The theory of involvement seems to provide the missing link between student learning and development on one hand and practical applications implemented through policy on the other. One of the theory's key propositions is that "the amount of student learning and personal development associated with any educational program is directly proportional to the quality and quantity of student involvement in that program" (Astin, 1984, p. 298). Effectiveness of practical applications, programs, or policies—i.e., the student learning and development they spur—is thereby considered to reflect the direct capacity of those applications to prompt, increase, or enhance involvement. Student involvement theory may help to explain how "educational programs and policies are translated into student achievement and development" (Astin, p. 299).

For decades, assumptions related to student involvement have guided (and perhaps justified) the construction of college programming and policies. Involvement theory expands the attributions for student success inside the classroom to encompass activities that occur outside of

class. It is not a pedagogical theory and does not center exclusively on student curricular involvement. For instance, as outlined in the theory's implications for practice, Astin called for counselors and other student affairs personnel to assume a more prominent role in the college setting: in addition to the faculty, these professionals establish and maintain programs through which valuable student involvement occurs. Popular avenues for raising student involvement run the gamut from course work, honors programs, undergraduate research, and faculty-student interaction to social groups, residential life, Greek life, athletic clubs, and student government (Astin, 1984, p. 303).

Astin himself proposed that involvement is measurable in terms of both quantity and quality--of both the amount of energy involved in college-related pursuits and the value attached to such pursuits (p.298). Yet he seems to have attached greater value to certain forms of involvement. Astin stressed involvement as “an active term” and one that “implies a behavioral component” (1984, p. 298). Involvement is directly observable and can be measured empirically (Astin, p. 301). So it seems that even though “psychological energy” spent in college is fundamental to student involvement theory, the more outward aspects of involvement, the physical components, are critical to the theory’s application.

Further evidence of the involvement bias toward observable behavior is Astin's warning that greater attention should be given “to the passive, reticent, or unprepared student” insofar as “passivity is an important warning sign that may reflect a lack of involvement” (Astin, p. 305). Association of the “passive, reticent” student with unpreparedness and lack of involvement may reflect erroneous negative assumptions about the quieter behaviors that positively correlate with introverted personality traits. That is, the lack of overt response or active participation--what Astin labeled as "passivity and reticence"--is compatible with a measure of thoughtfulness and

reflectivity. One would be mistaken to assume that less overtly active characteristics entail a lack of thought, preparedness, or psychological investment. Indeed, a student may be actively reflecting while she is passive in expression.

So it seems that, on its most basic theoretical interpretation, student involvement supports the so-called "passive, reticent" learner as long as she invests psychological energy in the college experience. But on its narrower, practical interpretation, student involvement theory may hold a bias against involvement experiences that are less overtly measurable and quantifiable--and less readily fostered in practice. After all, it is much easier to get people to act, to observe them acting and to count these observed instances than it is to make people think, and to record and quantify their thought processes. While the basic theoretical interpretation adds plausibility to student involvement by including both inward and outward forms of involvement, it turns out that the inward forms of involvement are sometimes harder to work with. As is evident in the following review of student involvement research, the theory as it is commonly construed in practice seems to place less emphasis on the quieter and more reflective types of involvement that research suggests may be in line with introverted characteristics.

Student Involvement Research

Research on student involvement explores types of activities that constitute involvement and specific as well as general benefits that accrue from it (Astin, 1993; Berger & Milem, 1999; Gellin, 2003; Kuh et al., 1991; Moore et al., 1998; Pascarella & Terenzini, 1991; Tinto and Russo, 1994). Often the construal of student involvement in these studies stresses a substantial social-behavioral component. For instance, a meta-analysis of eight studies on student involvement from 1991 to 2000 reported findings on seven independent variables: athletics, Greek life, clubs and organizations, faculty interaction, peer interaction, living on campus, and

employment (Gellin, 2003). Results suggested a positive relationship between critical thinking and student involvement as measured on six of the seven variables (excluding athletics). Most of the involvement variables for this meta-analysis seemed to be of a social nature.

Tinto and Russo examined the effectiveness of collaborative learning programs as tools for increasing student academic involvement and raising completion rates at community colleges. In their study, emphasis on student academic involvement focused primarily on social collaboration. The study did not address the issue of whether more extraverted and socially inclined students derived greater benefits from this type of involvement.

Similarly, Berger and Milem (1999) looked at the role of involvement in student persistence. While they went beyond common social-behavioral involvement measures to examine also how student perceptions contribute to college persistence, they employed the student involvement framework exclusively for the study of behaviors--not perceptions--claiming, "Astin clearly intends for involvement to be behavioral in meaning" (Berger & Milem, p. 641). The researchers measured student involvement in terms of the frequency of students' interactions with faculty and peers. Results indicated that "involvement with student peers and faculty generally has positive benefits for first-year students" (p. 662). High (social) involvement positively predicted social and academic integration, perceptions of institutional commitment, and ultimately, college persistence. Interestingly for current purposes, the researchers also found that those with values, norms and behaviors congruent with those of the institution were more likely to persist than were their incongruent counterparts. And while they did not explore the relationship between involvement and personality-related preferences, they did suggest further investigation into the relationship between student behavior (i.e.,

involvement) and perceptions to "help explain a wide variety of student social phenomena and outcomes" (p. 661).

Two additional studies centered not on the benefits of out-of-class involvement per se but on the optimal level of such involvement needed to achieve positive outcomes and the level at which such involvement becomes counterproductive (Zacherman & Foubert, 2014; Huang & Chang, 2004).

Researchers in Taiwan (Huang & Chang, 2004) conducted an analysis to answer a general question posed by Astin: "What are the ideal combinations of academic and social involvement that facilitate maximum learning and personal development?" (1984, p.528). They measured academic involvement in terms of frequency of attending class, taking notes, completing readings, collecting data, and using the library. For the "cocurricular" measure, the researchers included frequency of participation in student clubs, campus-wide activities, departmental activities, and so forth. They examined the relationship of these (non-social) academic and (social) cocurricular involvement measures to students' self-reported outcomes of cognitive and affective growth. While academic and cocurricular involvement exhibited only a weak positive correlation, the students who were most highly involved on both measures also reported the greatest gains in cognitive skills, communication skills, self-confidence, and interpersonal skills. The gains in cognitive and communication skills were disproportionately associated with academic involvement; the converse was true for gains in self-confidence and interpersonal skills. Based on the overall findings, the study's authors concluded, "Regarding the question of optimal amounts of involvement, more campus involvement is better" (p. 403). They encouraged faculty advisers and student counselors indiscriminately "to encourage students to

get involved in both academic and co-curricular activities as much as possible to maximize their cognitive and affective growth" (p. 403).

Later research calls into question the positive linear relationship between cocurricular involvement and academic performance observed by Huang and Chang (2004). Zacherman and Foubert (2014) examined optimal levels of cocurricular involvement that facilitate positive academic outcomes. They conducted an analysis of the relationship between hours spent per week participating in "cocurricular activities" (i.e., organizations, campus publications, student government, fraternity or sorority, intercollegiate or intramural sports, etc., p. 161) and academic performance in terms of grades. Results of their study suggest a curvilinear relationship between cocurricular involvement and GPA, with a stronger effect among male students. The authors concluded that while outside involvement at a moderate level (i.e., one to ten hours per week) is beneficial to grades, "a high amount of involvement can potentially hurt academic performance in college students" (Zacherman & Foubert, p. 157). It is interesting to note that the authors observed a positive relationship between involvement and GPA beginning with as little as one hour per week of cocurricular involvement. Anything less than one hour per week or greater than ten hours per week had a negative association with GPA. The authors did not explore the possibility of differences in outcomes within this wide range for students with different personality characteristics.

It is clear from research and common sense that there are a variety of ways for students to become involved in college, with numerous outcomes affected by not only the type of involvement but also the frequency of involvement and the individual characteristics of students. And while researchers have examined a range of discrete involvement activities, it seems that a good portion of their studies end up promoting activities that involve social interaction, often

through membership in groups, organizations, or collaborative environments that possibly emphasize action above reflection and casual social interaction in place of deeper interpersonal connections. What the involvement research neglects to consider is that distinct forms and frequencies of student involvement may lead to varied outcomes for students depending on those students' individual personality characteristics--variables other than the commonly captured SES, high school GPA, race, ethnicity, and gender.

For example, more outward-focused extraverts, who tend to exhibit less sensitivity to their external environments, may reap greater rewards from external stimulation and find comfort in casual social settings. These trait-related preferences may influence the types and frequencies of involvement in college that lead to extraverts' positive outcomes. Likewise, those with introverted traits tend toward greater sensitivity to their external environments; they have less need for outward stimulation and take comfort in quieter and more intimate social settings. The type and frequency of involvement that benefits the introvert thus may look quite different from the optimally beneficial involvement of the extravert. Setting, type, and frequency of involvement favorable to one student may be overstimulating (or conversely, boring) to another.

Popular notions of the extraversion-introversion personality trait suggest that the promotion of more casual, action-based and socially-oriented involvement activities represents a bias in favor of more extraverted personality characteristics. Some may be tempted to write off this concern by proposing that personality distinctions like extraversion and introversion stem from popular belief with little basis in empiricism. But when it comes to extraversion and introversion, research greatly overlaps and further informs the common-sense view. Indeed, extraversion-introversion is one of the major domains of personality according to theory and research in personality psychology. The trait shows up as a fundamental component in most of

the major models of personality and on many of the well-known personality inventories (Aron, 2004; Watson & Clark, 1997, as cited in Lucas et al., 2000; Zuckerman, Kuhlman, Jaineman, Teta, & Kraft, 1993, as cited in Johnson et al., 1999).

The following overview of theory and select review of literature explore fundamental characteristics, associated with the traits of extraversion and introversion, that may hold relevance to the student involvement construct. The review also provides evidence of underlying differences in cognitive and neurophysiological structures associated with those characteristics. It further explores genetic and environmental bases for extraverted and introverted traits--how these traits are inherited, and how they change across and within societies and individuals.

Before continuing, it is important to add that data in the research discussed below come from samples of healthy individuals who fall on opposite ends of the extraversion spectrum. These data suggest that there is not one type of healthy individual: when it comes to personalities, there are multiple kinds of normal. Relating this notion of healthy differences back to the student involvement construct, it seems reasonable to assume that different types of involvement may be suited to students with diverse personalities. The research presented thus underscores the importance of maintaining an inclusive view of involvement, one that encompasses a wide range of involvement options to benefit diverse personalities.

Personality Trait Theory: The Extraversion-Introversion Dimension

The notions of introversion and extraversion first gained popularity in the 1920s with the release of Jung's *Psychological Types* (1926). The work presents Jung's theory on personality, which successors such as Briggs, McCaulley, and Myers have further expounded (Briggs, 1976; Myers & McCaulley, 1985). A main assumption behind the personality theory of Jung and his successors is that "much seemingly chance variation in human behavior . . . is in fact the logical

result of a few basic, observable preferences" (Myers & McCaulley, p. 11). These basic preferences stem from innate predispositions that are relatively stable over time. Environment also plays a crucial role in personality theory, in that it is said to either foster or thwart the development of natural predispositions, depending on how compatible it is with them.

Extraversion and introversion are fundamental components of the theory, constructs at opposing ends of a spectrum representing orientation toward life. Each point along the spectrum indicates a different level of extraversion (or introversion). Jung and others theorized that all of us fall at some point along this spectrum. Individuals on the extraverted side have more of an outward orientation. Such individuals "tend to focus their perception and judgement on people and objects" (Myers & McCaulley, 1985, p. 2). Their attitude reflects "an action-oriented . . . way of meeting life" characterized by sociability (Myers & McCaulley, p. 13). For them, the external world brings greater energy. It is a source of renewal. For introverts, on the contrary, the primary source of strength is within. They "are oriented primarily toward the inner world" of concepts and ideas (Myers & McCaulley, p. 2). The introverted attitude is characterized by detachment and by enjoyment of solitude and privacy. Introverts are more likely to feel energized by withdrawing into solitude; thoughts and feelings are paramount in their lives. While each orientation has its own singular drawbacks and advantages, the theory does not make claims as to the value of one over the other.

The basic theoretical foundation laid by Jung nearly a century ago stands today, although researchers and theorists have elaborated on the extraversion-introversion (E-I) dimension and carved out novel distinctions. Much of the progress in better understanding, or perhaps redefining, labels like extraversion and introversion comes from researchers testing manifestations of personality trait theory. Drawing from the Jungian perspective, their work

rests on the supposition that a limited number of traits, measured on domains like extraversion-introversion, account for a great deal of human behavior. Broad traits represent a conglomeration of interrelated more specific traits, the system of which may be associated with, or perhaps in some sense reduced to, a few basic characteristics.

Commonly understood traits and characteristics have explanatory value above all else. Personality traits are merely constructed notions: rather than labels that designate realities of an individual's psychological makeup, the traits are constructs intended for the purposes of the current study to further our understanding of individual students and to stimulate dialogue on variability among them as it relates to student involvement. Modern research on personality trait theory, particularly on the extraversion-introversion domain, promises to shed light on how and why variability among individual students matters for their involvement and success in college.

Personality Trait Research: Characteristics and Influences of Extraversion and Introversion

Research on extraversion and introversion is useful insofar as it furthers our understanding of the broad traits and associated sub-traits, exploring their fundamental characteristics. It also increases our awareness of factors that influence trait development, i.e., of what shifts the standing of people and societies along the extraversion-introversion (E-I) dimension. Findings explored in what follows hold applicability on multiple levels to student involvement, and endow the current project with essential insights.

It is important to note that the research cited below drew from various personality inventories to measure participants' extraversion and introversion. Those who examined the traits' associated characteristics largely used some form of NEO Inventory (see McCrae & Costa 2010) to measure participants' extraversion-introversion levels, or they drew from extraversion scales such as those found in Eysenck's personality inventory and in the Myers-Briggs Type

Indicator, which correlate well with the extraversion scales in the widely-studied NEO Inventories (McCrae & Costa, 2010; Piedmont, 1992). The majority of those who captured environmental and background influences employed some form of NEO Inventory to measure personality trait. In the current study, the researcher also made use of an NEO Inventory--i.e., the NEO Five-Factor Inventory-3 (McCrae & Costa, 2010)--to capture participants' extraversion-introversion levels. Greater detail on this inventory and its construal of the extraversion-introversion domain is found in the methods section.

Characteristics of Extraversion and Introversion

Three fundamental characteristics associated with the traits of extraversion and introversion have surfaced in the research literature: sensory-processing sensitivity, reflectivity (versus responsiveness), and external reward sensitivity. These characteristics seems to undergird the traits, and mirror or shed light on the traits themselves as well as the collections of sub-traits of which these broader traits are comprised.

Sensory-Processing Sensitivity

A growing body of literature suggests a moderately strong, positive correlation between introversion and what Aron (2004) has referred to as "sensory-processing sensitivity"--i.e., level and ease of arousal in response to external stimuli (Aron, 2004; Aron & Aron, 1997; Campbell & Hawley, 1982; Geen, 1984). The idea is that sensory information, generally speaking, stimulates introverts more than it does extraverts. Moreover, introverts are likely to become over-aroused by stimuli that extraverts may deem quite normal, such as lively social interactions.

Campbell and Hawley (1982) found support for this account in the college setting. Among undergraduate student participants in their study, those with higher extraversion scores were also likelier to prefer a louder reading room in the library. In the laboratory setting, Geen

(1984) had introverts and extraverts choose the level of noise heard during a learning task. Extraverts chose higher noise levels than introverts, yet the level of psychophysiological arousal was the same for both types at their respective preferred noise levels. In other words, the introverts were just as aroused at a quieter level as the extraverts were at a louder level. And regardless of personality classification, performance on a learning task was optimal when the participant, or a member of the same personality classification, had set the noise to her preferred level.

In a later work, Aron (2004) reported that the greater sensitivity displayed by introverts is evidenced "at all levels of the nervous system," citing research that ties extraversion-introversion levels to sensory processing sensitivity via measures of skin conductance, reaction times, and evoked potential, as well as to subcortical functioning and differences in cortical processing (Berenbaum & Williams, 1994; Fischer, Wik, & Frederikson, 1997; Stelmack, 1990, as cited in Aron). In sum, sensory-processing sensitivity has been associated with levels of extraversion-introversion in education settings and laboratories; Its effects on the individual are many and potentially far-reaching.

One of the effects of the greater sensory-processing sensitivity commonly seen in introverts could be their quieter and more solitary ways: "For highly sensitive people, avoiding the intense stimulation of social interaction with strangers or in groups can be an effective strategy to minimize opportunities for uncomfortable stimulation" (Aron, 2004, p. 351). Opt and Loffredo (2000) drew a similar conclusion to that of Aron, emphasizing--perhaps contrary to popular opinion--that a tendency or need among introverts to avoid in-person communication was not at all problematic. The authors further proposed the need to examine "the kinds of

communication skills and styles being taught in our education system," asking "Are we teaching the preferences of the extravert?" (Opt & Loffredo, p. 568).

Opposed to the "preferences of the extravert" would be the (nonetheless healthy and psychologically sound) preferences of the introvert for things like solitude or quiet over livelier social interaction. While the two opposing preferences may be tied to variation in sensory-processing sensitivity, research suggests that they also have to do with higher levels of reflectivity.

Reflectivity vs Responsiveness

The quality of greater reflectivity or introspection commonly observed in introverts is otherwise described as "the innate preference for a more thorough subjective processing of information regarding all objects" (Aron, 2004, p. 339). It is a preference to reflect before acting (Aron, p. 338), a stringency in the criteria for responding (Patterson & Newman, 1993, as cited in Aron).

To examine the notion that introverts are "geared to inspect" while extraverts are "geared to respond," Brebner and Cooper (1978) measured the length of time participants took to inspect a series of slides in an experimental setting. As each slide was presented, the individual participant was given the choice to examine the slide or to press a key that would allow her to move on to the next slide. In line with the authors' predictions, extraverts inspected the slides for a shorter time before making their initial response, and also responded at a faster overall rate than introverts.

Later research on personality differences and brain functioning substantiates such findings. Johnson et al. (1999) measured cerebral blood flow using positron emission tomography scans from "healthy normal" subjects classified as extraverts or introverts. The

subjects "were free to think about anything" while being scanned, "providing a picture of the activity of the undirected and uncensored mind" (Johnson et al., p. 255). Results showed, for introverts, increased blood flow in the frontal lobes and other regions associated with remembering past events, planning for the future, problem solving, and "self talk." Extraverts displayed lower than normal activity in a pathway known as the behavioral inhibition system, indicating a decreased likelihood to inhibit behavior or, conversely, an increased responsiveness. Extraverts also had greater blood flow in the posterior insula, which is active when current sensory information is processed. Results add support to the notion that introverts tend toward reflectivity, mulling the past and planning the future, while extraverts tend toward responsiveness, living and acting in the moment. These different propensities may surface not only in the activities extraverted and introverted college students find rewarding but also in the processes whereby they become involved on campus.

The quality of reflectivity also may interact with that of sensory-processing sensitivity for heightened effect in certain settings. That is, "numerous or novel objects" could "place high demands on the sensitive person," who is strongly affected by external stimuli. Yet "being so affected by objects creates a desire . . . to process all of this sensory information before trying to respond" (Aron, 2004, p. 339). So, being sensitive, the introvert in a busy, novel, or crowded setting may experience greater arousal from the (seemingly intense) sensory input. Due to her reflective inclination, she may then feel the added inclination to process, to inspect, or to make sense of this overwhelming amount of input prior to responding to it. It is no wonder the introvert typically finds comfort in calmer environs, and it remains to be seen if and how the personality traits of sensory-processing sensitivity and reflectivity are associated with her experience of college life.

Sensitivity to Reward, Positive Affect, and Sociability

A third characteristic associated with the E-I dimension is sensitivity to external reward, closely linked with incentive motivation (Depue & Collins, 1999). Like both sensory-processing sensitivity and reflectivity, external reward sensitivity is a measure that furthers our understanding of personalities on both ends of the E-I spectrum. But while greater reflectivity and sensory-processing sensitivity highlight the introvert's quieter tendencies, sensitivity to reward or incentive motivation may largely account for the sociability and positive affect commonly linked to extraversion. Incentive motivation is defined in terms of "the anticipation, vigor, and extent to which rewarding stimuli in the environment activate appetitive emotional states" (Panksepp, 1998, as cited in Robinson, Moeller, & Ode, 2010). Incentive motivation is thus closely associated with the simpler, common-sense notion of external reward sensitivity--the heightened perception, influence, or appreciation of rewarding stimuli or of the prospect of rewarding stimuli that are found in one's external environment.

Researchers examining the greater sociability, positive affect, and sensitivity to external rewards observed in extraverts generally agree on the basic relationship among the three (Depue & Collins, 1999; Cohen, Young, Baek, Kessler, & Ranganath, 2005; DeYoung et al., 2010; & Lucas et al., 2000). Assuming that social situations, on average, hold greater potential for external rewards than do non-social situations, the greater sociability characterizing extraversion appears to result in large part from a heightened sensitivity to the external rewards associated with social situations. Likewise, observed correlations between positive affect and extraversion seem best explained in terms of positive incentive motivation--in terms of the degree to which motivations are pleasantly aroused by the promise and enjoyment of external rewards.

Brain imaging experiments using structural and functional magnetic resonance imaging (MRI) support the hypothesis that extraversion positively correlates with heightened reward sensitivity. Cohen et al. (2005) conducted two functional MRI studies to examine activity in participants' neural reward systems, areas of the brain with high concentrations of dopamine receptors that are active during enjoyment of reward. The researchers measured brain activity for participants as they received rewards during a gambling task. Supporting the theory that extraverts have higher reward sensitivity, ratings on extraversion measures were significantly and positively related to levels of activity in the neural reward system when receiving the rewards (Cohen et al.).

Researchers have also tested the biological basis of personality traits using structural MRI (DeYoung et al., 2010). Results from a sample of 116 healthy adults provide additional evidence for the view that extraversion involves greater reward sensitivity: volume of the medial orbitofrontal cortex, an area of the brain associated with the processing of reward information, was larger (and presumably more powerful - see DeYoung et al., p. 4) in extraverts. The authors reported that this finding replicates those of prior studies (see Omura, Constable, & Canli, 2005; Rauch et al., 2005). While results say little about direction of causality, they nonetheless add important insights to an ongoing scholarly discussion on the role of reward sensitivity in personality.

Further informing that discussion, Lucas et al. (2000) employed multiple assessment scales to examine the direct contributions of sociability and reward sensitivity to a higher-order extraversion factor. They tested two competing structural models to find whether sociability or reward sensitivity was the glue binding the extraversion factor, measured across results taken from various personality scales. Analysis of data from nearly 6,000 participants in 40 nations

favored the reward sensitivity model and suggested that "social interaction was unrelated to the higher order extraversion factor and to pleasant affect" (Lucas et al., p. 466). Still the relationship between extraversion and pleasant affect was consistently strong. The study's authors concluded that this relationship between extraversion and pleasant affect was due to the robust association between reward sensitivity and pleasant affect.

Investigating the claim that reward sensitivity or incentive motivation best explains the commonly observed positive correlation between extraversion and positive emotionality, Robinson et al. (2010) conducted a study on positive affective priming. Over multiple randomized trials, participants were "primed" first with either a positive-, negative-, or neutral-affect stimulus before having to rate a second stimulus that was either positive, negative, or neutral. Extraversion was correlated only with the magnitude of the positive priming effect. This is to say that extraverts experienced greater priming effects than others, but only in cases when two positive stimuli were paired. Importantly, they were not any quicker to rate the positive-affect stimuli in general, nor did they differ from others in the levels at which they rated the various stimuli. Results were replicated across four studies with varying procedures and sample populations. Findings are consistent with the view that greater incentive motivation accounts for the association between extraversion and positive affect.

So it appears that some of the distinguishing characteristics of extraversion are sensitivity to rewards (closely tied to incentive motivation), and indirectly, positive affect and sociability. From what the research suggests, reward sensitivity largely accounts for positive associations observed between extraversion and both positive affect and sociability. In the college setting, extraverted students may be more sensitive to the rewards that stem from social interaction or networking on campus. This reward sensitivity could also lead extraverted students to seek more

social interaction than their introverted counterparts and to thrive in highly social settings. Further, extraverts' greater display of positive emotionality is in line with findings from student involvement research suggesting that increased active and social involvement make for "happier," thriving students. Such findings may implicitly reinforce a converse (and perhaps invalid) association between quieter involvement activities and less happy students.

To briefly recap the section, research suggests that introverts exhibit greater reflectivity and higher sensitivity to external stimuli, while extroverts show heightened sensitivity to external rewards and, relatedly, greater positive affect and sociability. Introverts may be hard-wired to inspect and cautious to act. They can easily become over-aroused by external stimuli and are less affected by the prospect of external rewards. Extraverts have a propensity to take action. They are not as moved by sensory stimulation and may, as a result, prefer higher levels of external stimuli than their introverted counterparts. Extraverts' sensitivity to rewards is a strong motivator for them to engage in social settings, and it elicits their positive affect.

Thus it seems that the labels of extravert and introvert, suggesting where one falls on the E-I dimension, are likely to convey useful information about individuals. Beyond giving superficial descriptions of personal preferences, the labels suggest corresponding fundamental characteristics associated with how people act, how their brains function and are structured, and how their bodies and minds respond to various stimuli. (For a summary of the characteristics described above, including sensory-processing sensitivity, reflectivity, responsiveness, and sensitivity to reward, see Appendix A.) Before further considering the possible roles of such individual differences in the college setting comes a brief review of research on the underlying causes of extraversion and introversion.

Influences Underlying the Extraversion-Introversion Trait

What determines levels of extraversion, and how do those levels change over time, both within and across individuals? Studies strongly implicate genetics and culture as causal factors. And societal norms--particularly the westernization of the modern world--may present a bias that is prompting a surge in the predominance of extraversion.

Genetics and Family Environment

Much available knowledge on the genetic and family influence of personality traits comes from family studies. These studies, consisting primarily of research on monozygotic and dizygotic twins, reared apart or together, indicate a moderate to strong genetic component to extraversion and a weak shared family influence. Specifically, the variance in extraversion accounted for by genetics is said to be anywhere from 40 to 55% (Bouchard & McGue, 2003; see also Bergeman, Plomin, McClearn, Pederson, & Friburg, 1988; Langinvaionio, Kaprio, Koskenvuo, & Lonngvist, 1984; Loehlin, 1989, 1992; Rowe, 1990; and Shields, 1962, as cited in Twenge, 2001). And the shared influence of family is considerably lower, with estimates between 0 and 5%.

Additional limited research in genetics further supports the view that extraversion is to some extent heritable. For example, authors of a 2007 study observed a link between self-rated extraversion and a genetic sequence associated with serotonin pathways in the brain, systems tied to things like behavioral inhibition (Gillihan, Farah, Sankoorikal, Breland, & Brodkin). The authors found that the presence or absence of a long allele on a region known as 5-HTTLPR explained over 3 % of the variance in self-rated extraversion scores. While the variance accounted for may seem low, it is actually a robust finding considering the complex and indirect influences of minor genetic variants on major observable characteristics like personality traits.

Thus findings support the claim that what we think of as "extraversion" may have a heritable component.

Society and Culture

If genetics and family combined explain up to 60% of the variance in extraversion across individuals, what accounts for the remainder? Second only to genetics, society and culture may have a substantial influence. Research on the sociocultural influences of extraversion raises awareness of personality shifts both across societies and cultures, and within them over time.

McCrae and Terraciano (2005) measured "aggregate personality" in terms of the "assessed mean personality trait levels of culture members" (p. 408). Data from college students representing 51 cultures worldwide led the authors to conclude that extraversion was higher on average in nations whose value systems corresponded with Westernized cultures. These cultures emphasize individualism rather than collectivism, "self-expression rather than survival . . . and high subjective well-being" (McCrae & Terraciano, p. 416). The findings coincide with prior research demonstrating that average levels of extraversion are higher among Europeans than among Asians or Africans (McCrae, 2004, as cited in McCrae & Terraciano, 2005). Results also correspond with previously mentioned research by Lucas et al., (2000), who discovered weaker correlations between extraversion and pleasant affect in collectivist nations. The authors attributed this finding to the well-documented relationship between extraversion, reward sensitivity, and pleasant affect: higher levels of pleasant affect in extraverts, particularly in social settings, are widely attributed to extraverts' higher reward sensitivity and to the greater rewards gained through social interaction (Depue & Collins, 1999; Cohen et al., 2005; DeYoung et al., 2010). Assuming that these rewards are more likely to accrue from social situations in

individualistic rather than collectivistic societies (where individual gain may be frowned upon) extraverts may exhibit more pleasant affect in individualistic societies.

So, different cultural beliefs and practices may influence not only the prevalence of extraversion but also the way in which it manifests, with less prevalence of extraversion in more collectivistic cultures and greater positive affect among extraverts in more individualistic cultures. But even these cross-cultural differences may shift over time. Based on several factors--including the link observed between self-expression and extraversion; the predominance of both in Western societies; and the rapid westernization of the modern world--McCrae and Terraciano (2005) predicted that overall extraversion levels should increase in coming decades.

If extraversion levels are set to increase with the spread of contemporary Western values, this increase would follow a historical trend already observed within the U.S., one that perhaps reflects the initial emergence of those values. Twenge (2001), first observed this national trend as a result of conducting a meta-analysis to address an apparent inconsistency in the literature on personality traits. She noticed that longitudinal studies consistently have found personality traits stable for individuals over time, yet cross-sectional studies have found large personality differences across participants of different ages (see Twenge, p. 737). To unravel the paradox, the author conducted a meta-analysis of 59 studies drawing data from the completed personality inventories of nearly 17,000 American college students. Data were collected in the years between 1966 and 1993. The correlation between year of data collection and extraversion scores was strong and positive, and not accounted for by demographic changes in the college-going population. This strong correlation suggested not an individual but a societal shift, i.e., a broad environmental effect on the prevalence of extraversion over time. The increase in extraversion accounted for between 14 and 19% of variance in the trait over the period reviewed. Twenge

hypothesize the shift to stem from things like increased family mobility and changes in child rearing that exposed children to greater social interaction; a shift in gender roles, with women acquiring greater assertiveness and public (i.e., social) presence; a move in the economy away from industry and toward service; and, significantly for the purposes of the current study, a change in schools, which "increasingly emphasized group work and social skills, recognizing that there are few jobs in the new economy that do not involve dealing with people" (Twenge, p. 738).

Societal shifts serve as ample evidence to account for the increased prevalence of extraversion in recent decades: it's quite plausible that societal transformations have led--perhaps accidentally and not necessarily for the better--to the promotion of values that happen to be associated with extraversion. Twenge and others have argued that these extraverted values have become the norm in today's Western societies. We as a sociocultural group tend to favor the person of action, primed to respond, lively, affable, and enthusiastic in social settings.

Considering this bias toward extraversion allows us to understand student involvement theory embedded in a broader context. The theory's foundation and rise in popularity may themselves be outgrowths of a changing society, both reflecting and promoting its evolving values. In exploring the relationship between student involvement and personality, the current study has the potential to raise our understanding of how and if the western bias toward extraversion manifests among college students today. It allows us to examine possible interactions between individual predispositions and backgrounds, on one hand, and mainstream cultural values (perhaps promoted at the university), on the other. The study has the capacity to explore how such person-culture interactions may be magnified through the microcosm of the university, among students of diverse backgrounds transitioning into adult life. Below are some

practical examples of how involvement activities in college may intersect with students' extraverted or introverted personalities.

Applying the Extraversion-Introversion Construct to Student Involvement Theory

Existing research on characteristics associated with extraversion and introversion, reviewed above, offers important insights on how and why personality variation may play a role in students' involvement preferences. Take, for example, the introvert's greater sensory-processing sensitivity and corresponding likelihood to become over-aroused by relatively lower levels of external stimuli. This sensitivity may negatively influence things like participation in Greek life and involvement in on-campus clubs and organizations, particularly those that require attending social events with high levels of activity. Such participation, in some sense, seems like it may mesh well with the outward inclinations of the extravert, as would in-person interaction with faculty and peers, discussed below.

Because introverts are "geared to inspect" and process information more thoroughly before responding, they may be less inclined toward impromptu interpersonal interactions in the academic setting. Their extraverted counterparts may be likelier to spontaneously approach faculty with questions, while the introverted preference for greater reflection before acting may mean that these students spend additional time and effort puzzling through their own questions successfully in solitude. Thus the introverts may feel less need for faculty interaction or involvement in study groups. It is also possible that the introvert prefers certain forms of interaction over others, such as a well-thought-out email to a professor rather than an in-person visit, which could require the student to act with little chance first to reflect. Similar issues hold for peer interaction and the events through which such interaction is fostered. Some of these events may take place in environments that are comfortable for extraverts yet uncomfortably

stimulating for introverts; the interactions these events entail may call for responding with minimal prior reflection. In addition, the introvert's reduced sensitivity to the external rewards associated with social interaction may mean that she finds less enjoyment in the social functions that are geared to increase students' involvement with peers and to make college "fun."

The involvement activities just discussed--participation in Greek life, participation in clubs and organizations, interaction with faculty, and interaction with peers--represent several distinct forms of student involvement examined in the previously mentioned meta-analysis of eight student-involvement studies (Gellin, 2003). The meta-analysis revealed positive correlations between critical thinking and all of the above forms of involvement, suggesting that, somehow, involvement in these activities promotes the academic acumen that fosters college success. But, assuming the direction of causality is from involvement to critical thinking, how, exactly, might this work? Research on personality traits suggests that there may be numerous explanations. Research is needed to investigate further possible variations in involvement and related outcomes, based on personality traits.

The current project is an effort to fill a gap in the research literature by exploring previously unstudied nuances and relationships across personality, student involvement, and student outcomes. Evidence suggests that many of the popularly emphasized involvement activities, broadly considered, may be more social and outward, and thus geared to students who derive greater rewards from social interaction and from higher levels of sensory stimulation, who are less prone to reflect and more apt to act. Even the very term "involvement" when paired with "activity" suggests that involvement entails action, in some sense the antithesis of introspection or reflection. As such, commonly emphasized involvement activities may convey disproportionate benefits to extraverted students--to those who are prone to respond readily, who

are more "active," less sensitive to sensory stimulation, and more positively affected by external rewards.

While research findings to date do broadly support student involvement assumptions, the findings on student involvement are not fine-grained enough to inform us of potentially meaningful variability in processes and outcomes for distinct subpopulations of students. And although other studies have linked personality traits to academic outcomes in higher education, they have not focused specifically on the topic of student involvement as it relates to extraversion and introversion.

For instance, using the Myers-Briggs Type Indicator (MBTI), an inventory derived from Jung's work on psychological types, Borg and Shapiro found that “students with personality types similar to their professor’s personality type performed better” in economics courses (1996, p. 4). Other research points to a significant difference in online versus in-class course satisfaction based on personality types, with extraverts exhibiting greater satisfaction with chat rooms, threaded discussion, and e-mail correspondences than their introverted counterparts (Daughenbaugh, Daughenbaugh, Surry, and Islam, 2002). Further, the book *Academic Disciplines* describes research on the connections between personality types and academic disciplines or majors (Smart, Feldman, & Ethington 2000). However, the narrow focus of the book on academic disciplines or majors limited the researchers' ability to capture variation in student involvement experiences both in and out of class. Further limiting the research was its somewhat arbitrary carving of six personality distinctions and its assumption that each of these distinctions neatly corresponds with a suitable discipline or major.

Thus while researchers have looked at personality traits in the college setting, the relation between the personality trait of extraversion (and introversion), on one hand, and student

involvement, on the other, has received scant attention. Yet the simple fact that these studies did find distinctions in academic experiences for students with different personality characteristics suggests the relevance of personality characteristics to college settings. Interplay between the two may result in different college experiences and outcomes for variably involved students with distinct personality traits.

A purpose of the current project is to add texture to our understanding of student involvement by exploring how extraverted and introverted students are involved in college and how that involvement relates to specific traits associated with extraversion and introversion. Its author also aims to discover how students achieve congruence with their involvement on one hand, and their personality and other factors on the other, in terms of things like personal needs and motivations as well as involvement demands and rewards. (That is, Are students gaining desired skills? Stretching out of their "comfort zones"? Doing what comes naturally and is intrinsically pleasing?) A final goal for the project is to explore how personality, involvement, and the congruence described above relate to outcomes like student satisfaction and academic success. Pursuit of these aims through qualitative analysis may provide insight to the ways in which various forms of involvement benefit students with different personalities.

Person-environment congruence is the framework that facilitates much of this examination. It guides the study's integration of the personality trait construct with the student involvement construct. The notion of congruence employed in the current investigation stems from two related theoretical perspectives.

CHAPTER 3: PERSON-ENVIRONMENT CONGRUENCE AS AN INTEGRATING FRAMEWORK

From two perspectives--transactional approach and Holland's theory of personality types and environments--a theoretical framework emerges to facilitate an understanding of student involvement in terms of personality. Specifically, this framework helps to examine how personality traits shape involvement choices and college outcomes, and how involvement in turn influences student personality.

This chapter starts with a brief introduction to the literature on person-environment (P-E) congruence. It continues with sections that provide detail on two P-E congruence theories: the transactional approach, and Holland's theory of personality types and environments. Each section presents descriptions and critiques of the respective theories and touches on their relevance to the current study, setting the stage for the following introduction of a novel person-environment congruence framework.

Person-Environment Congruence Theory and Research

Research exploring links between individual characteristics and aspects of the academic environment constitutes a segment of the substantial body of person-environment literature. Person-environment research intersects psychology with fields such as occupational or vocational studies and education. It draws from a small pool of theories, most of which concern person-environment (P-E) congruence. In some but not all cases, congruence (or fit) reflects harmony between one's personality traits and the characteristics of one's environment.

Theories on person-environment congruence have long played out in research on college students. In 1973, the American College Testing (ACT) organization published a review of

theories and research on person-environment interaction (Walsh). Two decades later, a similar review, this one conducted independently and not limited to the college setting, corroborated the significance of three of the theoretical approaches to P-E congruence outlined in the earlier ACT publication (Walsh, Craik, & Price, 1992). These are the behavior-setting theory, the transactional approach, and the theory of personality types and environments.

Behavior-setting theory emphasizes the impact of the environment on the individual. The theory places less emphasis on how aspects of the individual influence her involvement in any given setting. Thus the theory lacks relevance to the current project, which seeks to understand the interplay between individual and environment. The two remaining theories, the transactional approach and Holland's theory of personality types and environments, hold relevance to the current project. Features of each inform the analysis, building a frame on which to examine and interpret student involvement in terms of student personality.

The Transactional Approach

The transactional approach postulates congruence as a function between individual abilities and environmental demands, and between individual needs and environmental supplies (Caplan, 1987; French, Rodgers, & Cobb, 1974). It distinguishes objective from subjective persons and environments and assumes that optimal outcomes (on a wide range of variables) result when person and environment, objective or subjective, are congruent on similar dimensions. Further, it gives clear definitions for how an individual adjusts to a sub-optimal P-E congruence—by changing the subjective or objective person or environment. While the framework offers relatively clear operational definitions, only a small number of early studies have tested it in the academic setting, with results offering moderate support (Pervin, 1967a; Pervin 1967b; Pervin & Rubin, 1967).

Previous literature employing the transactional approach in conjunction with the personality trait perspective is lacking, nor have researchers tested the theory with respect to student involvement. But as for the "person" side of P-E congruence, the application of personality traits to a transactional approach could help account for the particular needs and abilities that give certain individuals better fits than others within a given environment. So while the transactional approach has not yet seen research applications in conjunction with personality trait perspectives, the two theoretical perspectives appear compatible.

As for the environment side of P-E congruence, the transactional approach may be helpful in examining student involvement insofar as involvement activities correspond with particular environments and similarly carry distinct external demands and supply specific benefits. Forms of involvement thus may be seen as or defined in terms of the unique environments, or perhaps "micro-environments," in which they occur: each form of involvement has an environment peculiar to it, an environment immediately associated with its own singular benefits and demands.

Yet the theory has no previous applications to student involvement in this manner. It has framed studies of much broader environments--workplace and academic settings, each as homogenous entities within which transactions are presumed relatively predictable and similar. In fact, the early research testing this approach examined P-E differences across entire colleges. It did not consider the variation of environments within colleges, nor did it account for the diverse options for becoming involved within any given environment. Perhaps the variety of pedagogical, curricular, and extracurricular options available to students attending the same institution is a somewhat new phenomenon that requires a unique research approach. The

structure of the transactional approach nonetheless may be helpful in understanding this more recent phenomenon.

While prior applications of P-E congruence aligning with the transactional approach seem less applicable to the current study, the overall conceptual structure of the approach holds promise. The framework may be tailored to meet the needs of the investigation at hand. That is, with the transactional approach, personality traits aligned with personal abilities and needs come up against involvement activities offering environmental demands and supplies. From this perspective, the investigation then turns to how congruence between the person and environment is achieved (or not), and what outcomes ultimately result. The approach holds promise for helping to explore links between personality traits and student involvement.

Discussed next, Holland's theory, and in particular its congruence assumption, helps further frame the examination of links between personality and involvement. In conjunction with the transactional approach, Holland's theory provides the base of a new framework for understanding the dynamics across personality, involvement, and student outcomes.

Holland's Theory of Personality Types and Environments

More studied than the transactional approach, Holland's theory of personality types and environments dominates the P-E congruence research literature in the college setting. It has served educational and vocational researchers for decades, garnering abundant corroborating data (Astin & Holland, 1961; Blake & Sackett, 1999; Feldman, Smart, & Ethington, 2004; Feldman, Smart, & Ethington, 1999; Gottfredson, Jones, & Holland, 1993; Holland, 1963; Porter & Umbach, 2006; Spokane, 1985; Walsh, 1973; Walsh & Holland, 1992). The theory stands on several basic assumptions about personalities, environments, and the intersection of the two.

The first of these assumptions is that “individuals tend to resemble one or more personality type” (Walsh & Holland, 1992, p. 36). Along with this, Holland postulated six major personality types: realistic, investigative, artistic, social, enterprising, and conventional. The given descriptors for each basically fit their respective commonsense labels.

Criticisms of the theory include the claim that Holland's taxonomy is arbitrarily defined and that it fails to capture the dimensionality of personality traits (Blake & Sackett, 1999). These criticisms gain partial support from studies on the correspondence between Holland's six personality types and the "big five" personality dimensions (Blake & Sackett, 1999; Gottfredson et al., 1993). Also known as the five-factor model, the big five dimensions are the gold standard in personality research and theory (Goldberg, 1981; Digman & Inouye, 1986; McCrae & Costa, 1987). The five dimensions measure levels of extraversion, openness, conscientiousness, agreeableness, and neuroticism.

To see how Holland's six types would hold up to the five-factor model, a group of researchers conducted an analysis based on the results of personality inventories taken from over 700 study participants (Gottfredson et al., 1993). Results suggested small to moderate correlations of certain traits in Holland's model with those of the five-factor model. However, there was overlap across traits from the two theories, and not all of the five-factor traits were represented in Holland's model. A later study found similar results and evidence to suggest that Holland's trait descriptions were "not always internally consistent with respect to the five factors" (Blake & Sackett, 1999, p. 257). For example, Holland's description of the "realistic" personality type contained adjectives that reflected contradictory dimensions on the five-factor model, including both introversion and extraversion; both low and high conscientiousness. The authors' findings were based on results of lexical analysis in addition to analysis of actual

correlations from participants' completed personality inventories. Ultimately, the study's researchers concluded that each of Holland's types is a measure of not one personality trait but an amalgam of traits, a hypothetical prototype that represents a complex configuration of the big five dimensions. Questions about the validity of Holland's personality measures bleed into the theory's remaining assumptions and related findings.

A further assumption of Holland's is that the occupational or academic environments people of a given type inhabit “tend to resemble one or more same named model environments” (Walsh & Holland, 1992, p. 39). In other words, for each of Holland's personality types there is a matching environment of the same name. This primarily psychological setting reflects the personality type of the individuals who comprise it. The assumption is that individuals with similar interests, and likewise similar personalities, generally end up in similar places - including college and the workplace. In the academic setting, research based on Holland's theory takes the discipline or major as the environmental unit. To facilitate research on the theory, there is even a "College Majors Finder"--an assessment tool that classifies academic departments into five of Holland's six possible environment types, mirroring all but the sixth personality type--conventional--for which there was said to be no corresponding academic department (Rosenberg, Holmberg, & Holland, 1989, as cited in Smart et al., 2000).

Some of these academic classifications make common sense. For example, departments of fine arts receive the "artistic" label and business management is "enterprising." But others are less straightforward. All of humanities, for instance, are categorized as "social," although it could be argued that some areas within humanities may be more investigative, such as philosophy and history. And specializations within disciplines, like history of medicine and philosophy of art, cause further complications. Likewise this second assumption of the theory

has difficulty accounting for the interdisciplinary or multidisciplinary major, a relatively new option rapidly gaining popularity in higher education.

Thus while much of the research on Holland's theory rests on the second assumption, that for each personality type there is a matching environment, the application of this assumption in research to date raises concerns. Regardless, findings suggest that Holland's second assumption taps into real, observable links between certain academic environments and the people within them (Porter & Umbauch, 2006). Research testing Holland's second assumption, combined with findings on the first assumption, raises questions as to what it is about certain students and their academic environments that connects the two; a better grasp of those students' personality types and academic environments is important to determine the basis for those connections.

A third theoretical assumption is that person-environment congruence or fit tends to be associated with positive outcomes, e.g., "vocational stability, achievement, personal stability, creative performance, and personal development" (Walsh, 1973, p. 65). Further, when there is not a good fit, the outcomes are negative, and the individual will make efforts to resolve the incongruence by changing herself, her environment, or both (Walsh & Holland, 1992). The congruence assumption has received a good deal of attention by researchers. In 1985, Spokane reviewed 40 correlational studies on congruence in Holland's theory and concluded that congruence is consistently associated with performance, satisfaction, and stability. However, study findings were far from straightforward. For over half of the studies under review, either there was no relationship between congruence and the outcome variables of interest, or the findings were mixed. The review also found mixed or insufficient evidence for a relationship between congruence and variables like academic adjustment and retention. Two more recent studies also offer limited support for Holland's third theoretical assumption.

The first of these examined parallels across students labeled as either congruent or incongruent, depending on the match between their personality and field of study. The analysis centered on students' self-reported abilities and interests throughout the four-year span of their college careers. Consistent with the third assumption, data suggested that students in fields of study congruent with their personalities did increase their "dominant skills and interests" (Feldman et al., 1999, p. 662). Students who opted for incongruent fields of study either increased less or actually decreased their dominant skills and interests.

The second study corroborated findings of the first. Students in congruent academic environments were more likely to progress in a direction consistent with their initially prominent characteristics (Feldman et al., 2004). Unlike the first study, however, the second study also focused on the progress of incongruent students in terms not of their initially prominent characteristics but of those characteristics promoted by the incongruent environments. Students in the study advanced at a consistent rate in whatever field they selected, regardless of whether that field was congruent or incongruent with their prominent interests and abilities. Further, while the students' absolute level of advancement in their chosen field did not depend on congruence, the incongruent students nonetheless started and ended with lower scores in their chosen field when compared to the congruent students (Feldman et al., p. 535). So both groups made equal gains, but the entry and exit scores of the incongruent students remained low relative to their congruent counterparts.

Interestingly, the researchers found no differences across congruent and incongruent students in terms of academic engagement, satisfaction or discontent. Additional research would be needed to explore how and if students in incongruent environments, who may work as much

as their congruent counterparts without reaching their counterparts' level of interest and achievement, nonetheless remain equally engaged and satisfied with the academic experience.

To sum up, Holland's theory of personality and environment rests on the assumptions that individuals resemble one or more personality type; that for each personality type there is a matching "model environment"; and that congruence between individual and environment leads to a number of positive outcomes, while incongruence leads to negative outcomes and prompts a change in the individual, the environment, or both. These assumptions and corresponding research exemplify the foremost theory in person-environment congruence applied to the college setting. They provide useful insights to the current project and illustrate the caution that must be exercised in making theoretical constructs operational. Features borrowed from both Holland's theory and the transactional approach may be useful for framing the present analysis.

A New Understanding of Person-Environment Congruence

Borrowing from Holland's theory and the transactional approach, what definition of person-environment congruence will work for current purposes? In defining the new framework, it helps to begin with Holland's theoretical assumptions. One critical assumption is that people can be described in terms of their personalities, and that such descriptions indicate real qualities. For Holland, the descriptions were based on six personality types. The current project relies on more robust personality traits, and focuses specifically on the widely acknowledged extraversion trait. The new assumption, therefore, is that individuals tend to fall toward one end or the other on the extraversion dimension; one's placement on this dimension is associated not only with certain further specific sub-traits but also with a few basic, fundamental characteristics that help make sense of these traits and sub-traits, the associations among and between them, and the ways they manifest in practical settings.

A second assumption concerns environments. For Holland, academic majors were the unit of analysis that defined environments. In the current study, this more rigid definition is cast off. Instead, environment takes a more fluid and "micro" perspective: It is identified with the notion of involvement, a sort of action- or thought-oriented micro-environment. Today's student has more choice than ever when it comes to what she will study. Greater variety across and within academic majors leaves room for diverse students to find their niches in a daunting array of fields and academic specializations, with at least as much variety in choices of extracurricular involvement. It is thus fitting to replace the examination of artificially carved out academic environments with a focus on the varied and fluid options for individualized environments accessed through student involvement. While involvement may neither be easily defined nor neatly parallel personality traits, it is assumed that there are distinct forms of involvement and that these carry peculiar demands and advantages for students with different personality traits. That is, different forms of involvement may be identifiable with environments that are better or worse suited to more or less extraverted students.

A third assumption concerns congruence. As in Holland's theory, it is assumed that when the type of involvement is more in line with the personality trait, positive outcomes will result; when involvement and personality are incongruent, negative outcomes and efforts to resolve the congruence are likely to result. Unlike Holland's theory, it is assumed that there is more to the story of person-environment congruence than individual personality and college environment. Other factors to consider in the balancing act of achieving congruence include practical considerations, background characteristics, and societal norms. It could be the case that students subordinate the quest for congruence between personality and environment in order to achieve congruence on other levels, which will be explored in the investigation.

In addition to drawing from Holland's approach, the transactional approach informs the investigation of person-environment congruence by giving greater specificity to the personal and environmental domains--particularly, to how they interact to result in congruence (or incongruence). That is, the transactional approach gives the new P-E congruence framework a sort of mechanism that specifies how congruence (and incongruence) come about: through individual abilities that correspond with environmental demands and individual needs that correspond with environmental supplies.

The new framework of person-environment congruence holds promise to uncover ways in which two very different students, even under the same major concentration, achieve success by tailoring their individual environments, through student involvement, to suit them. Person-environment congruence, explored through qualitative methodology, may reveal the distinct gains and drawbacks of various types of involvement for students with complex personalities, abilities, interests, and needs. In doing so, it may promote a new and deepened understanding of P-E congruence and incongruence, and the outcomes that result for diverse students in the college setting. Ultimately, shedding light on the interaction of personality traits and student involvement in this way may elevate Astin's theory of student involvement to a new and more effective level—to one that promotes the individual student's ability to customize her academic experience in ways that suit her unique personality and preferences. It may also give researchers, faculty members, and student affairs personnel a clearer perspective on the diverse range of involving experiences through which different students gain positive outcomes.

CHAPTER 4: RESEARCH DESIGN

Four research questions guided the current investigation in examining the relationship between student involvement and personality:

1. How are introverted and extraverted students involved in college?
2. What aspects of students' extraversion-introversion are associated with their student involvement, and in what ways are they associated?
3. How do extraverts and introverts achieve congruence between their personalities and involvement?
4. How are involvement, and the congruence between involvement and personality, tied to student outcomes for extraverts and introverts?

Pertaining to the first two questions, the analysis sought to explore if and how the academic and extracurricular involvement of participants with varying levels of extraversion and introversion differed in line with characteristics associated with those traits, including sensory-processing sensitivity, reward sensitivity, responsiveness, reflectivity, and sociability. Addressing the third research question, the prediction in line with congruence theory was that extraverted and introverted students would seek a sense of congruence on campus either by finding environments to suit their personalities and preferences or by changing their personalities to suit the environments in which they sought involvement; in line with previous research findings that suggest extraversion is on the rise in the modern world and that traits associated with it carry normative weight, the hunch was that introverted students more so than extraverted students would strive to achieve congruence by altering personal aspects to match their environments. Finally, congruence research corresponding to the fourth question suggests that students' expressed perceptions of congruence between their personalities and environments,

would be positively associated with outcomes like satisfaction with college and progress toward the degree. The examination into these associations centered on in-depth interviews of students from either side of the extraversion spectrum.

Study Site

The University of California Los Angeles, a large and highly selective public research university in a major U.S. urban area, served as the study site. The researcher had longstanding ties with the institution and selected the site first for its convenience and accessibility. Being a student at the university as well as a researcher at the university's Office of Instructional Development gave the researcher ready access to university staff, who served as gatekeepers to the target population of undergraduate students. Familiarity with a range of involvement activities at the institution, and with the institution's unwritten customs, biases, and traditions, further enabled the researcher to pose more meaningful interview questions, and gave greater depth to the understanding of student responses.

Aside from its convenience and accessibility, the site had several features that made it an attractive venue for the current investigation. Among these were the number and diversity of options for student involvement. At the time of data collection, the campus housed around 10,000 students in its residence halls (UCLA Office of Residential Life, 2012). Over 950 student organizations were registered on campus (UCLA Center for Student Programming, 2011), nearly 200 of them involved social or political activism. More than 68 Greek-letter organizations represented 15 percent of the undergraduate population (UCLA Fraternity & Sorority Relations, 2012). The associated students organization boasted "hundreds of jobs" for students (Associated Students UCLA, 2012). The campus recreation department had 14 facilities and offered services and classes including bike rentals, leadership training, weekend wilderness outings, and non-

credit courses in fitness, sports, dance, martial arts, music, etc. (UCLA Recreation, 2012). The university's athletic program was touted as "the most complete in the country" by Sports Illustrated (Shipnuck, 2005). There were weekly meditation and biofeedback workshops in addition to individual counseling sessions and a multitude of therapy groups held by campus counseling and psychological services (UCLA Counseling & Psychological Services, 2012). A performing arts center and museums of contemporary art and cultural history served the interests of artistically inclined students. And those focused on academics had at their disposal an honors program, two undergraduate research centers, and one of the largest library systems in the country. In addition, the curriculum supported 130 academic majors and 80 academic minors, with a range of course formats, from intimate seminars to large lectures. The site ranked as one of the top 10 "New Ivies" due to its strong, well-rounded academics and vibrant campus life (Bartlett, 2006). In short, its students enjoyed an extraordinary plethora of diverse options for becoming involved in the university experience, making the site a prime location for studying diverse student involvement in and out of class.

Along with the abundance of ways to become involved were the great size and diversity of the student population. The institution at the time of data collection enrolled more than 40,000 students, over 27,000 of them undergraduates (UCLA Office of Analysis and Information Management, 2012). As with the size and diversity of campus programs and services, the large student population may have opened greater options for student involvement. For example, it likely increased opportunities for lively social interaction, and conversely had the potential to offer comfortable anonymity among the masses. Size also may have presented unique challenges, such as temptations to distraction from academics by social life, or difficulty establishing personal and intimate social interactions. Nonetheless, due to the selectiveness of

the institution and its low attrition rate, it was assumed that its students, both extraverted and introverted, more often than not thrived in the environment and enjoyed involvement on campus.

Diversity in terms of the site's student demographic also held potential to increase the depth of research findings. Freshman entering Fall 2011 came from 48 of the United States and 80 countries outside the U.S. Over half of this cohort received need-based scholarships or grants, and 25 percent qualified for Pell grants. The university as a whole enrolled slightly more female than male undergraduates. In terms of race and ethnicity, a plurality of undergraduates (37 percent) identified as Asian/Pacific Islander. Roughly a third of students identified as White, 16 percent as Chicano/Latino, and 4 percent as African American/Black. (UCLA Office of Analysis and Information Management, 2012)

The diversity of the student population allowed the researcher to draw from a pool of not only different races, ethnicities, and income levels, but also multiple perspectives. That diversity served as an asset insofar as it allowed the researcher to illustrate the commonalities and distinctions that occur within and across students of various backgrounds. Overall, the abundance of possibilities fostered by the site promoted a rich, comprehensive body of data that would not have emerged from a smaller or less diverse setting.

Sample Recruitment

All students who participated in the study first received via email an invitation to take part in a brief online personality survey, from which the researcher culled a sample of potential interview participants. As a monetary incentive, students who took part in the survey had the option to enter a drawing for one of four $25 gift cards to the university's student store. The survey served as a recruitment tool for the interviews: it concluded with an invitation to take part in a one-on-one follow-up interview, incentivizing students to participate in the interview with

the guarantee of a $15 gift card redeemable at the student store. Students wishing to participate in an interview had the option on the survey to provide contact information and indicate consent for the researcher to follow up with a scheduling request. As such, all interview participants had first taken part in the online survey.

Only students who had completed at least one year of college received invitations to participate in the survey and subsequent interview. This stipulation ensured that participating students had at least an academic year to adjust to college life, and were sufficiently familiar and experienced with various forms of involvement. Likewise, the researcher chose to exclude students who had transferred from two-year colleges, who may face additional challenges adjusting to the four-year college environment (Laanan, 2001).

There were two survey recruitment rounds. In both rounds, the university's Office of Analysis and Information Management (AIM) and Office of the Registrar identified a target population of students and distributed the online materials to them. A university administrator with whom the researcher held a close working relationship served as the "gatekeeper" facilitating the researcher's access to staff at both offices.

In the second round of recruitment, survey invitations went to all students working with the university's Office of Residential Life. This office employed a large and diverse population of students in a range of positions, from administrative to advising to leadership of tour groups; numerous students from the initial recruitment round, incidentally, held employment with this office. In the end, however, the second recruitment round (occurring during the summer) resulted in only one additional interview participant. Much of the discussion that follows thus focuses on the initial recruitment round.

To benefit from the institution's size and diversity, survey invitations in the first recruitment round targeted a sample of over 4,000 students from the most populous majors within each of five main divisions of the university's College of Letters and Science. In order of most to least student enrollments per division, the targeted majors are as follows: political science and business economics majors in the social sciences; psychology and psychobiology in the life sciences; biochemistry and applied mathematics in the physical sciences; English in the humanities; and international development studies and global studies in the (interdisciplinary) International Institute. (Due to some students changing majors a small portion of the survey and interview sample fell outside of the areas listed.) In choosing the largest majors across divisions, the researcher hoped to benefit from diverse perspectives while having enough participants of similar majors to enable comparisons of students in the same majors across the extraverted and introverted personality groups. Initial survey invitations and follow-up reminder emails resulted in 326 survey respondents, for a response rate of just over 7 percent, which fell shy of the 10 percent target initially set. Since the survey functioned as a recruitment tool for the subsequent interviews, the researcher had initially targeted a relatively high number of students (10 percent of the 4,000 student sample) to provide a safeguard in case only a small fraction of survey respondents were to volunteer for interview participation. Setting this number relatively high further increased the possibility of reaching a sufficient sample of both extraverted and introverted students from similar majors.

Following survey recruitment and administration, the researcher then reached out to potential interview participants. The sample of potential interview participants included those survey respondents who indicated, at the end of the survey, their willingness to take part in a follow-up interview. The researcher sought a representative sample of 40 total interview

participants across five divisions, equal parts scoring high and low on the extraversion scale. Within each of these two groups, the goal was to include balanced representation of males and females, and to represent the diversity of the college in terms of race, ethnicity, field of study, and socioeconomic status. Ideally, such a diverse and balanced sample may have resulted in greater prominence of findings on the main variable of interest--the student personality trait--while creating space for the emergence of topics related to culture, gender, and SES.

Unfortunately, the realities of recruitment somewhat compromised attainment of this ideal. The interview response rate amounted to slightly over 10 percent of survey respondents, i.e., only 34 students comprised the total interview sample. While the researcher was not able to achieve the sought level of diversity or balance across groups, she nonetheless made efforts to account for various background characteristics through data analysis.

Data Collection and Analysis

Surveys and interviews provided all data for analysis. Online surveys yielded basic demographic information and contained a brief personality inventory suggesting where students fell on the extraversion-introversion dimension.

Interview questions centered on students' personality characteristics, their involvement experiences, and the manifestation of those characteristics in their involvement experiences. The questions further explored how students achieved congruence with their college involvement, on one hand, and their personality-related needs and abilities, on the other. Finally, interviews aimed to shed light on relationships between congruence and broader outcomes like satisfaction with the college experience and progress toward the baccalaureate degree. (Appendix B contains the complete interview protocol; see Appendix C for a table that indicates, for each protocol item, the corresponding research question and theoretical construct.)

Surveys

A brief survey included items measuring extraversion-introversion level, in a forced-choice format. These items were adapted from the NEO Five-Factor Inventory-3 (McCrae & Costa, 2010), an updated and abridged version of a well-established inventory framed by a five-factor personality trait model. Much of the research on extraversion and introversion cited in the above review of literature made use of some form of NEO Inventory or an extraversion scale strongly correlated with that of the NEO Inventory in order to identify research participants' extraversion-introversion levels (Aron & Aron, 1997; Brebner & Cooper, 1978; Cohen et al, 2005; Depue & Collins, 1999; DeYoung et al, 2010; Geen, 1984; Johnson et al., 1999; Robinson, Moeller, & Ode, 2010). The inventory thus is directly or indirectly implicated in the observed links between extraversion-introversion measures and several characteristics that are of prime interest in the current study: incentive motivation (Depue & Collins, 1999; DeYoung et al., 2010; Cohen et al., 2005; Robinson, Moeller, & Ode, 2010), sensory-processing sensitivity (Aron & Aron, 1997; Geen, 1984), and both reflectivity and responsiveness (Brebner & Cooper, 1978; Johnson et al., 1999).

Still, the survey is not directly intended to capture information on these specific characteristics. It instead breaks down extraversion-introversion, a "domain," into six smaller traits, or "facets," labeled warmth, gregariousness, assertiveness, activity, excitement-seeking, and positive emotions (McCrae & Costa, 2010). Correspondence between the labels and the items employed to measure them is not always clear, however. Items under the six facets of the abridged version, for instance, inquire specifically about preference for casual socialization, enjoyment of solitude, enjoyment of large-scale socializing, preference for being in crowded areas, preference for independence vs. leadership, preferred activity levels, and preference for

being in active environments (McCrae & Costa, p. 103). A number of these topics seem to capture more or other than their facet labels suggest. Further, the inventory's authors claim that the extraversion items on the NEO Inventories do not measure introspection or reflection (McCrae & Costa, p. 19), a main characteristic of interest for the current project.

Regardless of apparent issues, research consistently has shown associations between the NEO and related inventories, and the characteristics of interest for current purposes, including reflectivity (Brebner & Cooper, 1978; Johnson et al., 1999). Perhaps, as suggested by the author of a book on the NEO Inventory's clinical and research applications, "The 'neatness' of the model should not be grounds for dismissing it" (Piedmont, 1998, p. 214). The inventory's authors themselves acknowledged that there is greater agreement across disparate personality measures when it comes to the higher-order personality factors like extraversion-introversion than there is in terms of the specific traits that define them (McCrae & Costa, 2010). As a result, they suggested that personality assessment "should begin at the top and work down" (McCrae & Costa, p. 59).

Overall, it appears that the extraversion items from the NEO inventory are useful for current purposes in that they do seem to capture something important--common characteristics or preferences--among the individuals who complete them. The inventory and correlated measures have the capacity to consistently and reliably identify meaningful differences among populations, and these differences seem to correspond with our broader understanding of extraversion and introversion. Less is known or agreed upon about the further specifics that perhaps comprise that broader understanding.

Taking the limitations on specificity into account, the current study employs the NEO Inventory as a way of identifying a target population of students with extraverted and introverted

tendencies; it then draws from past research as a guide to explore specific characteristics linked with extraversion and introversion that are associated with but not well articulated through the inventory.

To identify students as extraverted or introverted from their survey responses, analysis of survey items related to extraversion-introversion resulted in a numerical value for each participant representing the sum of values assigned to his or her individual responses. This total value for each student translated into the student's level of extraversion-introversion. Individual scores on the upper end of the range represented greater extraversion, and scores in the lower end represented greater introversion. While the ideal interview sample included only students scoring in the extremes at each end of the spectrum, the small number of students consenting to take part in interviews necessitated inclusion in the interview sample of students whose scores fell at varying degrees along each side of this numerical scale.

Beyond the personality measures, additional survey questions pertained to basic demographic information including age, gender, race/ethnicity, and socioeconomic status. Statistical software aided the researcher to determine simple descriptive statistics pertaining to student demographics. Analysis of demographic items along with personality measures allowed the researcher to check for differences in extraversion-introversion according to background variables. In addition to providing data for analysis, the survey served to inform all participating students of the optional follow-up interviews, where they would have the chance to discuss if and how their level of extraversion-introversion related to various college experiences and outcomes.

Interviews

Each interview ran approximately thirty to sixty minutes. Interviews were informal, conducted at a private meeting place on campus. With the permission of participants, the

researcher recorded and transcribed the interviews. Reflective notes and personal observations supplemented the transcriptions. Interview questions focused on gaining in-depth knowledge of students' subjective assessments of their own personalities and perspectives on their experiences in college. The interview protocol (see Appendix B) includes sections on personality (i.e., extraversion-introversion), academic and extracurricular involvement, congruence between personality and involvement, additional aspects of congruence, related outcomes, and outside concerns.

Analysis of interview data followed basic qualitative procedures wherein findings gradually emerge through an iterative process starting with a careful reading of the data (Hammersley & Atkinson, 1995, p. 210). Following Creswell (2009, p. 185), the process of data analysis and interpretation progressed from organizing and reading through the data to coding it (i.e., to tagging segments of the text with corresponding labels). The process also involved the development of general themes and descriptions grouping codes together, followed by drawing connections across themes and descriptions and, finally, interpreting their meaning.

However, the current analytic process strayed somewhat from Creswell's recommended "bottom-up" approach, whereby the initial development of specific codes leads to creation of wider themes. In the current analysis, the initial development of broader codes or themes, informed by theory and data, served as the springboard for establishing further specificity. That is, more specific codes first derived from broader ones. But in the recursive nature of the analysis, these specific codes then allowed for deeper analysis and reinterpretation of the initial broad codes or themes. Thus rather than simple "bottom-up" coding, the current analytic process started with a "top down" approach before climbing back up from specific to general. A detailed description of the analytic process follows.

During preliminary review of the more than 800 pages of transcript data, the researcher annotated transcripts and underlined text of interest or directly pertinent to the research questions. Additional insights then came through another review of annotated transcripts, following classification of them into four groups according to participants' extraversion-introversion levels (i.e., into groups representing high and moderate levels on each side of the extraversion spectrum, with the high and moderate categories for each derived from individual survey scores and self reports).

After a round of brainstorming and note-taking on rudimentary impressions, another read of the transcripts resulted in two to four pages of notes and references pertaining to each individual transcript, with each set of notes systematically organized according to the four research questions plus outside factors of interest tied to background and context.

Drawing from the review and annotation of these notes along with the transcripts and surveys for each participant, the researcher developed a preliminary list of around 30 broad codes or themes addressing the study's research questions and theoretical framework. Spreadsheet software facilitated the next step of the analytic process: categorizing the data according to these codes. The researcher entered the cells of two spreadsheets with segments of text from interview transcripts and with survey data. The first of these spreadsheets contained the survey and transcript information on background and setting, and the second, excerpts that tied into the research topics or otherwise appeared salient across and within participants. For example, there were categories for reflectivity, responsiveness, and external reward sensitivity, and for such things as social involvement, rewards, and challenges. Categories further aligned with the topics recommended for comprehensive analysis by Bogdan and Biklen (1992, as cited in Creswell, 2009, p. 186-187): codes captured participants' perspectives and ways of thinking,

their processes, activities, and strategies, as well as their social structures. In several cases, the same category label (e.g., "External Reward Sensitivity") headed multiple columns, with the number of repeat-category columns depending on the topically distinct bits of information relevant to that category provided by each student.

This spreadsheet organization provided the framework for the analysis that followed. In the more detailed coding process subsequent to the initial stages of data input and coding, the researcher addressed each research question in turn and pursued insights that resulted from close, repeated observations. As an alternative to using qualitative analysis software, use of spreadsheets allowed a baseline of structure and organization from which the researcher could then conduct additional detailed analysis by hand.

A simple assessment of how students were involved in college served as the foundation for analysis of the remaining research questions. That is, addressing the primary research question by labeling and tallying specific segments of the text organized in spreadsheets, not only indicated each student's involvement pursuits but also built a foundation for analysis of the further areas of inquiry. Analysis surrounding each subsequent research question involved a recursive process of organizing and inputting data into spreadsheets by themes, hand-coding for specifics, and then drawing the lens outward again to see how the specifics corresponded to or strayed from the initial themes of interest, and how the themes themselves held meaningful distinctions and interconnections across and within each other. Ultimately, the analytic process of developing themes and codes, and exploring relations within and across them, led to insights that may further our understanding of the links between students' personality traits and their involvement in college.

Validity and Reliability

Built into the current study were validity checks, some of which are highlighted in what follows. These checks served as safeguards to the accuracy of findings. For example, during data collection, a number of the survey and protocol items allowed the researcher to delve outside the direct realm of the research questions. The survey items explored student background characteristics, and the interview questions sought accounts of congruence and of student success not limited to personality trait and involvement. Consideration of outside factors in this way constituted validity checks, put in place to ensure that the data accurately reflected the experiences of students.

Further validity checks took place in the analysis and presentation of findings. Efforts to present a rich, detailed, and accurate portrayal required the consideration of multiple perspectives in the analysis and the inclusion of detailed accounts when reporting themes. Rather than narrowly analyzing the data in terms of the research questions, the researcher attempted to view questions in a broader context; rather than relaying only those findings that neatly corresponded to the research questions, the researcher made efforts to give complicated answers attention.

Still, researcher bias posed a potential threat to validity affecting all stages of the project--from design and data collection to analysis and presentation of findings. Even the choice of the current topic in some sense resulted from the researcher's bias: as a pronounced introvert, her student involvement experiences, positive and negative, spurred interest in the experiences of other students falling at extremes along the extraversion dimension. Also, the researcher's longstanding, positive affiliation with the university under study potentially skewed her perception of the study site and its population. Biases such as these are unavoidable. The best "control" for them is self-reflection and transparency on the part of the researcher (Creswell,

2009, p. 192). Efforts at self-reflection and transparency, plus consultation with outside parties, helped to keep these biases somewhat in check.

Several procedures went beyond validity checks to ensure the reliability, or consistency, of the research approach. All interviews followed the same detailed protocol. All were audio recorded and professionally transcribed, with the researcher and participant reviewing individual transcripts for errors. Personal notes taken by the researcher during and immediately after interviews supplemented transcriptions when necessary. In the coding phase of data analysis, ongoing revisions of coding and corresponding iterative review of transcripts helped to preserve the integrity of the analysis as an accurate, consistent reflection of the data. This recursive coding process ultimately may have increased the reliability of findings that emerged throughout the analysis (Creswell, 2009).

Summary

Guiding the current investigation are research questions concerning the connections between student involvement on one hand and the preferences, abilities, and outcomes of students with different personality traits on the other. Addressing these questions involved examining how and why students with different personality traits found themselves involved in the college experience, and how such involvement related to their personal satisfaction with the academic experience and their progress toward the baccalaureate degree.

Surveys and interviews provided data for the investigation. Surveys offered basic demographic information and indicated students' places along the extraversion-introversion dimension. Interview questions relied on person-environment congruence as the integrating theoretical framework; they explored students' personality and involvement, associations

between the two, how a better or worse fit between the two was achieved, and how person-environment congruence impacted the overall college experience.

The researcher collected data from students attending a large, diverse public research university in a major U.S. urban area. Survey participants came from the most highly-populated major concentrations in each of five main divisions of the university's College of Letters and Science. All interview participants were culled from the sample of survey participants. The researcher employed purposeful sampling in efforts to recruit a diverse and balanced pool of interview participants. Validity and reliability checks built into the study served as safeguards to the accuracy and consistency of findings. Despite limitations, the study holds potential to expand our knowledge of theory and improve common practice in the college setting.

CHAPTER 5: FINDINGS

Findings fall into five main categories: participant demographics; academic and extracurricular involvement; personality traits and involvement; person-environment congruence; and student satisfaction. The first of these categories briefly sets the stage for what follows. It gives a basic overview of survey and interview participants' personality designation; gender; age; year in school; academic major; race/ethnicity; and income at the time of data collection. The remainder of the findings are drawn exclusively from the interview population, starting with two sections that cover how and why the students were involved in college. These sections explore the balance of academic and extracurricular pursuits of individuals across the two main personality groupings before delving into the associations between various forms of involvement on one hand, and personality traits and related characteristics on the other. Following the accounts of student involvement is the third section, which details the congruence between students' environments and their personalities. It examines how, through involvement, students conformed to fit their environments and how they changed their environments to suit themselves. Concluding the chapter is a section on student satisfaction in which links are explored between satisfaction and the factors of background, personality, involvement, and person-environment congruence.

Participant Demographics

Excluding duplicate and partial responders, 296 students took part in the online surveys, and 34 of these completed the interviews. A disproportionately high number of the survey respondents could not be classified as either extraverted or introverted based solely on their responses to the online personality inventory: over 40% of survey respondents' personality scores were too moderate to be assessed. (This high proportion of ambiguous scores likely resulted

from using an abridged personality inventory.) Around two-thirds of the remaining survey respondents (i.e., 40% of the total sample) fell into the extraverted range, and the final third (20% of the total sample) had scores placing them in the introverted range.

In line with the overall survey sample, a substantial proportion of the interview sample (9 of 34 students) had scores on the personality inventory falling in the mid-range and unable to be classified as either extraverted or introverted. Yet all of these unclassified students indicated personality leanings during the interviews. Two-thirds identified as moderately extraverted, and one third as moderately introverted.

Thus based on survey responses and defaulting to self-accounts provided through interviews, the interview participants fell into two main personality groups and four subgroups. Twenty students (59% of the sample) were extraverted, of these eight were highly extraverted and 12 moderately extraverted. Of the 14 introverted students (41% of the sample), six identified as highly introverted and eight as moderately introverted. The higher proportion of extraverted students in the survey and interview samples corresponds to estimates on the prevalence of extraversion and introversion for the overall population (Barrett & Connot, 1986; Center for Applications, 2015). (Measures of the personality variable were not available for the overall population of UCLA undergraduates. The UCLA Office of Analysis and Information Management, 2013, is the source of all data on the UCLA undergraduate population included in the current Participant Demographics section.)

While data on age were not collected for the survey sample, students participating in interviews were of traditional college-going age and thus representative of the UCLA undergraduate population, whose incoming freshmen had an average age of 18.5 for the academic year in which data were collected. Suggestive of a gender bias not found in the

overall UCLA undergraduate student population (which was 45% male and 55% female at the time of the study), a strong majority (i.e., 77%) of the survey sample identified as female. Twenty-two percent of survey respondents identified as male, and a small number did not provide gender information. The interview group saw an even more pronounced gender bias, with 28 of the 34 participants (approximately 82%) identifying as female. Further, four of the six male interviewees fell into the extraverted group.

Paralleling the large proportion of lower-income students in the undergraduate campus population as whole, nearly 30% of survey participants and more than a third of interviewees cited an approximate average household income under $50,000 per year. Nearly 30% of survey participants and likewise close to a third of interviewees also cited income above $100,000 annually. Of the remaining participants, 25% of survey respondents and approximately 20% of interview participants cited yearly income between $50,000 and $100,000, with the rest uncertain. Only minor differences surfaced across the introverted and extraverted groups with respect to income.

In terms of race and ethnicity, around 44% of both the survey and interview samples identified as Asian/Pacific Islander--a number 10% higher than that for the campus undergraduate population. Thirty-two percent of the survey sample identified as White, coinciding well with the 30% identifying as White for the campus undergraduate population, although that proportion dipped slightly lower (to 26%) for the interview sample. The campus Hispanic student population was underrepresented in the surveys, but the interview sample did include a proportion of Hispanic students representative of the UCLA undergraduate population (18%). Students falling into the "other" category remained a steady 11% and 12% for the survey and interview samples, respectively, which fell somewhat short of the 17% for the campus

overall. And while 3% of UCLA undergraduates identified as African American, just over 1% of African American students took part in the survey and none participated in the interview.

It should be noted also that racial/ethnic identifications in some cases corresponded with personality distinctions in ways consistent with prior research (Lucas, Diener, Grob, Suh, & Shao, 2000; McCrae, 2004; and McCrae & Terraciano, 2005). That is, both the survey and interview samples counted substantially more Asian/Pacific Islander students on the introverted side of the personality spectrum and higher proportions of White students on the extraverted side.

In addition to the gender, ethnic, and racial differences noted above, distinctions arose between the campus population and the study population insofar as the survey and interview pools were purposively selected to include only students who had begun UCLA as freshman (having completed at least their first academic year at the time of data collection). Thus the study excluded transfer students, who comprise 26% of UCLA's undergraduate population. Also, only those enrolled in the College of Letters and Science were invited to participate. UCLA enrolled 27,941 undergraduates the year of data collection, with 83% of that total in the College of Letters and Science (as opposed to the nursing or professional schools).

Notable distinctions with the campus population further emerged in terms of participants' most recently completed year in college at the time of data collection. Only around 6% of the survey sample had just completed freshman year. This percent doubled for the interview sample but remained lower than the 20% of UCLA undergraduate students enrolled as freshmen for the 2012-13 academic year. For the surveys, the remaining students were distributed across years as follows: Nearly 25% had most recently completed senior year; 31% were juniors, and 37% sophomores. For the interviews, a plurality of the participants had just completed junior year

(38%), and smaller proportions had just completed either senior (29%) or sophomore (21%) years. (Among the broader campus population, higher enrollments in the junior and senior classes may be due to the influx of transfer students.)

Slight discrepancies with the undergraduate population surfaced when looking at the academic divisions and majors of the survey and interview samples. Generally speaking, the numbers were parallel across the College of Letters and Science and the study pools: most students across the board majored in either a life or social science. But physical sciences majors were more popular among the greater College population (enrolling 16% of UCLA College students), followed closely by humanities majors (with 13% of UCLA College students). The reverse held for both the survey and interview samples: 16% and 18% of students, respectively, majored in a humanities subject, and just over 14% of students from either sample majored in a physical science.

For both the survey and interview samples, a relatively higher proportion of introverted participants studied the humanities--the English major in particular. Of survey participants identified as introverted, a full 25% had chosen a major in the humanities division (most often English), while 13% of survey participants identified as extraverted held a humanities major. The difference is even more pronounced among the interview sample. Only 10% of the extraverted interview participants, none of them highly extraverted, majored in English, compared to 30% of the introverted students and a full half of the small group of highly introverted students.

The reverse held for the social sciences division. Nearly half (48%) of extraverted survey respondents reported having a major concentration in the social sciences--most often political science, followed by economics and then communication studies. A third (33%) of introverted

survey respondents reported likewise--most often choosing business economics or political science majors. A similar distinction held among the interview sample: half of the highly extraverted students majored in a social science--either political science of sociology; forty-five percent of the overall extraverted group majored in a social science. Roughly 30% of the combined introverted groups had chosen a major concentration in the social sciences, most often economics or business economics.

Thus with noted exceptions, the research samples represent the UCLA undergraduate population and reflect diverse students from varied backgrounds with a range of personalities and academic interests. (Appendix D, Tables D1 - D10, presents findings on personality, gender, income, race/ethnicity, year in college, and academic division enrollment for the UCLA, survey, and interview samples.) Sections that follow provide more detail on findings from qualitative analysis of the interview data.

Academic and Extracurricular Involvement

The review of qualitative findings on involvement begins with a global view of how students with different personality orientations divided their energies across academic and (non-academic) extracurricular pursuits. A simple classification in terms of students' relative levels of involvement inside and outside the academic domain provides the frame for illustrating the complex experiences of those students. Tallying the involvement pursuits that students disclosed, and considering these tallies in conjunction with subjective accounts of those pursuits, resulted in simple classifications: primary involvement in the academic domain, primary involvement in the non-academic extracurricular domain, and balanced involvement across academic and non-academic extracurricular domains.

Additional specific findings on measures of involvement in both the academic and extracurricular realms, presented in Section 3, add detail to this global view and suggest further its ties to characteristics associated with personality traits. The global view of involvement begins to address the first research question: How are introverted and extraverted students involved in college? The exploration of the links between personality traits and specific involvement choices and preferences, continues to address the first research question while providing insight on the second: What aspects of students' introversion-extraversion are associated with their involvement, and in what ways are they associated?

Before continuing, it should be acknowledged that the divide between academic involvement--i.e., involvement, in or out of class, tied directly to the curriculum--and non-academic extracurricular involvement--i.e., involvement either unrelated or indirectly (or incidentally) related to the student's curriculum--is less than precise. For example, findings on student research experience were included under academic involvement, although students may have participated in research simply for the experience and not for academic purposes. Similarly, participation in student organizations classified as "extracurricular" may have had an academic link--providing Spanish-speaking opportunities to a student who minored in the language, for instance. Such ambiguities were unavoidable, particularly given the sometimes obscure distinction between academic and extracurricular interests itself. Nonetheless, the researcher made efforts to group findings systematically and meaningfully while preserving the authenticity of student accounts. Next up are the global assessments of involvement for the entire interview sample.

Global Assessments of Involvement

While all students appeared highly involved in college, variation surfaced in how and why they focused their time and energy. The global view of participants' involvement shows this variation in terms of the balance across academic and extracurricular pursuits. Based on that balance, the interview population could be seen as falling into three groups (see Appendix E, Tables E1 and E2, for a summary of each student with his or her involvement classification according to personality designation). Classification of each student into one of these three groups took into account both the students' assessments of their own involvement and the number and type of activities in which the students were involved.

The first group focused primarily on academics and related endeavors, such as honor society and research participation, and internships tied to a course of study. This group focused less on the non-academic extracurricular side of things, devoting more time and energy to pursuits in line with academics. It might be expected that, given the higher reflectivity and lower responsiveness associated with introversion, introverted participants would exhibit greater involvement in the often more reflective and less immediately responsive realm of academics. Results are in line with this expectation in some respects. Well over half of introverts in the study spoke of their overall involvement as focused mainly on academics and related pursuits. This is compared to a quarter of extraverted students who were mainly involved in academics and related pursuits.

The second group demonstrated mixed involvement. Students in it had a relative balance across the two types of involvement. In addition to spending considerable energy on coursework and related activities, they kept busy with purely social and extracurricular activities. A large proportion of the extraverted group--nearly half (i.e., 45%)--reported a relative balance or mix of

involvement both in and out of class. A similar but slightly smaller proportion--just over forty-two percent--of the introverts demonstrated mixed involvement.

Finally, the third group focused less on academics than they did on activities out of class. For them, time and energy in college primarily went to the extracurricular realm. Over a quarter of the extraverted group, although frequently expressing interest in their studies, reported low involvement in coursework relative to involvement out of class. Participants with lower involvement in academics and greater focus on extracurricular activities were exclusive to the extraverted group: none of the introverted students reported that involvement in the extracurricular realm overshadowed their involvement in academics.

Examples below broadly illustrate the experiences of extraverted and introverted students in the academic, mixed, and extracurricular groups. Personality-based differences suggest diverging motives and preferences even among similarly focused students.

Academic-Focused Involvement

The introverts. Comments of introverted students illustrate the emphasis on academics. For example, Holly, a highly introverted business economics major, shared: "I think academically I've been pretty invested, just study-wise or grade-wise or whatever but not beyond academic-wise." Activities outside the classroom resonated with her coursework: "The few clubs that I am in are more like the academic ones, so it's just like, being in the honor society or just that kind of thing." Other forms of extracurricular involvement held less appeal. "I don't think I'm very active in the social scene at UCLA." Holly was satisfied with her small group of friends, content to focus on coursework and related career goals: "I think I like it that way. I don't think I would change. I think it's just how I am."

A freshman studying political science and education also expressed the preference to spend most of her time on academics and with a close-knit social group. Marisela described the rewards of a summer transition program prior to freshman year as "just getting your classes done," adding, "It wasn't really a 'college experience' because it was just summer school." The program, however, suited her well. She contrasted it with the frenzy of freshman year and the pressures to become more active outside of academics:

> When the school year started and everybody has these, "Oh, you know, let's do this, let's do that," I realized I was happy in summer school. I was okay just doing school and just having friends to eat with. Why do I need to try to figure out what I need if I feel like I don't need anything?"

Despite dabbling (with less satisfaction) in other areas, the bulk of Marisela's time and energy out of class went to academic-related activities. An academic support program and conferences gave her a small network of peers with shared interests in addition to preparing her for the future.

Further stressing the chosen emphasis on academic involvement, several in the introverted group had briefly struggled at some point with higher levels of extracurricular involvement (often socially oriented) bearing less direct relevance to their academics and related career plans. By the time of the interview, these students had abandoned or found unsatisfactory their attempts at greater extracurricular involvement. Such conflicts with extracurricular involvement were not readily observed among the extraverted students.

Hannah for example, an introvert who studied both English and physiological science, vacillated between dual interests in academia and medicine. Yet a single club she joined to improve her public speaking skills left her feeling overwhelmed. Her experiences in the club had been positive. Friendships developed through it were an unexpected bonus, and she had climbed

to a leadership position. Yet, she clearly expressed, involvement in it left her tired; it detracted from coursework. That involvement continued due to a sense of obligation and to social ties. Otherwise, she admitted, "It doesn't really do anything for me, I feel."

Christine, a math major finishing her sophomore year, attributed an initial GPA dip to early over-involvement outside academics and not in line with her interests.

> I think I was just doing . . . student group activities when I didn't really care, and it got to the point where winter quarter I had some [medical issues] that, I wasn't out of school, but at the same time my brain wasn't there. So that really forced me to just pull back and stop doing as much and really just focus on what I'm here to do: study some topic I enjoy, and work.

When she narrowed her extracurricular focus, her grades and well-being improved. But even the simple focus on studies and on tutoring work left her overextended. Freshman and sophomore year had been hectic, "I was always constantly doing something, and I think that just doing too much really overwhelmed me." In her words, it was now time to put her years as "a jack of all trades," behind her. The remaining time in college she explicitly devoted to gaining depth in one area of study rather than breadth through several domains. Although there are undoubtedly numerous factors outside of personality contributing to her experience, Christine's story resonated with that of other introverted participants.

Branden similarly began his time at UCLA highly involved outside the classroom. He considered himself very introverted and "a little social inept" upon entering UCLA. Initial involvement in extracurricular activities was his way to meet a self-imposed social challenge. But when the early plunge into extracurricular involvement proved unsatisfying, he reverted back to the comfort of his studies.

> I ended up pledging with a fraternity . . . my first week here, and then I started parties, just doing stuff I never thought I'd do. And then--and then I realized, you know what, I'm really not that comfortable with this. So, I think I went a little too far. . . . And then I kind of went in the opposite direction. I was like, you know what? I was wrong. . . . I'm just going to devote college to just studies and that's what I'm going to do, and this social thing can come later once I'm secure and all that.

Ultimately, he met the initial social challenge. Once his academic standing was secure, Branden's social life flourished among like-minded peers and faculty members through academic endeavors in line with his interests and future goals.

The examples above show a somewhat common occurrence among the introverted sample: they tended to find extracurricular activities taxing relative to academic involvement. In contrast, unseen among the introverts yet common among the extraverts in the academic-focused group was the depiction of academic involvement as either requiring the compromise of extracurricular involvement or as reflecting a bias within the academic realm itself--of turning away from less-reflective academic involvement in favor of more responsive, "hands-on" academic involvement.

The extraverts. Sara's experience illustrates the compromise of extracurricular involvement for academic success. Academic and career-related endeavors were paramount to her college experience. She held multiple internships in line with her first major, political science, and with the further goal of attending law school. She took part in research, studied abroad, and contributed to a law journal. The subjects of history and government interested her,

as did English, her second major. Much of her time and energy went to coursework and related career goals.

Although some socializing occurred through internships, Sara's experience in the academic realm in some respects came at the expense of social and otherwise non-academic extracurricular involvement. Asked about the kinds of experiences she had wanted from college, she replied,

> Academically, I feel like I've fulfilled all of them. Socially, probably not as much. I feel like I wanted to probably go out and explore more, but I just got so busy with just classes and work and being competitive in that aspect that I probably didn't do as much in that field.

Thus it seems that academic involvement, while rewarding in itself, she also viewed as a necessity that required sacrifice in order to be "competitive." To fulfill her needs for socialization and activity entailed venturing outside academics, for which she felt there was little time.

Sara compromised her social life for academic life. Other extraverted students, like Patricia, made concessions of a different sort. Patricia's academic involvement was high. In her words, "I . . . am really involved in every academic thing I do, because I really like taking advantage of every opportunity." She had completed an honor's thesis, submitted work to a literary magazine, researched with a professor, and held a leadership position in an honor society. The most meaningful of this academic-related involvement was perhaps also the most active. Event organizing through an honor society allowed her to see planned events "come to life." She shared, "I get a lot of enjoyment out of organizing and feeling like I'm doing things, and feeling like I'm making a difference in some way." Further, such active or responsive

academic involvement was lacking in her courses: "You don't really do that in academics that much."

But the activity outside of class, while tied to her role in an honor society, led to diminished academic involvement in terms of studying. Therein lay the trade-off. In her last two years of college, she shared, "I've learned how to manage my time better, so I can spend less time on academics [in terms of coursework] and still do fine in school." Her investment of time in the honor society had made her "more efficient" at earning high grades: "I don't spend as much time on school as I used to, but I still try to do as well." She acknowledged,

> Maybe I'm not absorbing as much from the material as I used to when I studied really hard, but I'm still getting the same grades. So that's the only thing, I'm not going to get rewarded for doing any more, or studying.

Studying less--and more efficiently--freed time for active involvement in the honor society. Returning to her impressive list of academic accomplishments and reflecting on the gains of honor society participation, one wonders about the impact of this apparent trade-off, of which extraverted students with mixed involvement provide further examples.

Mixed-Focus Involvement

The extraverts. The largest proportion of the extraverted group, nearly half--compared to an only slightly smaller proportion of the introverted sample--reported a balance or mix of involvement both in and out of class. Mixed-involvement students had high or moderate involvement in academics and related endeavors, coinciding with high or moderate involvement in activities distinct from the academic realm. They may have placed academic involvement as a priority but nonetheless maintained considerable involvement outside of academics.

Extraverts in the mixed-involvement group, like those more academically focused, commonly depicted academics as requiring a sacrifice of outside pursuits. The goal of this sacrifice in numerous cases involved an instrumental future focus, with academic achievement portrayed largely as a necessary means to a desired career or livelihood. Conversely, in other cases, mixed-involvement students depicted academics as being sacrificed in favor of more rewarding immediate pursuits.

As an example of the former depiction, Carlos, an aspiring missionary doctor finishing freshman year, stressed that achieving his future goals sometimes meant lowering outside priorities for the sake of studies. Carlos was busy both in and out of class. In addition to heavy involvement in coursework and academic support programs, he maintained high involvement in the community through the campus ministry; he regularly practiced martial arts; and he sought opportunities outside of church to serve underprivileged youth. But all of the non-academic involvement he would subordinate to studying when exams rolled around:

> I feel like, yes, the church is a big part, and yes, my extracurriculars are a big part, but when it comes down to it, I'll just put everything aside and focus on the grades. Because that's really--if you want to do well, that's how it really has to be.

The connection of academic achievement with sacrifice and necessity, with "how it really has to be" in order to succeed, was tinged with ambivalence in other cases. A psychology major named Kara illustrated the ironic partnership of obligation and opportunity in the academic realm. On one hand was her enthusiasm for course content and reading:

> With studying, definitely I need to and I want to. One of the textbooks I have in my class I like. I really do. It's a really interesting textbook, and I have always been a bookworm anyway, so, I mean, I love to read. . . . I would love to just sit

> there and read the textbook or whatever, and that'd be fine with me. I wouldn't feel like I'm pushing people away and being socially awkward. I'd feel like "This is my fun too."

On the other hand, she depicted studying as inconsistent with "having a life," in a future-focused scenario that actually shifted her perspective back to a present-focused enjoyment of life.

> And I always really think to myself too when I have kids one day and they ask me "Mom, how was college? What did you do in this situation?" I don't want to say "I'm sorry, guys. I was inside all day. I have no idea." I want to be able to tell them "Oh, it was really fun, but at the same time I had to study".... I want to be able to tell them about my experiences instead of just saying "Guys, Mom was such a nerd. She didn't have a life." I don't want to say that.

Much of Kara's time and energy went to academic endeavors. They were a necessity and apparently something she enjoyed. Studying for courses, participating in an honor society, and volunteering at a clinic all spoke to that. But she also made sure to get involved in "fun" things like football games and concerts, to join student clubs, to socialize, and to do outside service work. In a sense, she seemed to suggest that academic involvement, though enjoyable on some level, was necessary as a means to an end, while extracurricular involvement stemmed from a choice to "have a life"--i.e., it fit more compelling personal needs than those met in the academic domain. Her comment above alluded to the perspective that the more meaningful or rewarding aspects of college lay outside academics--a view more strongly voiced by extraverts in the sample.

Sunita shared sentiments similar to those of Kara. She emphasized, "I enjoy what I study. I wanted to learn what I study." Further, her success was both self-motivated and externally driven:

> I'm driven by my own ambition, my own goals, but I'm partly also driven by my own conditions--like, not having my parents around growing up because they're working three jobs individually, that sucks. That sucks growing up.

Inward and outward conditions propelled her to academic success. How she achieved that success points to another way that the mixed-focus extravert balanced academic and extracurricular involvement: unlike Carlos and Kara, Sunita strategically reduced the time she spent studying. Like Sara in the academic-focused involvement group, Sunita became more efficient at earning high grades. This greater efficiency enabled her to enjoy the rewards of non-academic pursuits without sacrificing her instrumentally-motivated academic goals. The tactic of studying for the test, or "studying smart" led to high academic achievement (in terms of grades) with less academic involvement. A peer had explained it to her as follows:

> You figure out or learn when you're looking at material that there are only certain aspects in the . . . test that the professor can ask you. . . . You look at those materials and you realize clearly what he would want to ask and what he wouldn't.

Following this strategy reduced her study time. She explained, "When I would sift through my notes, I'd be like 'Well, this is clearly irrelevant,'" whereas before, she continued, "I would have spent hours studying, learning one tiny material that's definitely not going to be on the test." Achieving academic success in terms of grades thus became a practice in efficiency.

"Studying smart" opened Sunita's schedule for the extracurricular activities that made a more lasting impression than did classroom experiences. She worked as a campus tour guide,

mentored international students, and took part in various student organizations. Here lay the greater rewards, as discussed in the following excerpt.

> I feel like these people, these organizations, the things you learn through these events [out of class], they stay in your head much longer and your memories much longer than the lectures would because . . . it's something you chose to do. . . . Classes, I mean, of course I'm choosing my classes, choosing my major, but at the end of the day I need to take them because I need to get this degree. But these things [i.e., extracurricular activities] I did voluntarily. I'm not getting paid. I'm not getting anything out of it besides sheer experience, and that is selfless enough for me.

Academic involvement through coursework, internships, and organizations, paved the way for law school. Active and social involvement outside of class brought personal development and gave Sunita a sense of connection to campus, to other students, and to her cultural background.

Audrey, like Sunita, had managed to reconcile outside interests with academic demands. In the classroom, she enjoyed rigorous upper division coursework in the psychobiology major. Outside of class, she participated in a range of activities with varying relevance to her major. She explained, "I like to take as many opportunities as I can, so if there's an opportunity, then I'll jump onto it." Extracurricular activities allowed her to network while expanding her skill set and exploring different fields of interest. When those outside activities grew particularly time intensive, she employed the strategy of taking easier classes. Doing so sustained her academic success in terms of GPA even though she had less time for coursework. But outside interests were not always readily accommodated: "I think at times it has kind of hurt me being involved in

all these extracurriculars because I have less time to study." Although grades sometimes suffered, she felt that the rewards merited the sacrifice.

Julie further exemplified the mixed involvement of the extravert. But her case was different than most. In addition to a zeal for social involvement (often extracurricular), she displayed an unqualified enthusiasm for her studies. Julie seemed less ambivalent toward academics than did a number of the other extraverted participants:

> I took classes with my roommates, and they were like, "Why are you doing all this reading?" It's, "Well, I actually like learning it! I want to do the reading. And I have the time to do it, so I'm going to do it."

Involvement in courses she described in responsive terms, "I actually interacted with the classes." Although coursework appeared to interest her for its own sake, she acknowledged that interaction with faculty in most courses was disappointingly low and shared that outside activities were essential to a rewarding academic experience. As she put it, "I think that I wouldn't have had such a good time academically without all the other things." To clarify, I asked if her involvement out of class compensated for what was lacking in class (in her case, interaction with faculty). She explained that the relationship between academic and extracurricular involvement was not compensatory but complementary. "I don't think that having a great social life made up for the classes. I think that it just kind of made me see them differently. So I think they just kind of worked together."

Julie and other mixed-focus extraverts enjoyed positive experiences both in and out of class; they thrived on high levels of activity. The introverted students that comprised the remainder of the mixed-involvement group invested time and energy into pursuits similar to those of the extraverts, although their depictions of that investment often differed.

The introverts. Introverted involvement for mixed-focus students in the extracurricular realm was less a temptation away from academics and more a challenge in its own right. That challenge was often to achieve desired personal growth in terms of social, communication, or networking skills. It seemed that introverted students in the mixed-focus group were less inclined to participate in non-academic extracurricular activities for the fun of it or for social support, and their extracurricular participation did not appear to compensate for a less-than-fulfilling academic experience. As with the extraverted students, extracurricular involvement also fed a hunger for life learning and personal development not likely to be satisfied through academic settings alone. Yet a further difference between the two groups is that the introverts more often spoke purposively about such learning and personal development, placing it as a prime motivator.

The following cases illustrate students with distinct underlying purposes for their balance of involvement in and out of academics. The first of these demonstrates extracurricular involvement purposively undertaken to meet a personal challenge.

At first, Rosa was hesitant to explore opportunities outside the classroom. She shared, "I was scared of participating in things outside of my academics." Doing so, she perceived, would involve interaction with people beyond her small circle of close friends, which her comments indicated would present a challenge. Of the interaction she perceived as requisite to extracurricular participation, Rosa predicted, "I knew I wasn't going to be good at it."

But changes in academic involvement and employment eased the challenges of further involvement. Switching out of an unrewarding pre-med major and quitting her part-time job opened Rosa's schedule while reducing anxieties. Thereafter, she become more involved in both academic and non-academic extracurricular life on campus. Participation in research related to

the International Development Studies major gave the experience she sought applying classroom knowledge in a practical way. Additional real-world experience came through an internship with student media and by helping to plan an upcoming conference on campus. The most meaningful of all, however, was her extracurricular involvement as a mentor teaching inner-city high school students about personal finance. In the teaching and mentoring capacity, Rosa honed eagerly sought social skills. She explained, "I've been trying to work on how to communicate with others since I got into college." The effort stemmed from a realization made in high school that "in the real world, you have to interact with other people." So, in college, she said, "I forced myself. I kind of just dove into it."

Her longtime desire to be more outgoing and social was balanced by a need to do things that mattered to her on a personal level. Through the purposive activity of mentoring youth, she addressed the personal challenge of communicating with others. But despite progress made, Rosa admitted, "I'm not sure I'll ever . . . be really excited to talk to someone. I'm not like that." Thus social interaction per se was less salient as a motivator and reward for involvement in the mentoring group. Nor did that involvement serve mainly as a relaxing or recreational outlet. She described her first few experiences presenting to high school students as "nerve-wracking" and "horrible." However, it was through those experiences and others that she grew more comfortable giving presentations, doing interviews, and interacting in social settings. It seemed that inside and outside the classroom, Rosa's involvement held her interest and prompted personal growth.

Jane is another introvert whose extracurricular involvement seemed driven in part by the personal goal to develop her social capacities. A future pharmacist, Jane advanced her educational and career ambitions through volunteering at a hospital and participating in research.

Apart from academically-oriented involvement, she belonged to a community service fraternity and a cultural dance club, and attended various events and performances on campus.

Jane described herself as "mostly introverted." Her statement, "I try to be more extraverted," apparently alluded to the social aspect of extraversion, although she had reported that it was not difficult to make friends in college, nor did the issue of shyness surface in our conversation. I questioned her on why she tried to be more extraverted. She responded, "I think it's better to be with a lot of people. It's just that it takes a lot of energy, that's all." The goal to become more social further stemmed from a friend's advice: "You mainly go to college for the people that you meet rather than just to get the degree."

And she did meet friends--in the residence halls, in the classroom, and at her (co-ed) fraternity. The striking thing about Jane's extracurricular involvement, though, was not the social aspect. It was how she described that involvement--almost independently of its social aspects. What surfaced more than efforts to socially interact and resulting rewards was Jane's openness to novel experiences (a personality trait under the five-factor model considered independent from extraversion and introversion, Piedmont, 1992, p. 217). Of fraternity membership, she explained, "I wanted to do something like Greek life because I think that's a college experience you won't get anywhere else." On going to a bonfire, she shared, "I went, even [though I didn't] know anyone, because I thought, 'Bonfire's very cool. I've never been to one.'" Asked how extracurricular involvement fit her personality, she replied, "I guess I found out that I like community service and dancing." Finally, her satisfaction in college she attributed to fulfilling her degree and to exploring multiple campus organizations, to seeing "what they have here." She talked very little of social interactions or friendships in the context of her involvement.

Jane's case thus appeared unique. On one hand she wanted to up her social involvement: she thought it better to be more extraverted, which in her view seemed to entail being with a lot of people. On the other hand, her participation in events that held the promise of social interaction did not seem to motivate or reward her from a social perspective. It almost seemed like Jane was giving herself opportunities to be with a lot of people--consistent with her goal to be more extraverted--while maintaining a more introverted focus on those opportunities. That is, it appeared she was focusing on the activities and events rather than on the social interaction and support that other students (often extraverts) spoke of as significant motivators and rewards of those opportunities.

Jane and Rosa may have had unique experiences, but they also exhibited commonalities prevalent among other introverts in the mixed-focus group. Both felt pressure, either external or from within, to change something about themselves, and extracurricular involvement reflected a response to that pressure. Introverted students often reported such involvement as more challenging than it was recreational or relaxing. If one were to compare the introverts in the mixed-focus group to their extraverted counterparts, one could say that the latter more often expressed ambivalence toward academic involvement and ease in the extracurricular realm while the former appeared more comfortable with academic involvement and less at ease with involvement outside of academics. Further reflecting the extraverts' leanings toward extracurricular involvement is the group of participants, comprised exclusively of extraverts, whose time and energy in college went primarily to extracurricular pursuits.

Extracurricular-Focused Involvement

The extraverts. Over a quarter of the extraverted group, although frequently expressing interest in studies, reported low involvement in coursework relative to involvement out of class.

Participants with lower involvement in academics and greater focus on non-academic extracurricular activities were exclusive to the extraverted group: none of the introverted students reported that involvement in the extracurricular realm overshadowed their involvement in academics. Examples below illustrate the experiences of students whose primary involvement appeared to be extracurricular.

"I'm about halfway done with my degree and I'm just kind of checking the boxes off right now," is how Andrew put it. The initial realities of his academic experience had dampened his desire for academic involvement. He thus had turned to seek involvement out of class since he "didn't have anything to really be proud of or passionate about here." He felt "pretty average" about courses in the economics major. Friends who were "very passionate" about their courses and "love doing schoolwork" inspired his envy.

So it was that lack of fulfilling academic involvement led him to search for rewarding experiences outside of class. Through student organizations, Andrew found valuable friendships and a sense of belonging on campus; extracurricular participation also gave him an idea of what he wanted to pursue after graduation. One organization in particular offered experience marketing various campus events. While he had become involved in the group just for enjoyment, he later realized that it provided valuable career skills and "could be a jumping off point into maybe getting an internship somewhere." In addition to his marketing position, Andrew worked as an office clerk on campus. He had joined the marching band. And through active involvement in the residence halls, Andrew connected with peers.

His outside participation did result in a lower GPA compared to freshman and early sophomore years, when he "didn't really have anything else to do" but study. Nonetheless--as echoed by multiple extraverted students--he shared that the gains of outside involvement

outweighed the drawbacks. He admitted, "At first, I didn't like it here, actually." Dissatisfaction had to to with disappointing academic experiences, and relatedly, to feeling "isolated" and not making many friends. Perhaps explained in part by the institution's sizable student population, Andrew further shared, "I remember just feeling like a number on campus, like I'm just another student and it didn't really matter if I was here or not."

Andrew's extracurricular involvement changed those feelings, however. It gave him interpersonal bonds and a sense of self worth. While personal connections in classes seemed more the exception than the rule, outside organizations provided ample opportunities for connecting with others. Involvement out of class also improved Andrew's experience by instilling a tangible sense of self worth: "Participating in things made me feel more valuable, so that definitely shot it [i.e., his satisfaction] way up." Andrew may have regretted his lack of enthusiasm for studies, but by the end of his junior year when our interview took place, he had achieved a large measure of satisfaction through involvement focused outside academics: "After I joined some student organizations and just became more involved, I like it now. I wouldn't have it any other way."

David, unlike Andrew, had no qualms about his low academic involvement: "I was coming to the university 80 percent for the college experience--80 percent for the networking, the friends, and that kind of experience--and then a little bit for the academics." He described himself as "really, really involved" in extracurricular activities. Motivations for his outside involvement included meeting new people, learning diverse opinions, and feeling like he had an impact. He explained, "It's just the desire to feel like I'm important because I'm doing something that matters . . . that I'm benefitting people's lives." David also was a firm believer that "you don't really know what you like until you try a lot of things." He was heavily involved in

campus politics, held active membership in literally dozens of student organizations, and boasted an impressive count of leadership roles within those organizations.

David's academic journey, like his extracurricular involvement, was characterized by active exploration--he took an array of classes and repeatedly switched majors before settling on political science. And though he did "absolutely enjoy" the political science major, he found coursework "pretty damned easy," leaving abundant time for outside activities. His view on academics is further alluded to in the following explanation of his opposition to online courses:

> With academics . . . I find it so hard to just sit down and do the work because at any given time there's something I'd rather do. . . . It's not like, "Oh, I'd rather do nothing." I'd rather work on this organization or go to this event and "show face" or meet this person and expand my network. I'd rather do those other productive things instead of sit down in front of a computer and do an all-night thing.

David neither held strong academic motivation nor indicated specific career goals. In place of worry about the future was the belief that being active with things he enjoyed would ready him incidentally for life after graduation. "I will be able to get a job out of college, I feel very confidently," he explained, "whereas a lot of my friends won't, because although they had a good GPA . . . they can't really show that they've done much. . . . I can be like, 'I did this, I ran for that, I started this, I organized this.'"

Thus, for David, it was not through academics but through extracurricular involvement that the valuable learning occurred, that worthwhile experiences were gained:

> I learn so much more in my clubs. I learn how to interact with people, how to bring together a diverse set of people, public speaking skills. I learn organizational and time management skills. And just personal development, who I am and what I enjoy--and that

> I don’t learn in class. In class, I learn theories that relate to politics that I’ll never be able to put into place and models that explain something that I don’t really care about and things like that.

David's heavy extracurricular involvement took a toll on his academic performance in terms of GPA. But that, he shared, was to be expected. He explicitly strove to maintain above a 3.0 grade point average--a relatively low standard compared to those of his friends. He felt that his more academically-focused friends "[missed] out on enjoying life, and enjoying the university and just having a good time." Asked if out-of-class activities had influenced his GPA, David responded, "Oh yeah, absolutely. But I wouldn't want it any other way." He recounted failing a class during a particularly active quarter on campus. Attributing the low grade to high involvement in student government, he concluded, "It's still well worth it."

Similarly unapologetic about her lack of involvement in coursework was Ritu:

> I mean, my whole experience at college, probably academics come at the bottom to be honest. Yeah, I mean, I’ve just been working on so many other things, when I think of my time at UCLA it’s definitely not, you know, related to class or to a professor or something.

Elsewhere she reiterated,

> School, you know . . . it was like I definitely wanted to graduate and get a degree but I didn’t really, you know, I never really got passionate about studying a particular subject. You know, I’m more [into] going out and doing things kind of, so yeah...

At another point she shared of her academic experience, "To me, it's just class; I just go because I have to kind of thing." As with David, Ritu commented that the perceived relatively lax requirements of the political science major freed her to engage in more meaningful activities

out of class. She cited going to concerts as her favorite activity, and had stumbled onto an internship with student government where she helped to plan a large music festival on campus. The work shaped her long-term career plans. Ritu also kept busy with sorority sisters and with friends from the residence halls. Rewarding friendships and meaningful work resulted in a feeling of connection to campus that did not come through courses or faculty. Thus involvement out of class expanded Ritu's social network, connected her to the campus, and gave clarity on her career plans.

Summary

In all, greater involvement in academics was more often observed among the introverts. A larger portion of them focused mainly on academics and related pursuits, and several had struggled at some point with high extracurricular involvement that was more social and less relevant to academic and career interests. Tying into this, it would appear that, for the introverted students, purely "fun" social options held less of a draw--a finding in line with the lower sensitivity to external rewards associated with introversion. These students apparently were responding to calls for involvement based on internal and long-term external motivators.

More common among the extraverted students was either mixed-focus or primarily non-academic extracurricular involvement. Only a quarter of students in this group focused predominantly on academics and related pursuits. The rest of them seemed to prefer the greater activity and socialization, the skill development along with personal and professional rewards, that came from at least a moderate level of involvement outside the academic realm. Such preferences may be in line with responsiveness and with an inclination for social interaction. It seemed that the extraverts gravitated toward present-focused and action-oriented opportunities in

which they interacted directly with the world and others around them. Such opportunities may have been more readily available outside of academics.

Personality Traits and Involvement

The current section addresses the second research question: What aspects of students' extraversion-introversion are associated with their student involvement and in what way are they associated? It explores in greater detail how some of the personality traits, and more specifically the characteristics associated with extraversion and introversion, may coincide with the patterns of involvement discussed in the previous section. First is an examination of the role of reflectivity in academic involvement of the introvert. Then comes an exploration of the roles of responsiveness and sociability in the academic involvement of the extravert. A discussion of extracurricular involvement for each of the two groups then follows. For extraverts, responsiveness, (low) sensory-processing sensitivity, and sociability take center stage. For introverts, the discussion of extracurricular involvement centers on reflectivity, sensory-processing sensitivity, and social preferences and pressures. What follows is a depiction (summarized in Appendix F) of the trait-related involvement preferences and interests distinguishing the two personality groups.

Personality Traits and Academic Involvement for the Introvert: The Role of Reflectivity

For introverts, a weaker sensitivity to external rewards may have lessened the draw of purely "fun" social options outside of academics in the extracurricular domain, but perhaps more striking is that academic involvement commonly fell in line with the reflectivity associated with introversion. It was the introverted students who repeatedly praised "learning for the sake of learning"; the rewards of reflection--of seeing progress or growth and planning for the future--also commonly received mention in association with academic involvement among the

introverts. Reflective self-discovery and social enrichment, in addition to active social interactions over shared interests, were further rewards that students in this group garnered through the academic setting.

Critical Thinking and Knowledge Gains

Christine, a math major, provided an example of the typically introverted appreciation for reflective "learning for the sake of learning" in her comments about a "really annoying" mentality prevalent in high school, which she was relieved to find less pervasive in college:

> I was trying to get away from the grade grabbing and the constant "What's on this exam?" and people were just not learning for the sake of learning. People are learning to get grades. I want to learn for the sake of learning and to really get something out of my education instead of just, "Oh, I'm going to get a piece of paper and put it on my wall and go wear it on my sleeve or something."

She opted for challenging coursework that would force her to grow and think in new ways. A programming course in particular led to the realization of her passion for analytic thinking and planning. "I enjoyed sitting there and thinking through a problem that needs to be solved and needs to be solved as generally as it can be, and then really being the architect of an entire plan." Asked about the rewarding aspects of her major, Christine replied, "Definitely it can be frustrating to learn the material at times, but then once you're at the end of the quarter and you're studying for finals, you realize how much you've learned about whatever topic was being presented." She went on, "I mean, of course in the beginning of the quarter you don't really realize what you're going to do, but then it's at the end after reviewing and talking with people, talking to the professor, talking to the TA and whoever else, it's just like your mind is literally blown."

Her comments above illustrate an additional way in which reflectivity relates to academic rewards. Not only did she savor the pure learning--the critical thinking and analysis tied to course content--she also relished the progress made evident upon reflecting from past to present--the increase in knowledge over time. Academics thus suited her penchant for reflection in terms of critical thinking as well as knowledge gains, both of which happen to be highly valued in undergraduate education. These institutional values may align with those of students inclined to reflect on topics of interest and on their own progress over time.

For Jeff, involved in a balance of academic and non-academic pursuits, the college experience in the classroom actually had been less rewarding due to the perceived emphasis around him on learning as a means to an end. He was a moderately introverted biology major who had switched out of the pre-med path. A future science teacher, his courses still overlapped with those of students headed for medical school. He felt disdain for the "grade-grabbing mentality" described by Christine. Unlike with Christine, however, that mentality seemed to pervade his classes.

> I don't know if it's the professors that I have had or the classes or just my major, but I've always just felt like it's too fast and there's more--the focus is just on getting a good grade and not actually learning the material. That's actually--for me, that's kind of sad, because in high school, I felt like I absorbed the material more, and here, it's just like any grade for some kind of like transcript to show your future employer, which I kind of think is wrong.

Jeff had borrowed student loans. Like Christine, he soberly mulled academic and career plans with financial considerations in mind. Yet both displayed interests in pure learning beyond striving for grades as simple means to an end.

Planning for the Future

Not all introverted students spoke so passionately about learning and course content. Nor was the notion of earning a degree as simply a necessary means to an end particularly salient. Instead, a number of other introverted students appeared preoccupied, to varying degrees, with future plans--much of their energy appeared focused on both the end and the means to achieve it. That is, some students more than others seemed to exhibit a natural reflective interest in the future, which connected more or less seamlessly with the process to get there.

Brief examples from two participants illustrate what appeared to be a penchant for reflecting on and planning for the future. Talking with them gave the impression that these students' interactions with the present, mediated through a vision of the future, came naturally and brought intrinsic rewards. The evidence, although subtle and perhaps demonstrating more (or other) than a reflective personality trait, seems to suggest that for introverts like Holly and Marisela, below, a natural propensity and even excitement surrounded involvement that was aligned with reflective, future-focused planning.

Holly spoke animatedly of the future path to life after graduation. In repeated mentions of plans, her reflectivity seemed to surface. Meticulously planned classes were important in terms of their relevance to longer-term plans. Further, academic progress, planning, even grades, held intrinsic rewards rather than being simple means to an end. Earning A's made her "really, really excited." And she looked forward to making "actual progress" toward career goals through an upcoming summer leadership program. Hearing her enthusiastically recount structured plans and goals gave a sense that academic involvement provided a platform for Holly's forward-thinking reflective nature. It was through the structure and format of academia that she gained sought-after opportunities to progress systematically toward a future she envisioned.

Marisela expressed sentiments resembling Holly's. At the end of freshman year, already her vision for graduate school was set on a specific research interest. And the planning she undertook seemed not simply imposed from external circumstances but also part of her nature: I asked about pressures or practical concerns that dictated her involvement, noting her push for graduate school and career, to which she responded, "I feel like those are good pressures to have." The worse pressures for her, the "unnecessary pressures," were to socialize--"to go out," "to have fun," and "to discover yourself."

Reflective Self-Discovery and Social Enrichment

Lest one be tempted to think of Marisela as excessively rigid or conformist, it is important to note that she did work "to discover herself" that first year of college. She explored future interests through action that appeared to have stronger reflective than responsive components, however, including coursework and related activities. Marisela cited taking a course with interesting readings, learning about research, and attending an academic conference as revealing "a direction and passion" for what she wanted in the future.

Marisela's case exemplifies a further way in which academic involvement may have catered to the introverted penchant for reflection: in addition to allowing reflection on course content, on progress from past to present, and on the future, academic involvement offered a space for reflective self-discovery. With other students, that discovery sometimes extended beyond the self, and the academic setting prompted reflective social development through topics in the curriculum. It also seemed the preferred environment for more reflective students to actively socialize with others over like-minded interests. Quieter experiences in academic settings suited their reflective personalities well, as insights from Hannah, Branden, Michelle, and Christine illustrate.

Hannah and Branden learned about themselves and others by studying English. Hannah described herself as "so affected by literature, emotionally, psychologically." Analysis of readings led to self-reflection--to attempts at understanding what provoked an internal response. "I see studying literature and analyzing it as a way to figure out why I feel this way," she explained. Through reflection on her emotional and psychological responses to readings, she explored her feelings and thoughts.

Creative writing gave Branden "more of a social mind" and prompted him to "think more about people and about the human condition." Academics also served as his chosen setting for social interaction. He described preparing with other student facilitators to teach lower-division seminars as one of his most social experiences at UCLA. His social circle included friends from small seminars, and he regularly met with fellow writers and editors for a literary journal: "I mean, we're all very writerly...and kind of quiet, and so those events usually just are kind of a dinner or we talk and get together and talk about writing or work, something. But yeah, it's good." Insights were gained through reflection and friends made through shared interests.

History and Asian-American studies courses personally influenced Michelle, an American student from Vietnam. These courses catered to her reflections on history, politics, and culture. They introduced information on her background and home country that had not been available to her outside the U.S., or even outside of college. She explained the feeling that the background of her native country, in a sense her own history, had been obscure, "Nobody talked about it, and you know, I couldn't imagine what it was if I wanted to." Academics filled in missing pieces of her past. "Coming to college," she continued, "I've been trying [to learn more about it]. You know, it was like an overarching question that I've been trying to answer."

Michelle expressed the belief that Asian-American Studies better suited her personality and learning style than did her major concentration in psychobiology. Corresponding with this preference, her rewarding social interactions more often occurred outside the pre-med major, and in line with her deeper interests. But concerns for practicality weighed heavy, and she struggled to reconcile personal interests with the instrumental need for a degree perceived as leading to financial security.

At the other extreme from Michelle lay Christine, whose enthusiasm for those who studied math seemed to match her interest in the major itself: "I study math, which is great, and I just meet so many people there. It's like all the passions and all the characters, really, and I just love it." And again, "all these professors are really, really smart people and they just love to talk so it's fun. And then all the people who sit with me, all my peers, they're also really intense, passionate people and I just like being around that too." There was bonding with others over shared passions for what they studied.

Summary

To sum up the introverts' distinguishing academic-involvement preferences, Christine and the majority of others gave evidence on multiple levels suggesting the presence of high reflectivity. The introverted participants commonly expressed enthusiasm for the critical thinking and analysis that go hand in hand with academics. In line with this, they more often went into detail about insights gained from class; they spoke animatedly about their interest in topics, practical and theoretical, from English to computer programming, from education to organic chemistry. Seeing intellectual progress or growth over time--a widely-sought outcome for undergraduate education--further made academic involvement particularly rewarding. That is, the introvert liked to look back and see how far her knowledge had progressed, and her

courses provided just the environment to do so. In addition to critical thinking and reflecting on progress, the academic domain offered structure and organization for those students whose reflectivity manifested in a penchant for planning the future. They animatedly planned classes, courses, and careers, and then took action by acquiring academic internships, attending conferences, and participating in support programs structured to make their plans a reality. Further, limited evidence suggests that reflective self-discovery and social enrichment--both reflective and active--played important roles in the introverted students' academic lives. The students shared that they gained valuable insights about themselves and the world literally by studying. Plus, in the comfort of the more reflective academic environment, some found their social niche among students and instructors with like-minded interests. These findings help account for the greater numbers of introverts with high academic involvement, and stand in greater relief when contrasted with findings from the population of extraverts.

Personality Traits and Academic Involvement for the Extravert: The Roles of Responsiveness and Sociability

The extraverted participants were less likely than their introverted counterparts to focus primarily on academics and more likely to have mixed-focus or low academic involvement. Evidence suggests that general and specific preferences corresponding to the dominant extraverted characteristics of responsiveness and sociability may be associated with these findings. Apparent manifestations of these characteristics in terms of preferences and related behaviors coincided with the extraverts' academic involvement in multiple ways.

Generally speaking, the extraverted students reported preferences for high levels of present-focused, overt activity and social interaction, corresponding with greater responsiveness.

Reports of this apparently responsive inclination were commonly met with the opinion that academic involvement held limited opportunities to be active or responsive.

Specific, positive evidence of how that general responsive tendency manifested in academic involvement surfaced in two main areas. The first of these is the extraverted preference for active and interactive coursework, and for curricula with present-focused topics. Such coursework these students often experienced as the exception rather than the rule. the second is the extraverted students' tendency to emphasize the importance of informal social interactions to their academic success. They spoke of informal interactions--either instrumental or purely casual--with peers, professors, and teaching assistants as highly rewarding yet difficult to come by in numerous cases. The following subsections offer examples from these two main areas, further illustrating the draw for responsive opportunities and social settings among the extraverted students.

Experiential, Interactive, and Immediately-Relevant Curriculum

Related to the general preference for active and social involvement, students in the extraverted group commonly expressed a specific preference for experiential (i.e, active or "hands-on") and interactive coursework. Additionally, they mentioned interest specifically in current topics that held direct relevance to the world around them--coursework that seemed less commonplace for many students in the study. These preferences resonate with the characteristic of greater responsiveness and are associated with sociability. Rather than reflect on things that happened in the past or plan for what might be in the future, the extraverted students exhibited a penchant to act, and to interact with others in the present, through coursework; topics directly tied to the living present--to the people they knew and the world in which they lived--piqued their interest.

Fei Yen, a student who needed non-academic opportunities to "go out and . . . be social" also expressed an interest in hands-on coursework. An organic chemistry lab she found "really, really interesting," explaining that she was "definitely more analytical" and liked "putting puzzles together and things like that." She further explained:

> All of my hands on, like, my lab classes I've done pretty well in, but all of my theory classes I've done really poorly in, and it's just because I'm more of a hands on application sort of a person, as opposed to a sit down sort of memorizing...

Her statements in part seem to challenge the perhaps popular assumption that critical thinking and analysis must assume a reflective form. One gets the impression that, for Fei Yen, theoretical work without action failed to engage interest and to stimulate learning. Analytical thinking instead required an active or experiential component. Through responsive action in lab courses, Fei Yen's analytical mind came alive. As she saw it, her biochemistry major required that "you sit down and you memorize" rather than think analytically. She envied friends in more active fields: "All of my friends are engineers, and so I see them building things, applying them, doing problems, and it's like, I wish I could do that." It was largely the extraverted students who mentioned appreciation for active, experiential components in class, and who were quick to lament the absence of such activity. More often than not, the activity they spoke of was also social in nature; the specific course topics they brought up were current. The following cases demonstrate what other extraverted students shared as the highlights of their academic experiences.

Maya explained that the topic of an indigenous cultures class surfaced in the very presence of its students:

> We had a Native American guy in the class, and there was another girl from Korea who lived near an indigenous culture in Korea, so in that respect it's a good thing to be able to interact with people and hear their different opinions.

The course provided both social interaction and immediate relevance. It gave the chance to study world cultures that were alive and present.

Julie likewise commented, "The classes that I really liked, I was interacting with people, instead of just kind of sitting there and getting, you know, being alone and in the crowd." The comment seems to signal her preference for classes that involved interaction over those with perhaps more students but less interaction. In addition to citing an interest in lab classes, she enthusiastically recalled a civic engagement course that placed funds in the hands of students tasked with working in groups to make real-life philanthropic contributions.

Stella mentioned three classes, all of which dealt with current topics and held a social component. First, she brought up a music industry class with multiple guest speakers. Then it was an LGBT class with discussions and people from different races and sexual orientations. A third course centered on the ongoing conflict in the Middle East. She shared, "I really enjoyed the class . . . because it's just going on, and I know people from different sides."

In line with Vivian's expressed distaste for studying outside of class, a highlight of her academic experience was an active group project. She and a sorority sister chose a fraternity house as the subject. They visited the house, took pictures, and drew diagrams for a paper on design and branding. It was well-received for its originality and execution. Vivian described it as an academic success and exciting to do.

Whether related to diverse populations, political situations, brand marketing, music industry or philanthropic contributions, the courses above all dealt with current topics or events;

they all involved social interaction. That extraverted students mentioned these courses as their favorites is in line with past research: the responsiveness and social preferences associated with extraversion may have surfaced in the types of courses these participants found rewarding. Further, It seems that such courses were a rarity. Several of the students depicted above were less than enthusiastic about the majority of their coursework. The dearth of their preferred active and interactive curriculum may help account for the greater proportions of extraverted students with either mixed-focus or primarily-extracurricular involvement. If active (i.e., experiential) and interactive curricular opportunities were more available to them, perhaps a greater number of these extraverted students would have been more academically focused instead of relying on outside activities for the types of involvement they found stimulating.

Instrumental and Casual Interactions with Peers, Professors, and Teaching Assistants

The first point, that extraverted students preferred active and interactive coursework, relates to the second. A strong majority of the extraverted students emphasized that, outside of formal assignments, interactions with peers, professors, and teaching assistants facilitated academic success. While alternative explanations may hold, it appears that instrumental and purely casual interactions in the academic domain served students' responsive and social inclinations, and motivated them to succeed. For example, the extraverted students tended to ask others for academic assistance (as opposed to the introverted participants, who more frequently reported working through challenges independently). Several extraverted students also spoke of being driven to succeed in class by a professor or teaching assistant who seemed to care for the student personally or with whom the student had established a rapport. Deprived of such relationships, the academic experience for these students could prove challenging.

Carlos, for example, drew academic support from his peers. He was adamant, "I would not be where I am if I wasn't willing to put myself out there or to ask questions or to ask for help." Specifically, connecting with peers in classes and forming study groups were a boon. Even simply the presence of friendly faces in the lecture hall enhanced his academic experience. Well aware of the rewards of social support, Carlos went out of his way to interact with peers in classes.

> It's nice to know you have people you know and you're comfortable with. And so . . . talking to people and just putting myself out there . . . [I'll say,] "Hey! I'm going to sit next to you. We're going to be buddies," in class, like the first day of class. I like to do that. . . . It helps make this place feel smaller, it makes this place feel more manageable. And . . . it makes you feel more comfortable. And then when you feel better, you do better.

He mentioned multiple times the advantages of connecting with students, "It's helped me kind of get through this by finding other people who may know more than me, or who may just be on my same level"--other people who would then "struggle together" with him.

The interactive environment provided through academic support programs also suited Carlos' personality well. He underscored the social interactions fostered in such programs: "A lot of the groups that I'm in have involved . . . interaction with people." Insofar as they encouraged collaboration, these programs fit well with Carlos' natural leanings: "I'm very, very inclined to those kind of programs that can help me interact with people, get to know people, help people, be helped--where I falter, or where they may have strength." Both introverted and extraverted participants who took part in such programs spoke positively of them, but it was the

extraverted students--like Carlos--who specifically touted the advantages of learning through social interaction and the academic rewards of social support.

Other extraverted students stressed the benefits of interaction with faculty members and teaching assistants (TAs). Such interactions served an instrumental purpose: these students were less likely to push through problems in solitude, preferring to reach out for help when faced with academic obstacles. Also, casual interactions with supportive professors and TAs made the academic experience more enjoyable and thus kept the students engaged and motivated. Unfortunately for these students, such interactions were relatively rare.

An excerpt from Fei Yen shows the practical side of interactions. She went into detail about her tendency to seek help from others when faced with an obstacle in the academic realm:

> [If] I don't get something, instead of trying to sit down and figure it out, I immediately e-mail my TA . . . "I don't understand this, can you help me with it?". . . . I have friends who . . . they'll sit down and they'll try to think it through. But for me, if I don't get it and I can't think it through within five minutes, it's, I mean, really...

Stacey, a highly extraverted student, gave no such explanation as Fei Yen's. First, she shared her experience in an upper-division theory class, "It just so happens that this class is a little bit more difficult than I was expecting." Asked how she dealt with the difficulty, she responded as if the answer were obvious, "I'm just trying to stay on top of it. If I don't understand something, ask." The striking aspect of her statement was the casual assurance conveyed through its brevity. It gave the impression that, for Stacey, the obvious thing to do when one does not understand course material is to ask for help. She took a similar route as did Maya, who early on had sought writing assistance from not only professors but also an educator in the family. Sara, too, reached out for assistance when it came to writing skills. "I'd use my

TAs a lot," she admitted. "I'd always go to their office hours and give them an intro or a thesis, and we'd work through it." The extraverted students thus displayed an inclination to act responsively and interact socially in their readiness to seek assistance from others when faced with academic challenges.

Evidence further indicates that informal interactions with professors and teaching assistants increased extraverted participants' interest in classes, leading to greater academic engagement and motivation. The comments of Andrew, Ritu, Chiara, and Julie illustrate.

Andrew found much of his coursework less than engaging, but a film class was the exception. His investment in the class surprised even him. "Originally," he shared, "I wasn't intending on taking it that seriously." As time went on, Andrew "ended up really liking the professor." Through attending office hours and getting to know the professor on a personal level, Andrew became more engaged in the course. "Now it's one of the classes that I enjoy the most and I'm putting a lot of work into," he shared. What made the course rewarding? He explained, "I think it's more the professor" and assessed the situation as follows:

> When I'm able to make a personal connection with people, or with people in an organization I'm in, or with a professor, then I just start to care more about it and echo more into it. And other times, when that doesn't happen, then I'm just going to pass it. And, I mean, I do the work but my heart's not in it.

The statement introduces the possibility that if Andrew had forged personal connections with his economics professors, then he may have invested additional time and energy in the economics major, and found greater satisfaction in it as well.

Ritu, another student with relatively low academic involvement, also highlighted the significance of meaningful interactions with professors; she commented that such interactions

rarely occurred in her experience. Ritu appreciated "whenever teachers are actually interested in what [students] have to say" and cited one professor who was "very different" from the others. "We would ask him questions all the time, and he would ask us questions too. So I think having that interaction definitely makes it a more rewarding experience."

Not all who craved the interaction described above gave examples of rewarding experiences. Chiara simply shared, "I don't have a very close relationship with my professors, I would say. I think that's one thing I've found to be difficult." Chiara studied psychology, one of the highest populated majors on campus. Class enrollments could count in the hundreds. Although admittedly she "hadn't put very much effort into actually making that relationship and going to office hours and really talking to professors," she believed that "just having large class sizes . . . created this distance between students and professors." The distance challenged the quality of Chiara's academic experience.

Julie seemed to relate. Also a psychology student, she disclosed, "I never really interacted with the professors that much. They kind of always intimidated me." The professors whom she described as "approachable" and who seemed to care for her personal well-being were rare. Instead, most of the teaching faculty she perceived as unapproachable. Asked about the influence of others on her studies and satisfaction, she replied that interaction with professors "really makes a difference . . . In terms of their individual classes, but also in terms of academics as a whole." Overall, Julie claimed to have "enjoyed everything," but conceded that "it would have been a lot more enjoyable if there had been interaction between the teachers and the students." Not achieving her desired level of interaction with faculty, Julie's interactive involvement outside of academics had been essential to her satisfaction both in and out of class.

Summary

The manifestation in the academic realm of traits associated with extraversion, such as responsiveness and sociability (perhaps in conjunction with low-sensory processing sensitivity--which could lead students to crave greater external stimulation than may be found in some academic settings--and high sensitivity to external rewards--thought to underlie the extraverted tendency toward certain forms of sociability) may help to account for the greater proportions of extraverted students who reported involvement that was either balanced in and out of academics or higher in the extracurricular domain. First, their favorite classes tended to be the less common ones that involved higher levels of experiential learning and social interaction, and that centered on present-focused topics. And second, they appeared more sensitive to the rewards of social interaction and reliant on social support, instrumental and casual, in the academic domain.

Personality Traits and Extracurricular Involvement for the Extravert: The Roles of Responsiveness, (Low) Sensory-Processing Sensitivity, and Sociability

The above account of personality characteristics and academic involvement for the extraverted participant would have been incomplete had it not touched on participants' extracurricular involvement. The current section further addresses how responsive and social inclinations in line with extraverted personality traits appear to have surfaced in the extraverted students' non-academic extracurricular involvement. (As with findings presented throughout this chapter, the limited data from a small sample of participants precludes making definitive claims about the reported evidence of manifested characteristics and their relationships with involvement.) While alternative explanations may fit the limited data, the extraverts' focus on extracurricular pursuits appeared to exhibit preferences coinciding with high responsiveness and

low sensory-processing sensitivity, and with singular social leanings linked to external reward sensitivity.

As previously mentioned, responsiveness surfaced in the extraverted students' penchant for action-oriented or experiential involvement, which was more readily found in the extracurricular domain. Students in this group emphasized the importance of action, of trying things, of learning through doing; unlike their introverted counterparts, several of whom talked about needing time to rest and even more of whom were satisfied to focus in depth on select pursuits, the extraverted students tended to speak of positive outcomes resulting from high levels of outward activity (more than half of extraverts did so compared to less than a quarter of introverts). In addition to the reported positive outcomes of increased satisfaction and in some cases higher grades, active exploration outside of academics led to promising career paths not directly related to students' areas of study. A further reward gained through active extracurricular involvement was affecting immediate change, described in the present-focused terms of "having an impact," "making a difference," and "feeling like I matter." Such rewards were associated with activities like event planning, volunteer work, and advising or counseling, and may be contrasted with the introverted tendency to focus on the rewards of growth, progress, or change over time--which in multiple cases coincided with teaching and tutoring involvement. In addition to responsiveness, the characteristic of low sensory-processing sensitivity manifested in these students' comfort with rowdy or chaotic environments, which left them open to embrace a wide range of extracurricular opportunities. And high sensitivity to rewards, direct and indirect, surfaced in the extraverts' preference for frequent and casual social interactions and for large, diverse social networks. The discussion of extracurricular involvement for the extravert

begins with a look at the trait-related characteristic of responsiveness, and the associated preference for high levels of activity.

High Levels of Outward-Focused Activity

Comments from a number of extraverted students reveal the general inclination toward action or responsiveness and the positive outcomes that resulted from outwardly active involvement. Sara, for example, shared, "My motto is, it's better to try it, and know that you don't like it, than just sit there and not do anything forever." Julie likewise demonstrated an active disposition, of which she became aware early in college: "Sophomore year I . . . kind of started realizing that I needed to be--like my personality and who I am--I needed to actually go out and try things." When her participation in extracurricular activities increased, her grade point average also increased. She noted,

> The past year has been the highest that it's [her GPA has] ever been. And I've also been the most busy and social I've ever been. So I feel like when I'm busy and I'm motivated for one aspect, I'm motivated for all aspects, maybe.

Being outwardly active characterized Stacey's personality, as well, and translated into high involvement in the extracurricular realm. Her energetic and responsive nature came through in comments like, "I've always been the type of person to make myself really busy, and if I'm not busy I'll find stuff to do that makes me busy," and, "I think the best way to learn is through actually doing it." She had spent "a lot of time looking into different organizations, clubs, social life." There were, in her words, "so many things that I just kind of dive myself into." Further, in high activity she thrived: "So I was very busy spring quarter, but I got the best grades that quarter. . . . It's like the more busy I [was], the more on top of things I was."

Again and again, extraverted students offered insights on their outwardly active natures. Audrey, another highly active extravert, similarly explained, "I've always been the type of person who likes to do everything. So if it's there, I'll try it out." Chiara emphasized the rewards of being highly active in the extracurricular realm: "I try to get as involved in school as possible, because I feel like I enjoy it better when I'm involved." Carlos, too, discussed his responsive personality and how it tied in with beliefs about success. "I feel like I'm more inclined to be the kind of person to do, do, do everything," he shared, "Because I feel like action is really one of the key foundations to success."

Finally, David, who kept extremely active in student organizations and politics on campus, responded to a question about his personal interests as follows: "I'm a firm believer that you don't really know what you like until you try a lot of things." For him, the rewards of being active, of living in the present, of learning through doing, were far more salient than the drawbacks. "I never hear anyone complain about what they did do," he shared, continuing, "It's what they didn't do. And so many of my friends have those regrets, which is why I want to do everything. So, I don't really have any regrets `cause if there's anything I wanted to do, I would just do it."

Spontaneously Pursued Interests

Further in line with their responsive and active bent, and out of sync with the tendency to reflect or plan for the future, more students in the extraverted group--like David--seemed less likely to envision long-term employment plans and happier to consider career options that incidentally arose through extracurricular opportunities. Instead of mapping out a clear career path leading beyond college, several extraverted students had discovered or hoped to fall onto such a path incidentally, from living an active lifestyle in line with their current interests.

Stacey, for example, talked about trying a variety of extracurricular pursuits, "Just whatever I could find that interests me, I would look more into and see if it works out." I asked about the motives behind her strategy. She answered, "I know if I do something that I like, it will eventually lead me somewhere that I will want to be." Another extraverted student, also optimistic and energetic, took a similar approach to gaining clarity on her future. Chiara put it, "My philosophy is that if you just keep trying things and keep taking opportunities that seem interesting to you and making the most out of them, hopefully one day it'll all be okay." Ritu and Andrew embodied the views that Stacey and Chiara espoused. Neither found academic life particularly engaging. Both had uncovered promising career options through extracurricular activity initially motivated by current interests rather than future plans.

Immediately Observable Impacts

So far, the discussion on responsiveness and it's relation to the extraverted students' involvement outside of academics has covered the importance to these students of being active, of trying things, and of learning through doing; it has demonstrated the rewards that come from active, spontaneous extracurricular involvement. Also interesting are the kinds of activities to which extraverted students gravitated.

Students in the extraverted sample disproportionately took part in event planning and marketing, advising and counseling, and volunteer work--often with young children. The language used to describe the rewards of such activities is telling. Their desires to make a difference, to have an impact and to feel they mattered demonstrated a penchant for present-focused and tangible results--i.e., an active or responsive bent. It contrasts with the salient descriptors among the introverted group, who more often emphasized seeing progress, development, or growth over an extended period.

Stacey and Audrey were extraverts who found rewarding their employment with the Office of Residential Life. Their work involved giving campus tours and advising incoming students. It was an active outlet that presented instant results, as Stacey explained:

> So I worked for orientation and all of the students that came. I personally counseled 160 students and kind of helped them transition to UCLA. . . . I kind of know that I made an impact and made a difference, so I think that's what's been the most meaningful to me.

Audrey, too, described her position as new student adviser with orientation staff in terms of effecting change.

> I was part of the orientation staff. So that was really meaningful because I got to impact all the incoming freshman and transfer students and shape what the UCLA experience is going to be like in the beginning, just telling them what UCLA is about.

What is interesting is not so much that they found it personally rewarding to make a difference in people's lives. What is interesting is that the changes they prompted were direct, and occurred actively, or interactively. Instant effects came from short-term social interaction in real time; with each new interaction, the numbers affected grew. Changes were not prompted through ongoing relationships, such as with teaching, where progress may slowly accumulate; nor did accomplishments result from chipping away in solitude at a lasting contribution to the world. Effects happened face-to-face in real time for students who saw results before their eyes.

Kara and Carlos exhibited similarities with the orientation staff members in that they all worked interactively to effect immediate change. For both Kara and Carlos, however, a strong identification with religion translated into participation in volunteer work. Kara put in hours at a homeless shelter and read to children. "Obviously that does leave me really satisfied," she shared, "knowing that I'm just helping people." Later she added, "I love to help people. . . . It

fits with who I am." Carlos similarly described himself as a "people person" who seemed implicitly to connect the notion of helping others with the idea of doing overt activity of a social nature. (Examples he gave of solitary pursuits less suited to his personality and to helping others included studying in the library for hours and conducting research in a lab.) The perceived link between his own needs and those of others meant that in answering the call to help others, he helped himself as well, filling the personal need for social connection and activity. Service work interacting face-to-face with the homeless on Skid Row and at a camp for underprivileged youth met needs in line with his personality:

> Helping people, I feel like that's what I live for, that's what I'm here to do. That's what I've been put here on this earth to do because that's where I find the most satisfaction. That's where I feel like I'm doing the most.

Ultimately, he aimed to work directly with underserved populations as a missionary doctor.

Although less directly service oriented, event planning and marketing favored by students like Patricia and Andrew stemmed from the similar motivation of making a difference or having a direct, observable impact on the outside world. Patricia commented, "I get a lot of enjoyment out of organizing and feeling like I'm doing things, and feeling like I'm making a difference in some way." The rewarding aspect of putting on an event was the final product, "Seeing it come to life." Andrew expressed similar thoughts: "I feel like I can see in some small way my impact on the campus when we have our events." He preferred event planning and other active pursuits out of class to the scholarly or academic focus, which he described as "passively existing and doing my work and just passing through the system."

"Feeling like I have an impact on the world around me" is part of what motivated David's extensive involvement out of class as well. "I always want to feel like I matter, basically. . . . It's

just the desire to feel like I'm important, not . . . for the sake of being important, but important because I'm doing something that matters. . . . that I'm benefitting people's lives, that I matter to people." His words echoed those of numerous students in the study, a disproportionate number of them extraverted, who expressed a need to act on the world around them and see the change that results--a need to feel that their immediate presence had a direct impact.

Thus responsiveness characterized by the inclination to act in the present on the external world is evident in the extracurricular involvement of the extraverted student. That responsive inclination surfaced in choices of involvement and in its motivations and rewards. Higher responsiveness among extraverts may help to explain why and how more extraverted students focused greater proportions of time and energy outside the classroom than did their introverted counterparts.

High-Stimulation Environments

Entangled with these students' apparent responsive preferences is the further characteristic of low sensory-processing sensitivity, or low sensitivity to external stimulation. The characteristic is somewhat counterintuitive in that a lower level of sensitivity corresponds with a high tolerance, and even preference, for relatively greater or more pronounced stimulation in one's external environment. For instance, a person with low sensory-processing sensitivity in terms of sounds would function relatively well cognitively, and may even prefer to do so, in surroundings with a relatively high level of sound. Limited evidence suggests that this trait may have endowed certain students with greater comfort in environments considered highly stimulating (environments which may also provide ample opportunities for responsiveness). This evidence surfaced in the extraverted students' reported preferences for active involvement in loud, frenetic activities.

Audrey was one student whose comments seemed to reflect a low sensitivity to external stimulation. Unlike a number of introverted students, Audrey expressed no feeling of being overwhelmed or uncomfortable in the environments she herself described as "rowdier," nor did she place conditions on her involvement in these settings. The self-identified moderate extravert found herself able to enjoy a variety of events on campus. "I love theater and music. . . . But then I do a lot like going to the football games." Stacey echoed Audrey's preferences, further leaning towards high-energy involvement.

> I love going to football games. I love going to concerts. I also like mellow groups in, like, a club meeting, I'm totally okay with that, too. I think I would prefer . . . if it's a group setting, [for it] to be more fun. But I also like the large-scale football games where the energy is really high. I love going to that.

For Stacey, there seemed no aversion to environments based on their level of "energy" or sensory stimulation. On the contrary, the level of sensory stimulation appeared to function as a reward: she liked "where the energy is really high." So it seems that the absence of limitations and presence of rewards in high-energy settings may have increased these students' desirable options for active extracurricular involvement.

Low sensory-processing-sensitivity looks to have surfaced in a different way for David and Carlos, two highly extraverted students unique in mentioning their comfort with uncomfortable situations. David explained at one point how "It's really hard to make me uncomfortable." Later, he went on, "I kind of embrace [uncomfortable situations] `cause I like to get the opportunity to feel more comfortable. If I'm uncomfortable with something it's just `cause I haven't had enough experience with it, which means I should have more experience." Likewise, Carlos described himself as "very comfortable with crazy settings." At another point,

he elaborated, "I'm very comfortable being uncomfortable. That's weird. But that's who I--I'm just one to put myself out there. . . . I think that's why I love working with kids so much."

A substantial segment of students from the extraverted group, like Carlos and David, failed to exhibit the persistent discomfort that, for more sensitive individuals, may be associated with highly stimulating environments. Apparently not held back by a high sensitivity to external stimulation, the extraverts were likelier to report enjoying a wide variety of options for active extracurricular participation.

Frequent, Casual Interaction and Large, Diverse Social Networks

In addition to high responsiveness and low sensory-processing sensitivity, student reports demonstrated extraverted social patterns that indirectly implicate external reward sensitivity in their involvement choices.

The social rewards of extracurricular involvement split into two categories. Rewards stemming directly from casual social interaction comprise the first. Participants in the extraverted group as a whole seemed more aware of and sensitive to benefits of interacting socially that included improved mood or pleasure, sense of connection (to campus), and sense of support. Even brief, casual, and superficial interactions were not just met with positive appraisal but actively sought for their rewards. This is not to say that the extraverted students placed greater value on those with whom they formed bonds. It is to say that they seemed to express enthusiastic appreciation for the real-time links between individuals that constitute everyday social interactions. A number of these students emphasized, to varying degrees, less the meaning communicated through interactions, less the individuals with whom they interacted, and more the value of interacting itself.

The second social draw associated with extracurricular involvement has to do with the expansion of the social circle or network, an indirect advantage to interaction with others. For extraverted students, networking rarely had the negative connotations that a number of introverted students associated with it. Since casually interacting was a reward in itself, networking was more than merely a means to an end. Further, students aware that they gave as well as received through networking expressed no qualms about its practical aspects insofar as the benefits were mutual. Professional and personal rewards resulted from social networks that formed and expanded through extracurricular involvement. In the professional realm, social ties meant support and opportunities for both academics and career. In the personal realm, a large, diverse social circle increased access to myriad resources; it led to opportunities for greater social interaction as well--a reward in itself and a means to the end of further expanding one's social network.

Starting with the first category, the direct, intrinsic rewards of casual social interaction are evident in comments from several participants. Lisa, for example, shared, "I tend to usually find my satisfaction with interacting with other people." She gravitated toward activities that promised social interaction: "If I know there's going to be other people involved to interact with I'm definitely more responsive to that and I'd be more likely to go." On the contrary, she further explained, "[When] I find myself in situations where I'm with people who just seem a lot more reserved . . . sometimes it's hard, because I always need the interaction."

Vivian commented in line with Lisa, "I definitely lean toward extraversion in terms of drawing my energy from other people; I really like being around other people and it makes me happy all the time." Early freshman year she had "tried to meet as many people and get involved

as much as possible." The effort seem to have paid off. In the following example, she assessed the result:

> Whenever I walk around campus . . . and I see people I know, and I say "Hi," people who walk with me are always, like, "You know everyone," which is not a bad thing. So I guess it's been a good fit, and I really like that.

Vivian profited from frequent casual interactions with a wide social network she had worked to gather through active extracurricular involvement freshman year. Another extraverted student, Sara, shared sentiments expressed by Vivian.

Sara's wide circle of friends and acquaintances translated into rewarding opportunities for casual interaction. The rewards of interaction seemed to include a sense of support on campus.

> Well, just being involved makes it a lot more worthwhile to come to school, because obviously you have a bigger social circle. It's nice to just randomly run into someone and just have like a two-minute conversation. So it's kind of like a motivation to go to school and stay in school. It's always fun to have a class with a friend or something rather than taking one by yourself.

Carlos, too, found that being more social enhanced his campus experience. He described himself as "drawn to other people, like other extraverts," continuing, "We'll be loud together. It's great. . . . I am drawn to those activity levels." Conscious efforts to be more social in college had helped him "get to know everybody" and were thus vital to "making this campus feel smaller."

As seen from the quotes above, more direct rewards of social interaction may have come hand in hand with students' motivations to expand their social circles, which bring the discussion to the topic of the second category of social rewards. Students sought wide social networks on

campus, apparently to increase the opportunities for interactions that brought them personal enjoyment, feelings of belonging, and a sense of support; sizable social networks also returned more tangible resources, as further excerpts illustrate.

Kara, for instance, talked about experiences outside academics as "extremely worthwhile . . . because that's where I'm able to . . . meet more people and network. She mentioned ramping up recent efforts to stay in touch with people, continuing, "I'm going to need a job one day, obviously, so some of these people I'm meeting here could really help me in that." As further evidence of her interest in networking, several weeks after our interview, Kara sent me an invitation to connect with her on a popular job-networking website.

Demonstrating sensitivity of another sort to the rewards of social networks were students like Ritu and Stella who discussed the importance of having multiple friendship groups. Ritu used the phrase "pockets of friends," to describe distinct social circles holding varied advantages. Through increased and diverse extracurricular involvement, her social network reached into these various pockets and came out with diverse rewards.

> As I got more involved I just have more pockets of friends. So I'll have my friends in my sorority and then I'll have my coworkers and then also have my high school friends from back home. So it's just kind of like the circle just grew into different groups, basically.

Friends in different areas with diverse interests helped Ritu to "stay connected." Further, membership in each of the various groups held distinct advantages. Coworkers came from "more working class backgrounds," as did Ritu. Friends from the residence halls and the sororities she described as "more from upper middle class." Ritu recognized and appreciated the rewards of interacting with both sets. Among those who shared her background, she said, "It's just way more causal." And with friends who had "more money," she developed interpersonal

skills that would benefit her future. "In life you're going to have to interact with so many different types of people," she explained. "You still have to be able to fit in and talk to them and stuff. So I think--I mean, it's nice having a group where you can relate . . . in terms of problems that you might have and things, but yeah. . . ." Ritu described herself as happiest when around friends and seemed to appreciate the rewards that flowed from an abundant social network.

The similarity between Ritu and another extravert, Stella, is that both enjoyed the advantages of socializing among multiple circles. Stella, however, described these advantages more bluntly.

> A lot of people, I've noticed they only have one group of friends, and I've kind of made friends in different groups. So if this group is kind of like--okay, I'm done with them right now, let's go [for] a little change of pace. . . [then] I'll hang out with [the other group].

Outside of the increased opportunities for stimulating activity, Stella's membership in distinct social groups added a level of interpersonal support:

> I've had friends that have little fights or drama, but they're in the same group of friends so they can't vent to somebody because it's going to get back to them. So that's kind of been nice just kind of having two sets of friends.

The emphasis in Stella's comments is not so much on the people themselves. Nor is the depth or meaningfulness of relationships given particular attention. Greater focus falls on the rewards of membership in social networks and associated interactions. A final case shows the lengths to which one student went in order to expand his social network through extracurricular involvement, apparently motivated by the incentives such networks offer.

"I'm one of the most extraverted people I think any of my friends know" is how David described himself. David's efforts to gain a substantial network of friends with diverse backgrounds and interests were unmatched among the interview sample. The quote below illustrates his awareness of the external rewards derived from a social network built through extracurricular involvement:

> This summer I'm [taking a] trip. Well, I'm doing an internship, which I got because of my network. . . . And I'm staying with friends in every major city [in the area] because I have friends in every city. But that's only because I've built a network here. And so there is definitely a practical aspect. . . . I'm not doing it [i.e., participating in extracurricular organizations] just for fun or whatever--which I am--but I also recognize the networking that I get out of it, which is really powerful.

One may extrapolate from the above quote to get a sense of David's deliberate efforts to acquire international friends:

> If there's a community that I don't have a presence in or don't really know, I like to fix that. Recently, this year, after going to Europe . . . I realized I didn't really have that many international friends. . . . So then I fixed it this year by joining the . . . international student center and going to those events and joining an organization involving that. So now I have a lot of international friends.

David intentionally sought to gain a large network of friends with diverse backgrounds and interests. Considering his comments, one may assume that, at least in part, these attempts were motivated by the potential for external rewards--by the "practical aspect" of networking.

Still it would be a mistake to assume David's social networking was simply a one-way enterprise undertaken for self-serving gains. Aside from actually enjoying frequent social

interactions, he took pride in using his networks to benefit others. For other students in need, he eagerly obliged: "Whenever a friend says they're having issues with something . . . I'm the first one to really tap into networks for them." He happily organized events and harnessed resources, "tapping into networks" to support others' various endeavors.

Summary

To sum up, extracurricular involvement--in terms of preferences, interests, and behaviors--for the extravert appeared to exhibit characteristics associated with extraversion, such as high responsiveness and low sensory-processing sensitivity, as well as high external reward sensitivity as indicated by social preferences. Their trait-associated involvement preferences and behaviors may help to account for the greater proportions of extraverted students who reported relatively moderate or high involvement in the extracurricular domain.

In terms of responsiveness, extraverted students often sought non-academic options to suit their preferences for a busier, spontaneous, and outwardly active lifestyle; they further enjoyed outlets like advising, event planning, and volunteer work in which not only did they act and interact with the world around them but also their immediate presence and impact were felt. Low sensory-processing sensitivity manifested in these students' comfort with rowdy or chaotic environments, which left them open to embrace varied opportunities that may have presented challenges to populations with greater sensitivity to external stimuli. Further, the extraverted students displayed high sensitivity to rewards, direct and indirect, stemming from social interaction. They gravitated toward opportunities outside of class rich with these rewards, and large, diverse social networks expanded their access to such rewards.

Personality Traits and Extracurricular Involvement for the Introvert: The Roles of Reflectivity, Sensitivity to External Stimuli, and Sociability

Extracurricular involvement outside the academic realm held distinct motivations, rewards, and challenges for the group of introverted students. In contrast with their extraverted counterparts, students in the introverted group did not display a strong inclination for high amounts of action-oriented or experiential involvement. Instead of finding or expressing themselves through experiential involvement per se, the introverts' dominant tendency was reflective: they more often sought involvement deliberately based on its alignment with pre-meditated values, purpose, or meaning--involvement not necessarily defined by a salient experiential component. And rather than liberally taking overt or spontaneous action aligned with basic interests, the introverts tended to express preferences specifically for activities promoting personal development, or they strove to spur such development in others. Their motivations exhibited a long-term orientation, characteristically reflective (i.e., considering the future), rather than an immediate orientation that would seem to coincide with not only responsiveness (in terms of "living in the present") but also sensitivity to external rewards (in terms of immediate gains). Sections below offer detail on the reflectivity manifest among introverts in the college setting, in addition to demonstrating evidence for both (high) sensitivity to external stimuli and singular social leanings. These personality-linked characteristics, exhibited through preferences and behaviors linked to out-of-class involvement, may help account for the lower proportions of introverted students with relatively high extracurricular involvement.

Purposive Activity

While both extraverted and introverted participants no doubt chose extracurricular involvement that held meaning or purpose to them, it was the introverted students who during interviews commonly chose to discuss and emphasize the importance of a purpose or significance underlying their extracurricular activities and social dialogue. For them, it seemed that a dominant aspect of involvement was its alignment with a deliberate underlying significance. In some cases, their preferences for purposeful action and interaction appeared to coincide with distaste for causal socializing. Examples from Marisela and Michelle illustrate.

Marisela had ventured into the world of student groups, but she explicitly commented that her motivation to join these groups was not to make friends--she was content socially with a close roommate plus a small group of friends. Nor would she join a student group simply to have a good time: the idea that one must have fun in college Marisela referred to as a "connoted" notion. It was not real, in her eyes, and pressures to have fun in college were "unnecessary." She further commented, "I like finding things that make me feel happy, and sometimes it’s not the club. It could be what the club does." The underlying purpose but not the social or networking component mattered to her. She had dabbled in service-oriented student groups with the express aim of helping youth from underprivileged backgrounds similar to her own. However, in her student group experience, the goal of serving others was confounded with the means of behaving in a certain way. Marisela perceived pressures to act out of line with her personality, pressures that conflicted with her intended goal and created a barrier to involvement:

> I'm a peer counselor and everyone expects you to be happy and to be cheering and to be an extrovert and funny. And I'm not like that. So I get in trouble a lot for not being like that, I suppose, because there's pressure to be this 'awesome' person. I think I'm not that

> 'awesome' person. And I think if I act that way, I'm coming off as un-genuine to the students.

She shared the opinion that being true to her more introverted character would help the quieter youth with whom she worked to accept their introverted leanings as well. She did not think that either these students or she should have to change. The perceived pressure to act out of line with her character, to be "un-genuine to the students" detracted from her goal to serve them. It had led her to withdraw from student group participation, and she returned to focusing relatively greater attention on academic pursuits.

Michelle expressed more of an interest in social interactions than did Marisela but, in a similar vein, chose to emphasize the depth and meaning of her encounters. She repeatedly spoke of an interest in establishing "personal connections"--Michelle liked to communicate on a deep level and seemed uninterested in small talk. It was this personal aspect that she found lacking in student groups. "I tried out different ones. . . . and I feel like my time was being wasted," she said. "They didn't really talk about anything. We really weren't doing anything." More specifically it was the "social clubs" and "cultural clubs" Michelle had found less than gratifying:

> I felt like it was not personal at all, and it was so meaningless to me that I [didn't] enjoy it. . . . I felt like it was just a chance for everybody to present themselves. It's not about getting to know the people, it's about presenting yourself. . . . And everybody has just struggled to talk to as many people as they can and to be in involved in as many conversations as possible, so there's no personal connection.

It may appear that Michelle's aversion to "presenting herself" in such groups, and her annoyance that they "weren't really doing anything," exemplified a disinterest in socializing and a coldness or an unwillingness to be involved. But in reality, Michelle expressed profound interest in

others, and sought meaningful interactions and involvement. She simply perceived opportunities associated with certain settings (namely, social and cultural student groups) as incompatible with her preferences: Michelle wished not for a wide social network or to gain social support per se but, in line with reflectivity, she wanted to act purposively and to connect intimately with others. Her initial experiences with student groups led her to conclude that many were ill-suited to her interests, and similarly to Marisela, she chose to withdraw from participating.

Illustrated above are the introverted leanings that in some cases limited students' perceived options for non-academic involvement, particularly involvement in student groups. Rather than (and sometimes at odds with) pure recreation or casual interaction, it was the perceived underlying purpose or significance that came up repeatedly as a salient factor in the introverted students' decisions to engage in activities and in those students' subsequent satisfaction with their engagement. The next section explores a specific goal or purpose that came up repeatedly during interviews with the introverted students: personal development exhibited as progress over time.

Personal Development in Terms of Long-Term Progress

Jackie was one of the introverts who sought development, or progress over time, in herself and others. Her involvement in academic-related activities was stronger than her involvement in non-academic extracurricular activities. She explained the motivation for choosing an outside activity in which she did spend considerable time and energy--tutoring to prepare youth for the SAT:

> I like results. . . . And with the SAT class, we can give them tests. We can score them, and then we can give them a test at the end, and we can score them again. And I have a

> data sheet with exactly their scores, and I have a way to see something has actually been accomplished.

Jackie found it gratifying to see results, to see her students' growth in terms of progress over time. In addition, the student organizations that promised such long-term rewards were, in her experience, rare. She went on:

> I know that most clubs you can't do that, because a lot of the clubs are mentoring clubs, so you would just hang out with the kids and be a mentor for them. But I don't think I could do that because I'm just not good enough with kids. I'm not warm enough with children for them to love me and say "oh, she encourages me to go..."-- I just would rather teach them school subjects.

Nothing about Jackie's demeanor gave the impression that she was not "warm enough" to interact with children. Whether real or imagined, the perceived challenge of connecting with children as a mentor limited her range of involvement choices, as did the motivation to see progress or growth over time. Availability of involvement opportunities outside of class that aligned with her inclinations may have added to the challenges, as Jackie perceived extracurricular organizations to present the most options for students who openly reached out to younger children in a mentoring capacity and who appreciated having an immediate impact but were less concerned with longer-term progress.

The issue of development over time came up again with Hannah, also primarily involved in the academic arena. She devoted time and energy to one student group, focused on public speaking and leadership, that she learned of through an activities fair where various organizations recruited members. "I wasn't interested in too many of them," she shared. But someone's pitch caught her attention. "One girl said, 'Do you want to improve in public

speaking?' And she didn't say, 'We're a public speaking club.' She asked if I wanted to *improve* public speaking." Hannah further explained, "The reason I joined was because I felt like I needed a lot of help in public speaking, and it was just a way to challenge myself." Once she strengthened her own skills, she climbed to a leadership position in the club, helping other members have similarly positive experiences.

Unlike Jackie and Hannah, Jeff's involvement in and out of academics was relatively balanced. He actively pursued career goals in the academic realm while joining multiple service-oriented organizations along with campus ministry outside of academics. Still, his non-academic involvement choices appeared to be based on internal, long-term factors. The criteria for choosing how to spend his time and energy surfaced in our interview as a result of a misunderstanding. When asked about his sensitivity to rewards, he first affirmed:

> I guess I do evaluate . . . decisions and things in terms of how personally it would affect me and if it would allow for growth or if it's just superficial and not really important for me. So, I do think about that, and I guess I do weigh those types of rewards more than other people.

What he seemed to say did not fit the notion of external reward sensitivity sought by the question. Instead, Jeff seemed to be sharing, in line with other introverted students, a reflective emphasis on personal growth and development coupled with a lack of interest in immediate gratification. (When I explained the concept of reward sensitivity that I was actually trying to get at--that it was more about the feeling of excitement one derives from some external reward, he responded calmly, "Oh. Then, I would say I get that feeling less than other people.") Jeff's accounts align with those of Jackie and Hannah in two ways. First, they exhibit the drive to

achieve personal growth, self- or other-focused. And second, they indicate less motivation for short-term, external rewards or immediate concerns.

Be it a focused emphasis on deeper purpose and meaning, or a specific orientation that favored longer-term growth and development over more immediate impact, the rewards of involvement for introverted students demonstrated reflectivity. These students, it seems, were inclined to seek purpose, to reflect on their progress over time, and thus to prioritize their (and others') futures. Several of them reported limitations related to these inclinations when it came to student group participation. Their subjective experiences and perceptions of student groups had led them to feel that the majority of these groups offered limited opportunities aligned with their natural inclinations and preferences.

Another apparent limitation to the extracurricular involvement of introverts was their apparent sensitivity to external stimulation (i.e., their sensory-processing sensitivity) which seemed to manifest in a distinct preference for low-key environments and a disinclination toward high-stimulation settings.

Low-Stimulation Environments

Statements from the introverted group suggest that sensory-processing sensitivity may be associated with their involvement preferences tied to various campus settings and events. Branden, for example, was not alone among introverts in his lack of enthusiasm to attend sporting events. He claimed, "In theory, I'd love to go to a football game. But . . . I just know I wouldn't really like the atmosphere." Hannah also talked about her preference for "low-energy things," referring to the more subdued campus events:

> I'd be interested in going to a lot of the lectures or like, I guess, speech contests and, yeah, lecture-based things. It sounds crazy that I'd want to go to more lectures, but, yeah,

> I'm more interested in that kind of thing. Like maybe having a conversation but not paintball tournaments or that kind of thing, not high-energy things. It drains me.

Marisela likewise shared, "I do really like being quiet and just quiet environments--more mellow--not all of this loud stuff going on."

Holly's case illustrated an interesting exception, however. As with the students depicted above, the noise and activity levels of certain settings strongly affected her. She explained, "If it's too loud and there's too much going on, it gets hard for me to process everything." But at loud, frenetic concert venues, she took pleasure soaking in the excitement without feeling pressure to respond:

> I think one reason I'm really comfortable in concerts is just everyone's doing their own thing and everyone's excited and watching and facing one way. And no one's going to come up to you and start trying to talk to you and you're going to be, "Uh-huh," kind of taken off guard.

Perhaps explaining the exception in this context was Holly's relief from the expectation to interact--i.e., to be responsive. It is an expectation that may present challenges for reflective individuals with sensory-processing sensitivity. For these individuals, processing in addition to reflecting on abundant sensory input in high-stimulation settings may reduce the capacity to respond. Relieved of the expectation to respond, these individuals may find high-stimulation environments less aversive or even enjoyable. Holly's enjoyment of concerts seemed to fit this account. In the midst of overabundant sensory processing at concerts, there was little expectation of her to reflect on any given matter and present a response. She enjoyed the freedom simply to reflect on the flood of sensory input around her.

Thus the salient exception to the apparent influence of sensory-processing sensitivity hints at an interaction between sensory-processing sensitivity and responsiveness: in a scant few cases, students like Holly reported feeling uncharacteristically comfortable in highly stimulating and social environments when stripped of the expectation to respond without prior reflection. (It is beyond the scope of the current study to say whether this account is an alternative to a social anxiety account, a reframing of it, or simply an example of it--a limitation to keep in mind in the following sections on social preferences.)

Regardless, the feeling of being overwhelmed, or of having difficulty processing the stimuli in busy environments, seems in many cases to have narrowed the attractive options for extracurricular involvement (e.g., at sporting events, concerts, and spirit rallies) among students in the introverted group, a majority of whom preferred calmer settings, and as the next section shows, also liked to keep their social groups relatively small.

Small-Scale Socializing

High sensory-processing sensitivity suggested itself in some of the introverted students' stated discomfort with particularly stimulating environments; their sensitivity to stimulating environments and preference for calmer settings also seemed to surface in the socializing these students enjoyed. Barring notable exceptions mentioned above, it seems that the introverts tended to prefer small-scale socializing.

Before continuing to the discussion of these preferences, however, a further comment on the topic of social anxiety is in order. While the current discussion does not center on social anxiety, it would be incomplete were it not to address the issue. The reader may be tempted to assume that the prime source of the introverted students' social preferences is not found in personality-related characteristics like high reflectivity, high sensitivity to external stimuli, and

low sensitivity to external rewards: it is a matter of shyness, or social anxiety. Admittedly, social anxiety may play a role in introverted social preferences and behaviors--be it as a cause or result, or as a confounding factor. The current study acknowledges the possible impact of social anxiety on the introverts' involvement but focuses on characteristics such as sensory-processing sensitivity that perhaps offer alternatives to the social anxiety account.

To briefly restate, the sensory-processing-sensitivity account holds that high amounts of sensory input from crowded social settings prove taxing for introverts to process--and, in turn, may challenge their relatively low responsiveness. Evidence that this account applies to introverted participants in the current study is not particularly robust, but it is there. It is found in the comments of Christine, who described herself as someone formerly quite shy who had become more outspoken in response to cultural demands, and who further described the idea of being passive as "irritating." Nonetheless, Christine shared: "In terms of interacting with other people, I try to just not keep it to a large scale because there's just too much going on--it's too overwhelming." Branden's depiction of his social involvement possibly sheds light on Christine's statement about being overwhelmed by "too much going on." He first disclosed of his social preferences, "I like the group kind of small. And as soon as it gets too big, I'm uncomfortable." Branden explained the predicament in large groups in terms of not social anxiety but an inability to "multitask":

> I can't focus on one person because I'm so distracted with all the other things going on. And then . . . I'm not a multitasker at all. And I require full investment into one conversation in order for it to be meaningful or for me to take something out of it. Otherwise, it's just a confusing mess to me.

The difficulty with multitasking he shared with Christine, who had "discovered multitasking does not work. . . . It just [demands] too much attention from you, so you can't really focus on one special thing that you really want to focus on."

Their comments appear to exhibit sensory-processing sensitivity along with reflectivity. Both students seemed to suggest that stimuli in their environments affected them strongly--left them overwhelmed, distracted, and uncomfortable--perhaps indicating an overload of information processing in "noisier" settings. The comments further tell of their inclination to focus--an inclination toward reflectivity or meaning-making in the world around them. To establish focus and find meaning in busy environments full of meaning and overloaded with calls for reflection appeared overwhelming for these students. Perhaps tying into the preference for low-stimulation environments and further related to low sensitivity to the external rewards associated with socializing, the introverted students also tended to give positive appraisals of solitude.

Alone Time

Solitude did not equal alienation but often served for the introvert as a perfectly appealing alternative to interaction with others. While their concern for people, friendships, and meaningful relationships was strong, those in the introverted group gave less enthusiastic appraisals of frequent, casual social interaction per se and more enthusiastic descriptions of solitude.

Here are some comments to illustrate the enjoyment of solitude that set the introverted group apart from their extraverted counterparts.

"I’m really happy in solitude and in my own head," and, "I’m comfortable alone but not in a lonely way" came from Branden, a self-described "introvert with confidence."

Hannah disclosed, "I appreciate solitude. I don't mind hanging out with people. But when I don't have people, I don't feel lonely."

A reflective nature led Christine to enjoy the majority of her time in solitude. "I like to reflect a lot . . . so I probably spend most of my time being alone and probably like 30 or 40 [percent]--no, 40 percent is a better number--actually being in the midst of activity and being present."

Solitude seemed a luxury for Jackie, who shared, "When my apartment is empty I feel so relieved and good. I love my friends, but also I need to be alone." She felt comfortable in solitude and aware of the benefits to social interactions, to the extent that it worried her. So she pushed herself into the company of others:

> I have to force myself to do social activities. Like literally force myself. I can obviously change what I am from moment to moment. Obviously I'm talking right now, I'm not alone. But for the most part I wouldn't mind living alone. I could handle living alone.

Echoing Jackie, another introvert--Camila--appreciated friends made in college and time spent with them, though she described herself as "not much of a social person." Instead, Camila reveled in what she referred to as the "freedom" of solitude. "It's not that I don't like my friends or feel constrained by them," she pointed out, "but. . . . I feel better walking alone, just being alone. . . . And sometimes when I can't meet my friends, I mean, I don't really miss it. I don't feel like I'm missing out because I'm okay just being by myself."

The social preferences described above point to a relatively low need for direct and casual social interaction, and a strong enjoyment of solitude, likely stemming from a variety of factors--among them high reflectivity, low responsiveness, low sensitivity to external rewards, perhaps even social anxiety. Further, the preferences that manifested these factors tied in with

the students' non-academic involvement in college--involvement overall less robust, and less socially motivated and interactive, than that of the extraverted students.

Intimate Relationships

Rather than being defined by a preference for frequent direct and casual interactions, the introverts not only relished solitude but also commonly expressed social preferences for intimacy, and tended to underscore the longevity and meaningfulness of interpersonal relationships. Statements from Jeff represented the introverted social perspective well:

> I like being in one-on-one conversations and getting to know people more in depth rather than meeting a large group of people but only meeting them on the surface level. . . . . Like, my social circle, I guess, is relatively smaller than other people who join fraternities or sororities who know a very wide number of people. But I don't regret it, because I've made very strong connections with people that I chose to hang around with.

Small groups, more depth, and solid connections were paramount for Jeff and other introverted students when it came to socializing.

They were not against social involvement--friendships definitely mattered. But most of those interviewed seemed to prefer social involvement on a closer, more intimate scale. For example, Jackie thought that she "would be totally miserable" if she hadn't been able to make a small group of friends her first year in college. She explained, "My main concern in just college in general [was] finding friends that I could have--not friends temporarily but long-term friends, because I don't like making friends for a moment. I like keeping my friends possibly forever."

Michelle saw the possibilities for meaningful, in-depth interaction distinct from established social circles: she thoroughly enjoyed interacting with strangers, given that the substance of interactions felt important to her. When talking to someone new, she would not

want to know about that person's job or how her classes were going. Instead, Michelle explained that there was "a conscious decision" on her part "to be more relatable" to others, "more so than just [through] casual conversation." So, instead of asking someone, "What class are you taking?" Michelle would ask a question she deemed more personal--more meaningful--such as, "What . . . countries have you traveled to?" She further appreciated friendships formed in college with those she saw as different from herself--"that's why I like them so much, because I'm learning so many new things."

To recap briefly, the introverts' social preferences seemed to indicate a relatively low need for casual social support per se, with the students instead focused variously on meaning, intimacy, and longevity in their social interactions. Although alternative explanations have not been ruled out, these preferences appear to align with high reflectivity and with low interest in gaining the external rewards associated with casual social interaction. Such preferences also may have disinclined the introverted students toward involvement geared to expanding their social networks. The introverted students as a group reported having relatively small social circles and apparently spent less time than did the extraverts in social interactions, still the vast majority of students from both groups expressed overall satisfaction with their social involvement.

Challenges and Pressures

Despite expressing satisfaction in the social realm, a large proportion of the introverted students reported perceived pressures, either external or from within, to be socially involved in ways other than they were comfortable being. The pressures suggest that personality-related differences in socializing vary not just in kind but in perceived value. As with speech accents and with handedness, personality characteristics find themselves embedded in a society prone to carving out hierarchies or normative standards in cases where marked qualitative differences

exist. Introverted students in the study, apparently on the inferior end of a personality hierarchy, exhibited implicit understanding of their plight when it came to social preferences and dispositions.

Two such students shared what they perceived as external pressures to socialize--to interact in an outward, casual way--freshman year. "When I got here," Camila remarked, "I think I thought that I was supposed to be more social." Seeing other students who seemed "so friendly" and being expected to take part in activities at the residence halls, she remarked, had led her to feel social pressure. For clarification, I asked if she had wanted to be more social or if she thought that she should be that way, to which she replied, "I thought, yeah, maybe I should." In later years, the pressure subsided. Camila explained the independence and solitude she enjoyed as an upperclassman and how it differed from high school and from freshman year in college:

> On campus, I know it's a really big place, and I see people walking alone--and in high school it's different. You don't want to sit alone. . . . But here I feel like I can be [alone] and I don't feel like--and I don't feel so much pressure as there was in my freshman year to be with friends and do things with them.

A graduating senior at the time of the interview, Camila had gained perspective on her freshman year experience.

Marisela, just finishing freshman year when the interview took place, did not enjoy Camila's broader perspective. Freshman year social pressures stood fresh in her mind:

> I feel it's really hard when you have the pressure to get involved in clubs and stuff and try to be sociable and try to be happy and try to talk and try to be this person that people want to see in a sociable person.

Marisela perceived pressure to act out of line with her personality: pouring energy into casual interactions with people she hardly knew went against her natural leanings. Further, she did not wish to seem "un-genuine" to others and held little interest in changing who she saw herself to be.

In the social pressures Camila and Marisela faced lies evidence of their preference for social involvement in college. Involvement in recreational pursuits with large groups of peers appealed less to these students. Nor did casual socializing serve as an enjoyable outlet, compensate for academic hardships, or offer relaxation.

Other introverts in the study reported not external but internal pressures to be socially active in ways that proved challenging for them. These students placed social pressure on themselves, instituting self-imposed challenges to expand both social skills and interactions beyond the dictates of their apparent dispositions. The motivations seemed to be personal growth and perceived necessity. Enhancement of specific social skills and greater comfort in certain social settings the introverted students commonly perceived as integral to life in college and beyond, for personal well-being and professional success. And through social involvement out of class, introverts like Teresa, Jackie, Branden, Hannah, and Amy took steps to improve their comfort level and adeptness in the more extravert-friendly social arenas characterized by casual, impromptu interactions that required responsiveness with little prior reflection.

Teresa provided an example of motivations both professional and personal to engage in challenging socialization. In addition, her self-description of shyness as a youngster typified that of numerous participants from either side of the extraversion spectrum. Teresa recounted blushing when called on in grade school and trying to make herself less noticeable to teachers. That later changed:

> As I got older in high school, it just became much more meaningful to interact with people. And then in college . . . it's super helpful if you actually talk to people. . . . So that's when I started noticing that I really liked being around people.

Coinciding with her heightened interest in interactions was the earnest pursuit of professional goals, which meant she no longer had the luxury to be shy or introverted.

> As a doctor, you just have to be able to converse, get the information out there, that sort of thing. So I feel like where I'm going, I would really like to be more in tune with people, communicate with them about certain things. So I really hope, that's sort of my goal, to improve myself in social settings.

The personally- and professionally-motivated goal to be more socially interactive nonetheless appeared at odds with a persistent inclination toward quiet and solitude.

> Sometimes I feel myself withdrawing and not really wanting to be so talkative in a certain crowd or just having one of my moments where I would probably prefer to be doing something else, like being at home by myself, just with close friends or something. But I tell myself, "This is a good opportunity to be more comfortable in speaking with people," so then I start a conversation.

How and to what extent social anxiety may have played a role in the preferences described above is not clear. Regardless, Teresa's comments suggest that when she interacted socially outside the academic realm, she did so not entirely from intrinsic enjoyment or excitement but with the aim to improve a skill set deemed necessary for her personal and professional life. How did these scenarios end up? "Most of the time," she said, "It works out." Social interactions yielded the characteristically introverted reward of progress over time. She explained it: "I feel like, 'I accomplished something today.'"

The following quote from Jackie suggests how deep-seated her self-imposed social challenge may have been, and indicates its ties to a confidence issue.

> It's actually been a lifelong goal of mine to be more social. I'm always actively trying to force myself to do that because I think it would just be better in terms of career, in terms of life, it would be better for me. But overall, I mean, I'm probably a little more confident socially, but I don't know.

As expressed above and below, she felt compelled to be more social not only for personal well-being but also in order to secure employment.

> If I'm going to a job interview, I need to appear like a social person. I feel like to get a job they have to kind of like you. That's the point of the interview. If you are a repulsive person they're not going to hire you.

Professional success, in her eyes, required a degree (or kind) of sociability that Jackie saw as exceeding (or distinct from) her own. Increased social interactions primarily in the academic realm had helped her to achieve greater comfort in social settings aligned with her talents and interests. Opting to live on campus was one of the rare non-academic choices that provided a welcome social challenge as well. She had "forced herself" to live in the residence halls, with the mindset that the social environment there would promote personal growth and well-being.

Hannah also talked about "pushing [herself] to be more extraverted and being more social with people." As previously mentioned, the one student group in which Hannah participated focused on improvement of public speaking skills. The level of challenge, or perhaps the intractability of her natural inclinations, remained a barrier in some sense. That she had not changed her social habits entirely is suggested in a comment about the environments on campus she avoided--fraternity parties; a popular spirit rally; and "anything that involves too much

socializing with strangers, I guess." Hannah went on, "I mean, I know networking is really important and I'll have to do it eventually. But it doesn't excite me."

Amy, too, held ambivalence toward networking. She shared, "I guess networking and stuff like that is important. . . . You have to have the skills for that in college. But then, it's important to stay true to your personality, I guess." Like the other introverted students cited above, Amy made attempts at social interactions that pushed her comfort levels. "I'm definitely more introverted so I don't party much or anything. But I'm trying some. . . "

Amy and other introverts seemed less motivated toward involvement in social extracurricular activities simply for recreational purposes, or for intrinsic or external rewards. They instead used those activities as a means of pushing themselves, out of perceived necessity, to expand in the social arena. They felt that they must do so for themselves; in some cases, they felt pressured by others to do so. Casual and impromptu social interactions often entailed a good bit of work, which helps to make sense of the finding that fewer introverts held involvement that was balanced across the (less socially interactive) academic and (more socially interactive) non-academic realms, or that was skewed toward the non-academic realm.

Summary

Evidence suggests that characteristics including high reflectivity and high sensory processing sensitivity, plus unique social preferences, coincide with the lower proportions of introverted students who indicated a relatively moderate or high level of involvement in the non-academic extracurricular domain. First, high reflectivity manifested in the introverted students' emphasis on purpose, meaning, and growth with respect to involvement choices, which tied in with a tendency to orient toward long-term gains over more immediate gratification. Students with such preferences in some cases shared that they experienced difficulty finding non-

academic extracurricular involvement, particularly through student groups, that aligned with their preferences. Second, high sensory-processing sensitivity manifested in students' preferences for low-key environments and small-scale socializing. This sensitivity may have reduced further the attractive options for extracurricular involvement outside the academic realm. Third, these students' enjoyment of solitude and tendency to focus on meaning, intimacy, and longevity in social interactions may have disinclined them toward the plethora of involvement options geared to expanding students' social networks per se and to experiencing the rewards of more casual social interactions. And finally, students in the introverted group reported engaging in social extracurricular activities as a way of accepting the challenging to become more (or differently) socially inclined--of responding to internal and external pressures for an increased presence in casual, interactive social arenas. Thus extracurricular involvement that for others may have proved recreational, for many introverts actually entailed a good bit of work.

In relaying students' inclinations and aversions, and how they responded to less than ideal situations, the picture of congruence, addressed in the third research question, has already begun to take shape. The following section on person-environment congruence further articulates what has largely been alluded to above. It gives attention to the congruence between students' personalities and their involvement in college--what worked, what didn't work, and how students with less than ideal fits improved their situations by altering their environments as well as their individual characteristics and behaviors.

Person-Environment Congruence

The findings chapter up to this point has addressed research questions one and two, providing insight, first, on how the extraverted and introverted students were involved in college and, second, on how that involvement related to their personalities. Exploring these topics

inevitably shed light on the third research question: How did students achieve congruence between their personalities and the various college environments available to them? That is, in what respects did the students seek and find new environments and corresponding forms of involvement suited to their personalities, and in what respects did they work to change themselves in order to fit into college environments already accessed? Answers to these questions based on findings presented above and on additional data fall into four categories: general findings, environmental shifts among extraverts, personal shifts among extraverts, and combined person-environment shifts among introverts.

General Findings

Findings related to the first two research questions suggest a general answer to the question of congruence: students appeared to achieve congruence between their personalities and the environments around them less by changing their personalities and more by gravitating toward environments suited to their personalities. Extraverted students, relatively speaking, maintained more substantial involvement in the non-academic extracurricular environments that tended to resonate with their dispositions; introverted students, on the contrary, were likelier to have higher involvement in the academic realm, which seemed in certain respects to better suit their personal needs and inclinations than did some of the salient non-academic extracurricular opportunities.

Thus it appears that more of the extraverted students took advantage of abundant options outside the academic domain for college involvement that meshed with responsive and interactive inclinations--which were not always well served through academic life commonly perceived as less active, less interactive, and less lively. Involvement outside of academics provided opportunities for experiential learning and casual socializing. Such involvement in

some cases fed students' drives to immediately impact others and the world around them. Further, activities in the extracurricular realm--including sporting events, spirit rallies, and residence hall events--offered a robust level of sensory stimulation and promised external rewards, namely those garnered through increased social interaction. The sheer variety and number of extracurricular offerings also amplified opportunities for expanded social networks. In all, a strong majority of extraverted students reported that their positive, rewarding college experiences increased along with involvement in non-academic environments--suggesting that these environments fit well with their personal needs and preferences.

Commonly suited to the dispositions of students with introverted personalities were academic environments, both in and out of class. Generally speaking, the "busier" environments outside of academics; the environments that called for responsiveness without prior reflection; and the settings that demanded casual social interaction, held less appeal to these students. They could become overwhelmed or exhausted by high levels of sensory stimulation in livelier settings more common in the extracurricular domain, and they found fewer rewards in casual interaction that lacked what they perceived as a deeper underlying purpose. These students instead expressed enthusiasm for the reflective rewards of critical thinking, tracking progress or growth, and planning for the future--rewards abundant in the academic realm. Further, they were inclined to establish meaningful social ties through shared interests--including interests in academic subjects. Thus, broadly speaking, more of the introverted students found greater comfort in academic environments and tended to invest a larger proportion of their time and energy in academic pursuits.

However, evidence also suggests that, for students from both sides of the extraversion spectrum, connecting with the environments that suited their needs and dispositions could take

effort. And some students, rather than settling into environments suited to their personalities, worked to shift their personalities or behaviors to meet environmental demands. For the extraverts, the shifts in behavior to meet environmental demands more often seemed relatively superficial and occurred primarily in the academic realm or during the initial adjustment to college. For the introverts, such personal changes frequently occurred outside of academics and were likelier to require considerable or sustained effort.

A number of the efforts or adjustments to achieve congruence have received attention in previous sections. The following subsections recap some of these efforts, expanding on them and situating them in the context of person-environment congruence.

Extraverts Achieving Congruence Through Environmental Shifts

As previously alluded to, it was the extraverts who made unique adjustments in the academic domain. Some of those adjustments involved academic environments. Nearly a third of all extraverted students reported shifting their academic environments at some point to allow greater freedom for non-academic involvement. For example, a couple of students intentionally settled into "flexible"--i.e., less time-consuming--majors, and a couple chose less time-intensive courses. Both options freed the students to pursue more desirable involvement out of academics. Several students additionally reported skipping classes to engage in more rewarding out-of-class activities.

Students also migrated away from extracurricular environments in order to focus on academics. A strong minority of students in the extraverted sample intentionally reduced their considerable time in extracurricular environments described as more personally rewarding in order to maintain or increase--by varying degrees--their focus on academics. In this way, they

seemed to have sought out a worse fit with their personalities in order to achieve better congruence with their practical needs.

A smaller subsample achieved balance between the personal and the practical by neither reducing academic involvement nor cutting down on extracurricular involvement. Instead, these students sought interactive environments within the academic realm that suited their personal preferences for social interaction and the like. Such interactive academic environments catered to these students' personal inclinations, allowing them to address academic challenges in ways well suited to their personalities.

In sum, for the extraverts, at times environmental adjustments tied to academic involvement gave greater freedom for extracurricular involvement; at times environmental adjustments restricted that freedom in the name of achieving academic success. And in a limited few cases, environmental adjustments within the academic domain resulted in a better fit of academic involvement with the students' personal inclinations.

Extraverts Achieving Congruence Through Personal Shifts

The personal changes sought in response to academic demands, like the environmental shifts described above, also served multiple ends--drawing students variably farther from or nearer to the academic world. Examples of a seeming dissociation from academic life are evident in several students' reports of accepting lower GPAs that resulted from involvement outside of academics that compromised study time. These students apparently invested considerable time and energy where they found greater rewards--i.e., in non-academic extracurricular circles. Rather than devote added time and energy to less rewarding academic pursuits for the simple advantage of higher grades, they changed personally, adapting a mindset to accept declines in academic performance as reflected by GPA. Another small sample of

extraverted students reported learning to study "smart." It seems that these few students had modified their personal study habits so that with less time and effort they reached satisfactory academic performance as reflected by grades. Such study tactics freed their time and energy for more rewarding pursuits while leaving little to no negative impact on grades.

Personal shifts in favor of academic involvement surfaced in the strong minority of all extraverted students, mentioned previously, who intentionally altered their college environments to meet academic demands. Most of the students who reported at some point limiting their presence in the extracurricular domain had concluded that their level of involvement there, although personally rewarding, negatively influenced their academic success. Accordingly, these students reduced time outside of academics in order to prompt a behavior shift--i.e., to achieve greater focus on coursework. Addressing academic demands in this way fit with educational and career goals but may have conflicted with personal interests. Such a shift illustrates environmental change coinciding with personal change. In this case, increased involvement in academic environments paralleled a personal shift to focus greater time and energy on academic pursuits.

Turning to the non-academic extracurricular arena, the preponderance of evidence from interviews indicates that abundant non-academic extracurricular options generally fit well with the extraverted students' personal talents, preferences, and needs. At the same time that salient extracurricular options generally appeared well-suited to the extraverts' inclinations, a majority of them did report altering their behaviors initially as a way of gaining access to such involvement. For example, Stella shared of her freshman year experience, "I might have been way more friendly than I usually am." She continued, "It's just like, 'Oh no, I don't know anyone here. So . . . talk to everybody, go out to all the floor dinners, get to know everyone on your

floor type thing." Lisa spoke of the initial adjustment to college also, commenting, "I had to just kind of let my walls fall down and really let in people here," and "I had to really start putting myself out there more." Although she thrived on interaction, she nonetheless "had to make more of an effort initially" to establish the active social life congruent with her inclinations. And Stacey, who described herself as having "always been really outgoing," admitted, "Coming to college, I've definitely taken one step further with that just because there's so many people that you don't know." She went on, "If you don't open up yourself and introduce yourself . . . if you don't put yourself out there, you don't really meet as many people as you would like to." Like Stella, Lisa, and Stacey, most of the extraverted students reported initially increasing their responsiveness and sociability in order to access environments out of class perceived as potentially rewarding.

Introverts Seeking Congruence Through Combined Environmental and Personal Shifts

The story of congruence is somewhat different for the introverts. The introverts did not report choosing flexible majors or easy classes to increase time for outside pursuits. They did not mention skipping classes to do something fun. Nor did they report either studying "smart" or aiming to keep their grades just above a minimum GPA cut-off. Not all of the introverted students reported satisfaction with their major concentrations--for several, a change in majors had led to enhanced satisfaction with the college experience. And their reports suggest that coursework was no easier for them: students from both sides of the extraversion spectrum discussed rigor of coursework and lamented less-than-stellar GPAs. However, the personal and environmental adjustments that revealed tensions among the extraverted group with respect to academic involvement were not pronounced among students from the introverted group. Instead, the introverts overall expressed greater comfort and enthusiasm with academic involvement. The

more interesting story of congruence for the introverts occurred in the non-academic extracurricular realm.

The Role of Extracurricular Involvement

While a few introverts seemed largely to dissociate from non-academic extracurricular aspects of college life, most made efforts at greater extracurricular involvement in some capacity. Through shifts toward extracurricular environments, the introverted students undertook challenging adjustments, altering not only their environments but also their behaviors to suit varied needs and preferences. Behavioral and environmental shifts in the area of extracurricular involvement demonstrate tensions across personal inclinations on one hand and perceived norms and obligations on the other. Introverts, in numerous cases, suppressed their introverted leanings in order to meet perceived norms and obligations that may have fallen more in line with extraversion.

A majority of the introverted students reported efforts to engage in non-academic extracurricular involvement motivated by perceived demands for growth or change in the direction of greater extraversion. Demands stemmed from a mix of sources--career, societal, and personal. Things like abundant social interaction, present-focused responsiveness, high activity levels, open communication in casual social contexts, etc., these students saw as positively regarded and instrumentally necessary for "success" yet presenting personal challenges. The students at times intentionally immersed themselves in environments forcing them to face these challenges as a way to spark personal change.

Although a number of the introverted students did use academic involvement to prompt desired personal growth in line with greater extraversion, students often turned, at some point, more or less cautiously, to involvement outside of academics. Introverted students expanded

their extraverted traits or behaviors through involvement in student groups, campus events, residential life, casual socializing, and the like. Interesting in their case are less the forms of involvement themselves and more the methods of approach and the tensions that surfaced in the quest for congruence. In terms of how they approached their extracurricular involvement, there were those who started early with high involvement and those who gradually became more involved.

The Processes: Immediate and Gradual

Nearly half a dozen students approached the call for change early, with higher levels of extracurricular involvement freshman year in college. A couple of them mentioned forcing themselves to live in the dorms with a large number of people in order to challenge their comfort levels. A few jumped into club membership less out of interest and more from duty, and may have remained committed to involvement in the absence of strong personal rewards. One also spoke of freshman year partying and fraternity life. These early-involved students tended later to narrow their involvement, not simply out of obligation to academics (as some extraverted students did), but as a result of tension or dissatisfaction with the amount or kind of extracurricular involvement. Reaching their personal limits on one extreme, they then retreated in search of balance, shifting to environments that required less alteration of their personalities. Doing so typically meant focusing on fewer endeavors and on ones that held personal significance; it often involved an orientation toward more academic forms of involvement.

Then there were the few introverts--less than a third of the total sample--who more cautiously increased their extracurricular involvement. The involvement process appeared natural and less forced: it played out gradually as the students grew comfortable with their academic status and lives on campus. Some students whose extracurricular involvement grew in

this way expressed the view that they could only alter their personalities so much--they had strong notions of what would and would not work for them. Some further viewed the individual changes they desired in terms of skill acquisition rather than personality shifts. And most exhibited empowerment, expressing that their growth occurred amidst the feeling of being in control of their time and decisions.

Personal Boundaries and Challenges

Like their introverted counterparts who initially tried more heavy involvement only to cut back later, the gradual increasers, too, experienced sought-after growth in the direction of greater extraversion. Also in common across both the slow-progressing and initially-active groups was the acknowledgement of limitations. The students talked about trying to be more extraverted but needing to balance such efforts with their introverted tendencies. They mentioned the difficulty of changing one's personality and worried about sacrificing too much in the quest for greater extraversion.

Amy, for example, made reference to tensions between personal inclination and external obligation:

> I don't want it [my personality] to change. But then, I also think that . . . networking and stuff like that is important. So you have to . . . have the skills for that in college. But then, it's important to stay true to your personality, I guess. That's how I view it.

Amy had reconciled the apparent tension across personal leanings and practical obligations by seeing the latter as requiring not fundamental personality change but superficial skill acquisition.

Jeff had worked to increase his extraversion yet remained mindful of limitations imposed by natural inclinations: "There's still room for improvement for me, like, I could still be more extraverted. But I feel like it would take a toll on my energy level, so I didn't." He went on, "So,

that's why I'm keeping it at a balance--because I'm a reflective person by nature, so I wouldn't want to go completely against that."

The quest for greater extraversion appeared to present deeper hardship for Jackie. Her emphasis and repeated use of the term "force" suggested the gravity of her efforts to change, on which she commented, "I'm happy that I'm willing to force myself to do things. I'm not happy that I have to do that." Jackie further acknowledged that efforts to become more extraverted had brought small progress, adding hopefully, "It's hard to change your whole personality. But it's possible."

Marisela, like Jackie and others, perceived a personal shift toward greater extraversion as a practical necessity. But for her, the change was as unwelcome as it was necessary. Environments that called on her to exceed her comfort level, Marisela saw all around--in classes, in residence halls, in student groups, in life outside campus. She worried that meeting those calls for extraversion, while necessary for practical purposes, entailed an unhealthy sacrifice:

> Sometimes I worry that I'm so concerned with these goals I have and just playing the game and . . . changing my introverted personality and getting ahead that I lose something. So I suppose that's the greatest revelation I've had here.

Calling it "the greatest revelation" she's had at college suggests just how weighty Marisela found the struggle for balance between extraverted demands and introverted inclinations.

In closing, it seems that the extraverts used various strategies, shifting environmental and personal conditions, in response to less-than-ideal fits with academic environments. Fitting into extracurricular settings proved less of a challenge for them. Still, freshman year evidenced a personal change among extraverted participants in the direction of even stronger extraversion.

The change allowed them to access potentially rewarding environments outside the academic realm.

A look at the introverted students' process of finding fit reveals unique tensions that surfaced in attempts to alter their personalities and behaviors to match perceived ideals in line with extraversion. Students struggled for balance within their own personalities, which were skewed toward introversion; they sought harmony between their personalities and an increasingly extraverted outside world. Natural leanings may have drawn them toward greater reflectivity, less responsiveness, and more intimate socializing. Perceived norms and obligations called for less reflectivity and greater responsiveness, as well as higher levels of casual and impromptu social interaction. Efforts to achieve balance and find congruence meant somehow figuring out how much to give and take for each demand, and in what ways to do so. Shifting personality or behavior, these students discovered, was no straightforward task. And their use of extracurricular environments to spur personal changes demonstrates that involvement outside of class presented these students with unique, sizable challenges in addition to already rigorous academic demands.

The next few pages continue to feed off of previous findings in addressing the fourth research question, which deals with the student outcomes of overall satisfaction and degree progress. Since students reported no substantial obstacles to degree progress, however, the discussion will center on students' overall satisfaction. It will consider the relationship between congruence and satisfaction and cover notable variation across personalities in terms of satisfaction levels, fluctuations, and attributions.

Student Satisfaction

Only limited evidence supports the prediction, accompanying the fourth research question, that student outcomes including college satisfaction and degree progress would positively correlate with their perceptions of congruence between personality and environment. Lack of support for the outcomes-congruence hypothesis is evidenced by low variation in terms of the student outcomes considered: progress to degree and overall satisfaction. First, progress toward the degree went relatively well for all students--no student in the study reported substantial setbacks such as placement on academic probation or withdrawal from school; all graduated or were set to graduate on time or early. And second, student participants on the whole reported satisfaction with the college experience, despite minor variations reported in the remainder of this section.

The lack of support for this hypothesis also may have to do with students' perceptions of congruence on a campus that offered myriad opportunities. It is true that more of the extraverts had a harder time fitting personal inclinations with academic environments, and more of the introverts struggled (in some cases substantially) to fit into extracurricular environments. But countless different environments at their disposal commonly allowed these students to achieve some sense of congruence between their abilities and needs, on one hand, and environmental demands and supplies, on the other.

Mixed evidence on the association between congruence and satisfaction receives attention in the next two sub-sections below. Following these sub-sections are additional noteworthy findings on changes in satisfaction over time and causal attributions of satisfaction, positive and negative.

Person-Environment Incongruence and Moderate Satisfaction Among Introverts

As detailed in the section "Introverts Seeking Congruence...," a number of introverts faced personal challenges in the quest for person-environment congruence, particularly through extracurricular involvement. Students representing the toughest of these cases, the most severely incongruent, were unique among the entire sample in that they expressed somewhat more moderate or ambivalent overall satisfaction with college. Marisela, for example, assessed the first year of her college experience:

> I'm satisfied. Yeah. I mean I like it. I really do. I know it sounds like I complain a lot but I mean I really do like the school. I really do feel connected in some way, even if it's just my group of friends, even if it's just my room, I feel connected and I feel okay. I don't feel like I need something else.

Michelle experienced a measure of incongruence in and out of the classroom. Her response to the overall satisfaction inquiry demonstrated ambivalence:

> It's two really contrasting answers, because I appreciate the experiences that I've gathered and I've had the chance to know, and, I mean, I don't regret coming here at all. I love the city. I love the school. But at the same time, there's been some really harsh life lessons.

The two students had in common a conflict between personal preferences and perceived demands of both college life and the outside world more generally. Coming from low-SES backgrounds, they also perhaps lacked resources and support to navigate through that conflict. Still, these students comprised only a small minority of the introverted and overall student samples.

In the next section are further standout cases in terms of overall satisfaction. Here again arises the issue of person-environment incongruence, in a particular subsample of the extraverted

group. Only this time, it seems the students' satisfaction levels remained unusually high despite their reports of incongruence.

Person-Environment Incongruence and High Satisfaction Among Extraverts

A quarter of the extraverts showed a level of enthusiasm for college not observed among the introverted sample, who tended to answer satisfaction inquiries with positive comments such as, "Good. It's good," "I'm very satisfied," "Overall, I'm happy," and the like. These positive responses to satisfaction inquiries resembled that of many of the extraverted students, but the responses did not quite approach the enthusiasm among a small subsample of relatively "incongruent" extraverts. Students in this incongruent subsample talked about being "incredibly satisfied" and "very, very satisfied" with the college experience even though they had issues with academic life. One, for instance, rated her satisfaction at 11 on a ten-point scale although she affirmed that she had "definitely picked the wrong major." Thus regardless of these students' reports of less than ideal academic situations, their extremely high satisfaction levels did not seem to reflect the incongruence between their personal preferences and academic involvement.

What explains the reported high satisfaction with college despite relatively lackluster academic experiences? It could be that challenges confined to the academic realm hardly influenced students' overall college satisfaction while rewards from extracurricular involvement proved particularly favorable. Thus the less than ideal congruence with academic environments experienced by the extraverts did not greatly impact their overall satisfaction, while the strong congruence with extracurricular environments did. Or perhaps possessing a livelier demeanor--one not as likely to find academic life rewarding and more likely to seize opportunities outside of class--gave these student greater likelihood of reporting extremely high satisfaction. That is, the extraverts' vivacity, in some sense, may have resulted in not only poorer perceived congruence

with academic environments but also more enthusiastic appraisals of positive experiences in general, despite challenges. Yet even students from the extraverted group reported dips in their satisfaction with college, as their comments regarding changes in satisfaction over time demonstrate.

Changes in Satisfaction Over Time

Suggestive of the adjustment period frequently noted to occur freshman year, around twenty percent of all students mentioned initially low satisfaction that improved over time. Slightly more introverts than extraverts cited this increase in satisfaction. The extraverts attributed the initially low satisfaction to early academic challenges--namely, adjusting to the rigors of college coursework. They attributed the rise in satisfaction to increased extracurricular and social involvement over time. This attribution is in line with the finding that extraverts deemed environments outside of academics more congruent with their personal inclinations. It suggests that achieving greater congruence by shifting their energies away from coursework and to non-academic environments may have led to increased satisfaction.

Early challenges with academics were also commonly reported among the introverts as the culprit for initially low satisfaction. However, they attributed subsequent rises in satisfaction to the improvement of academic conditions (e.g., to a change in major, better upper-division courses) as well as to increased extracurricular involvement and other factors. This result is in line with the data suggesting that the introverted students were likelier than their extraverted counterparts to find academic environments well-suited to their personalities. And results from both groups add a bit of support for the congruence-satisfaction hypothesis insofar as they suggest a positive association between satisfaction and achievement of congruence.

Positive Attributions

Global attributions to which all students assigned their overall satisfaction also differed somewhat across the two personality groupings. Overall positive attributions largely fell into five categories (with multiple attributions cited per student in numerous cases). These included academic involvement, extracurricular involvement, personal growth, personal agency, and social involvement.

Academic Involvement, Personal Growth, and Personal Agency

Introverts were likelier to emphasize the contributions of academic involvement, personal growth, and personal agency. A quarter of extraverts and nearly half of introverts cited academic life as a factor in their satisfaction. Responses from two introverted students, Christine and Branden, illustrate. When asked to what she attributed her satisfaction, Christine placed course work at the top of the list: "I think [it was] definitely starting upper-div classes, which are way more interesting and way more illuminating in the academic realm." Academic involvement also topped Branden's list. Asked about his satisfaction with college, he replied, "I'm very comfortable now. I think it's been a very great experience on the social level, and for me more importantly, on the academic level." The students' extraverted counterparts in this category similarly cited positive experiences with coursework and general satisfaction with academic life.

Aspects of personal growth or progress over time surfaced among two of the twenty extraverts and nearly half of introverts (a half-dozen students). The highly extraverted Carlos attributed his high level of satisfaction to "growing up" after a challenging freshman year:

> I've learned so much. I've changed, I've grown. I mean, I've really become a better person in just a year. . . This year has helped me grow a lot and learn very, very much about what I want to do, who I am, how I interact with people, and where I want to go.

Holly, a highly introverted student, shared likewise that growth was key to her satisfaction. "I guess I get satisfaction not from the whole experience but just from knowing, oh I'm better off now than I was as a freshman. And I'm more confident, I know what I'm doing now." Camila explained the source of her satisfaction with college: "I probably kind of grew more into an adult here." Jeff expressed, "I am very satisfied with . . . how [college] has affected my personal character and development," while Michelle stated, "I think I definitely learned a lot about myself, which was my goal coming to college anyway, I wanted to learn more about myself and to figure things out, philosophically." In line with their reflective personalities, more of the introverts tied college satisfaction with their own growth and development over time.

Related to personal growth is the notion of personal agency. In some cases personal agency involved a particular sort of personal growth--the growth of independence or learning to be responsible and empowered---and in others it meant simply the capacity to control one's own outcomes (i.e., to bring about one's own satisfaction with the college experience). For ten percent of students from the extraverted group and nearly half of introverts, personal agency seemed to play a role in overall satisfaction. From the extraverted group, Vivian shared that she was "pretty satisfied" and followed with, "If I wasn't, then I would go change something so that I became pretty satisfied." Jackie, an introvert, explained that "one of the main factors" behind her satisfaction was that she wanted to be satisfied. She explained:

> I think mostly I found that I am adaptable. I could make myself happy anywhere, like actively make myself happy anywhere. So if I chose to go to a smaller school, I think I could have been happy there too because I'd go into it like, "This is how this school is going to be. This is how you're going to act here. It's going to work out."

Rosa, a moderately introverted student, developed personal agency in the process of switching out of a science major. She attributed her college satisfaction to the newfound empowerment--to "finally deciding that whatever I choose it's just going to affect my life," and to realizing, "I need to do what's best for what I want to do and not kind of base what I want to do on other people's expectations of me or perceived expectations."

Extracurricular and Social Involvement

Coinciding with findings from the previous research questions, extraverts in the sample more frequently than introverts cited extracurricular involvement as a major contributor to their satisfaction. Three-fourths of extraverts and less than a quarter of introverts attributed their satisfaction largely to extracurricular involvement. The introverted Hannah wasted few words when sharing what accounted for her satisfaction with college: "my roommates and my club." Extraverted student responses in this category resembled Hannah's. Patricia, for instance, reported, "I think I'm mostly satisfied with college because I am really involved in the extracurricular." She went a step further, "If I was just doing the academics, I think I would be somewhat satisfied, but it wouldn't be fulfilling enough." Fei Yen weighed the extracurricular against the academic: "Academically, it hasn't been the greatest, but . . . I've done so many things, I've met so many people, that it sort of outweighs how much my GPA sucks." And for Kara, "Being more involved" outside of class helped her "to be more happy with coming to school."

Often mentioned in tandem with extracurricular involvement were interpersonal relationships, as some of the examples above illustrate. These social involvement attributions, considered distinct from extracurricular attributions, were relatively balanced across groups. Around half of all students attributed their college satisfaction to social aspects, although social

attributions were slightly more common among the extraverted students. One of the most enthusiastic responses came from a highly extraverted participant. When asked to what she would attribute her satisfaction, Stacey gushed:

> The people. I have met so many amazing people here. . . . Everyone is just great. And there's so many people that are just so inspiring. . . . Everyone I'm around I'm just like, "Oh I want to be like that person," being motivated and doing all of these things. . . . I feel like they're all going to be presidents one day.

Others conveyed similar sentiments. For the extraverted Stella, it was simply the people she met and her friends that had made the college experience worthwhile. And Teresa, a moderate introvert, attributed her satisfaction to positive experiences both social and academic, "I met a lot of great people. I met a lot of people . . . I will continue being friends with and keeping in touch with. . . . I just had a lot of really good experiences academic wise and social wise."

Negative Attributions

Participating students further shared challenges to their satisfaction--regrets, specific aspects of the experience they found displeasing, and things they would change if given the opportunity. Even the most satisfied of students revealed challenges. Detractors or negative attributions fell into four categories: academic involvement, extracurricular involvement, social involvement, and career preparation.

Academic Involvement

Echoing previous findings, slightly higher proportions of the extraverted group cited issues with academic life--about half of the extraverts compared to less than a quarter of the introverts did so. Extraverted gripes often involved dissatisfaction with the level or quality of faculty interaction, with the level of challenge or competitiveness of courses, and with the

student's choice of major. Introverted gripes often had to do with lower-than-desired academic performance and, resonating somewhat with the concerns of the extraverts, also involved fast-paced or competitive courses.

Jeff was an introvert who expressed appreciation of learning for the sake of learning and complained of inadequate time to absorb the curriculum. He shared, "What I'm learning, I am definitely learning a lot, but just the way classes are run I'm not too satisfied with." Keeping pace with UCLA's ten-week academic quarters involved "trying to pack in ten weeks of too much information, cramming for a test, and then forgetting it all next quarter." His solution would be to "make the quarter system longer . . . not ten weeks, or just less material." Michelle, another introvert, regretted her lower than expected academic performance as reflected by grades in a highly competitive, fast-paced major she viewed as ill-suited to her reflectivity. Asked what would have improved her college experience, she responded, "My grades were at some point low. . . . I haven't done super well in my classes, and I think that just makes me really sad." If grades were seen to reflect individual growth or progress, it would make sense that they held significant personal value for students like Michelle.

A participant from the extraverted group also mentioned dissatisfaction with academic performance. Andrew explained it in different terms than did Michelle. "Sometimes I don't reach my full potential because I just get tired, or I don't want to study because I feel lazy after doing other work for the whole day." He later continued,

> It's a paradox where I put in the work if I enjoy [the classes], and I enjoy them when I put in the work. . . . It would be nice to . . . just always put 100 percent effort in and then I could feel proud of it, whether or not I get an A or a B or a C or whatever."

Andrew apparently felt dissatisfied with his own academic performance in part because he had been occupied with outside pursuits in place of studying.

Frequently, however, students in the extraverted group showed less concern for their individual academic performance and more concern with aspects of the academic environment. Kara commented on the strong academic rigor at UCLA that had caught her off guard:

> I thought UCLA was going to just be amazing and perfect. I mean, it's been my dream school. I've been dreaming of this since I was in sixth grade, and then coming here, I'm like "Oh, dang. This is hard, and it's not as fun as I thought [it would be]."

It was the interpersonal academic environment that held more weight among other extraverts. In discussing factors that could have increased her satisfaction, for example, Chiara shared that she would have liked "more feedback from professors" and "more interactive activities in class" to help her "feel that [she] was learning better." Julie, too, felt she would have thrived on faculty interaction. Satisfied overall, in and out of class, she admitted to "not interacting with the professors and not feeling like they cared."

Extracurricular Involvement

While higher proportions of extraverted students brought up issues with academic involvement, introverted students were likelier to bring up complaints regarding the extracurricular domain. Such complaints may be indicative of the ambivalence toward extracurricular involvement evidenced in some of the involvement preferences and motivations these students exhibited. Around a quarter of introverts, compared to about 10 percent of extraverts, brought up issues associated with the extracurricular domain. Generally, students from both sides who fit this category either wished they had enjoyed more extracurricular involvement, or wished to have begun their extracurricular involvement earlier. On the

extraverted side, Julie "had a good experience in terms of . . . social life . . . and doing the clubs and the sports." She only regretted not doing more at the outset: "I wish that I had started earlier, like freshman year." Stacey, asked what could have increased her (already very high) satisfaction, replied, "Maybe getting involved with a large organization off the bat." Becoming "involved faster right away," she said, "could have probably opened up a lot more opportunities."

On the introverted side, Rosa felt that her early adjustment to academic life had precluded greater extracurricular involvement. The lengthy and consuming process of settling on a rewarding major left less time for enjoyment of non-academic life. Had she decided sooner to switch majors, Rosa commented, "I could have pursued all of these different things that I kind of don't have the opportunity to pursue now, since I'm going to be a senior very soon." Jeff, too, had relatively low extracurricular involvement early on, until he found a rewarding academic major. When he switched majors, his involvement out of class increased but his satisfaction slightly decreased. He explained:

> Now, you know, relatively, I would say I am less satisfied, just because I know that there's always more things to do, and because of that, I feel a little less satisfied, because I'm always thinking, "Oh, I could be doing this much more."

Social Involvement

Similar to complaints about extracurricular involvement, social complaints involved wanting earlier or more involvement. Very few students overall brought up issues involving social life in the discussion of their overall satisfaction. Only a couple did so, both introverts. First, there was Branden's wish, "That I had met more people in general" during freshman year. Branden was "more comfortable in a small academic environment and a small social environment," and a number of his meaningful friendships formed through intimate, upper

division courses. He expressed that if smaller classes had been readily available early on, then he "would have been far more comfortable freshman [year]."

Anne's regret over not forming a close-knit group of friends freshman year played a large part in her college experience. She had friends but not the intimate group she had wished for. Over-investment in a long-distance relationship freshman year had left her feeling "held back or restricted" from forming a close-knit group of friends. Contributing to her regret was the perception that the window of opportunity for social-group formation closed after freshman year. Her and other participants' levels of socialization varied widely, but it seems that Anne was the only student in the study to express such regret over continued lower-than-desired social involvement. Still, she reported high satisfaction with the overall college experience.

Career Preparation

Another issue that deserves mention is career preparation. The two students--one highly extraverted and the other highly introverted--who cited concerns over lack of preparation for the work force also had perhaps the lowest-SES backgrounds in the sample. To put their backgrounds in perspective, Paul, the extraverted of the two, shared the following:

> When I was starting [college] my family was, and still is, below the poverty line. I just wanted to graduate. There was no expectation. It was, graduate and make enough money to graduate. That's what it came down to.

The other student, Camila, mentioned applying to college last minute and not expecting to be admitted. While in college, she had worked to pay not only her living expenses but also her mother's rent. Her daily commute to campus at times took two hours each way by bus.

These very low-SES students felt that they were graduating ill-prepared, in some respects, to join the workforce. Both reported overall satisfaction with the college experience.

Paul, though, explained that he had "missed out." The studying and working that consumed much of his time had not sufficed: he felt no one had taught him "all the other skills you need for the workplace" beyond college. And when questioned about what could have improved her college experience, Camila responded that she wished to have had more advice on life after college, "in terms of telling me that . . . apart from college, you also have to start thinking about your future and what do you want to do, how you're going to use your major."

A college education at some point may have seemed like the ultimate achievement for these two students. Yet questions lingered of how to apply that education toward the job market. They were beginning to sense that they lacked crucial support and resources for life after college--tools to which a college education alone may have been assumed to provide access. The lesson that these two students were learning, other students may have taken for granted: a college education in itself can be limited in practical terms. It often takes additional guidance, planning, and preparation to successfully transition into the workforce after graduation.

Summary

Overall, findings on personality, congruence, and satisfaction, indicate limited support for the link between person-environment congruence and student outcomes. Evidence for the link came from the couple of introverted participants reporting incongruence who also expressed a milder level of satisfaction than other students. It also surfaced in student reports of increased satisfaction associated with achievement of greater person-environment congruence over time. Otherwise, students on the whole reported high levels of overall satisfaction. Students from the extraverted group exhibited the highest levels of satisfaction, despite reporting less-than-ideal fits (i.e., incongruence) with academic environments. In terms of attributions, introverted students were likelier to attribute their satisfaction to academic involvement, personal growth, and

personal agency; some of them reported challenges to satisfaction tied to extracurricular and social involvement. Extraverted students favored extracurricular and social involvement in their positive attributions; they cited challenges tied to academic involvement. And low socio-economic status may have played a role in student reports of feeling ill-prepared for careers post-graduation.

CHAPTER 6: CONCLUSIONS

This chapter starts with a summary and discussion of findings before going over limitations to the study. It then holds a discussion of implications for theory, research, and practice.

Summary and Discussion of Findings

Findings offered insight on four areas of inquiry: (1) How are extraverted and introverted students involved in college? (2) What aspects of students' extraversion-introversion are associated with their student involvement, and in what ways are they associated? (3) How do extraverts and introverts achieve congruence between their personalities and their involvement? And, (4) How is involvement tied to student outcomes, e.g., satisfaction, for extraverted and introverted students?

Pertaining to the first two areas, the academic and extracurricular involvement of extraverts and introverts in the study population was predicted to differ in line with characteristics associated with extraversion and introversion, such as responsiveness, reflectivity, sensory-processing sensitivity, reward sensitivity, and sociability.

Findings related to the first two research questions support the corresponding prediction. Personality-linked differences surfaced in the overall ways students divided their time and energy across academic involvement and non-academic extracurricular involvement. While nearly half of students from both sides of the extraversion spectrum displayed a balance of involvement across academic pursuits and non-academic extracurricular pursuits, a higher proportion of introverted students exhibited heavier involvement on the academic side. And more extraverted students displayed heavier involvement in non-academic extracurricular pursuits.

Moving away from the overall balance of involvement and into the specifics of academic and extracurricular involvement gives more detail on variations in involvement that surfaced in line with characteristics associated with extraversion and introversion. Academic involvement of students in the extraverted group tended to exhibit a general preference for higher levels of activity and interaction. They were likelier to prefer experiential and interactive coursework, with hands-on projects and topics tied to current events and the world around them, but such coursework they viewed as the exception rather than the rule. Students in the extraverted group also expressed appreciation for instrumental and casual interactions with peers, professors, and teaching assistants. They particularly valued casual discussions that ventured outside of course content. These informal, casual interactions in the academic realm gave the students a sense of connectedness and support, and motivated their academic engagement and achievement.

Lacking the sense of connection to their professors in class and to the "real world" in curriculum, some of the extraverted students felt less than engaged with their studies. As further evidence of this dwindling academic engagement, several had adopted strategies to achieve desired academic outcomes (in terms of grades) with minimal time and effort. Classes, for some extraverts, almost appeared incidental to college education at times, and in a few cases, the academic achievement of earning a college degree seemed to hold primarily instrumental value.

Outside of academics, stronger responsiveness continued to characterize specific involvement choices of the extravert, as did low sensory-processing sensitivity and unique social preferences in line with external reward sensitivity. Extracurricular involvement was rich with opportunities for "real world" education to satisfy the present-focused and responsive inclinations of the extraverted student. Participation in things like event planning and counseling indulged these students' penchant for interaction and desire to see immediate results. The

students further found their place among socially-oriented student organizations, and their expressed comfort with louder and more frenetic environments freed them to enjoy an array of campus events. In the extracurricular realm, it appeared that a number of students, more of them extraverted, thus achieved a sense of belonging on campus while gaining knowledge and skills to prepare them for life after college.

If the extraverted students were the likelier group to excel and learn through extracurricular involvement, it was their introverted counterparts who expressed more ease in the academic realm and less comfort with certain extracurricular environments. Among the introverted group, involvement in and out of academics evidenced stronger levels of reflectivity; outside of class, high sensory processing sensitivity and unique social preferences further surfaced. Academic life in particular catered to reflectivity, in terms of offering opportunities for critical thinking and platforms for reflection on one's own progress over time. And the structure of set curricula leading to a degree and then onto further education or specific careers presented a roadmap for students, often introverted, who appeared inclined to mull the future and to find rewarding the very process of advancing toward that future. Curriculum further presented opportunities for reflective self-discovery and social enrichment. And shared passions for what was studied provided the anchor of meaning and purpose that some of these students relied on to ground their social interactions.

As in the academic settings, these students gravitated toward extracurricular involvement that allowed them to indulge internal and long-term external motivators such as seeing progress and achieving personal growth. They also were the likelier group to underscore the purpose behind their involvement. Further shaping their extracurricular involvement were a preference

for quieter environments; a relatively low interest casual socializing per se; an enjoyment of solitude; and an emphasis on intimate, small-scale socializing.

Due to their particular preferences, the introverted students appeared to face greater obstacles when it came to extracurricular life. They were likelier to report that certain opportunities meant to be recreational actually proved challenging and held few intrinsic rewards. Responsiveness came less naturally, and environments calling for high levels of responsiveness--for high levels of action and interaction--without prior reflection held little appeal for some. Similarly, several students reported feeling overwhelmed or uncomfortable in louder, high-stimulation settings. Facing a perceived bias that "more is better" when it comes to activity and social life (in college and beyond), introverted students more or less ambivalently made efforts to conform.

Findings on the introverted students' ambivalence toward certain forms of involvement suggest a conclusion that is perhaps obvious but nonetheless calls for greater attention: different students find diverse pursuits rewarding. What may be fun for one student may present substantial challenges for another; what one may find boring, another may find stimulating. In addition, the variations of individual preferences do not necessarily result from personal flaws but may stem from healthy differences in personality.

Above findings on involvement for the two groups of students suggest not only links between personality and involvement but also imbalances (perceived or actual) among opportunities, whereby students perceived academic environments as catering more to the introvert and non-academic environments as more appealing for the extravert. This distinction across academic and non-academic college environmental characteristics, real or merely

perceived, may have shaped where students felt that their motivations and inclinations were best served, an issue given greater attention in the recap of findings on congruence.

Addressing the third research question, the hypothesis regarding congruence stated that extraverted and introverted students would seek fit or congruence either by finding environments on campus to suit their personalities and preferences or by changing their personalities to suit the college environments in which they sought involvement. The latter way of achieving congruence, by altering one's personality, was hypothesized to bear greater relevance to introverted students in the sample, in line with previous research findings that suggest extraversion is on the rise in the modern world and that traits associated with it carry normative weight.

In general, it seems that students achieved congruence less through personal and more through environmental alterations. An unusually high amount of environmental diversity at the study site helps to explain this finding--i.e., the campus seemed to offer something for every interest and inclination, and the proactive students comprising this particular study sample had only to seek their own fulfillment by exploring what was readily available to them. So it seems more of the extraverts found congruence by turning their focus to environments outside of academics, while more of the introverts appeared to do the opposite.

Still, personal change did seem to occur. And in line with the hypothesis, it was the introverted students who often spoke of substantial challenges associated with personal change. They expressed feelings of pressure, external and self-imposed, to fit into environments perceived as incompatible with their interests and inclinations. Greater extraversion was the norm, and their natures at times went against that norm. A degree of personal change was called

for to fit with environments not only on the college campus but also in the working world and life after college.

As for the extraverted students, personal changes tended to be relatively superficial, and tied either to academic environments or to the initial college adjustment--interestingly, even the extraverted students made efforts at greater extraversion upon entering college. That is, initial adjustment to independent life and attempts to establish relationships freshman year seemed to prompt a spike in extraversion--in casual socializing, interaction, and responsiveness--even among students who described themselves as already quite extraverted. Evidence for a freshman year spike in extraversion may hold clues to understanding the development of personality in young adults. Such evidence also may be helpful in tailoring aid for students' adjustment to college (a topic which will receive greater attention in the section on implications).

Fourth and finally is the question about links between student outcomes and involvement for extraverted and introverted students. The corresponding hypothesis held the prediction that students' satisfaction with college and progress toward the degree would be positively associated with their perceptions of congruence between their own personalities and their environments, perceptions which reflected their involvement choices.

Limited evidence supports this final hypothesis. Preventing stronger conclusions from being drawn are three factors. First, students in the sample generally enjoyed some level of person-environment congruence. Second, all experienced relatively smooth progress toward the degree: none took longer than expected to graduate, and none had been placed on academic probation. And third, all students reported satisfaction with the college experience, to some extent. Thus the observed outcomes lacked the variation conducive to drawing conclusions

about the relationships across those outcomes. Several findings related to satisfaction nonetheless may be of interest.

Perhaps most interesting is that the few students reporting the highest levels of overall satisfaction belonged to the group of extraverts, and their reports of satisfaction were extremely high despite reporting some degree of incongruence with their academic environments. It seems that these few students' non-academic extracurricular experiences accounted for their robust levels of satisfaction, and their less than fulfilling academic experiences did not interfere with or weigh down positive appraisals of the college experience.

As a group, the extraverted students overall were likelier to attribute their satisfaction to extracurricular and social involvement. Reported challenges to satisfaction for the overall group of extraverts more often lay in the realm of academic involvement. In line with findings from the previous research questions, the introverts' reports suggest that extracurricular and social involvement presented more of a challenge to their (nonetheless high) satisfaction. When asked what contributed to their satisfaction, the introverted students were the group somewhat likelier to cite things like academic involvement, personal growth, and personal agency. In all, there was not strong evidence to support the notion that congruence impacted overall levels of satisfaction. Evidence more strongly suggested that congruence helped to account for the attributions behind students' reports of satisfaction.

Limitations

Major limitations of the study fall into two categories, theoretical and practical. One limitation in the theoretical realm is the focus on a dichotomous personality trait. The extraversion-introversion trait domain, although backed by abundant research, nonetheless may be somewhat contrived. Even assuming that extraversion and introversion are real traits that

inhere in individuals, their parameters prove difficult to pin down: measurement of extraversion-introversion relies on various inventories, each carving out the trait domain slightly differently. And the traits themselves likely surface in a variety of ways among diverse individuals. So focusing on individual participants' placement along a contrived extraversion-introversion spectrum risks promoting an artificial, oversimplified account of students and their involvement in college. Further complicating the issue, numerous factors beyond extraversion undoubtedly make a difference in the types of involvement students choose or refuse, and the outcomes that result. The use of qualitative methods, specifically, one-on-one interviews, gave room to explore this subjectivity and to note outside issues relevant to the research questions.

A second theoretical limitation has to do with the notion of student involvement. A reason for the theory's widespread success in student affairs circles is also why that theory called for further investigation: student involvement encompasses a wide range of activities, processes, and states. Just about anything can count as student involvement, as long as it somehow relates to the college experience. Employment, athletics, academic studies, places of residence, peer interactions--these are only a few examples of what falls within the realm of involvement. The expansiveness of the construct in practical terms risked complicating efforts to find shared ground across students. Dozens of students speaking of their involvement experiences could have ended up talking about countless different things. Yet this limitation of the construct is largely what made student involvement an interesting subject for research. Seeking commonalities and differences in involvement among distinct groups of students with diverse experiences shed light on the theoretical and practical meaning of student involvement.

In addition to limitations posed by theoretical concerns are those posed by practical considerations--namely, by the design and methods employed to carry out the investigation.

Discussed in what follows are limitations to the sample population, the study context, and the data analysis.

To begin with, the sample population had a number of constraints. First was that the small number of participants recruited for interviews represented a range along the extraversion-introversion spectrum. That is, the actual sample population was comprised mainly of students falling in the moderate range on the extraversion spectrum and did not match the desired target population of only the most extreme extraverts and introverts. The sample population thus may have compromised the robustness of findings. This limitation may help to explain the subtlety of differences across the two main personality groups, in kind and frequency, that was found (and reported).

Second, the low number of participants drawn from recruitment efforts further ruled out the possibility of matching students from the two main personality groupings according to a number of background characteristics, which in turn hindered the ability to explore and discover alternative explanations for findings. Although the researcher attempted to account for background differences when conducting and reporting the analysis, a mishmash of student characteristics in terms of year in college, major, SES, and the like, undoubtedly complicated results. A study benefitting from population samples evenly matched in terms of these characteristics likely would have given more, and different, insights on the topics at hand.

And third, participants were not screened for issues like social anxiety, which may have confounded some of the current study's personality-related findings. The interplay between these issues on one hand and extraversion-introversion on the other would be interesting to examine but was beyond the scope of the project.

Continuing to limitations in context or environment, it seems that some of what could be classified as "individual background characteristics" overlaps with what one might consider contextual or environmental characteristics. For example, depending on how one looks at it, the student's major concentration says something about the individual student or about the environment in which that student is placed (or has chosen). Perhaps both perspectives are correct--i.e., the student's major choice is an individual characteristic which then becomes an environmental characteristic insofar as the student is then influenced by the environment specific to her chosen major. This individual and contextual interplay also holds when the lens is drawn out to the level of the institution. All students in the sample had chosen to attend UCLA; the specific environment of the campus in turn influenced their experiences and, likely, their characters as well. The size of the chosen institution, its location, its status as a highly selective, top-tier research university, etc. rendered the experiences of the students in the current study unique. Findings likewise could not help but reflect this dual background-contextual bias.

Added to limitations imposed by the study sample and environment were limitations associated more directly with the data and its analysis. First, the main source of data derives from qualitative methods, thus causality cannot be attributed to the findings. Nor will results derived from qualitative analysis generalize to outside populations. Second, all data in the study come from self reports. Such reports are subject to participant bias. Finally, as with the participants, the researcher held her own skewed personality and perspectives; since substantial third-party involvement in carrying out the research was not an option, the researcher was in some respects the sole person responsible for data collection and analysis. Thus every interview represented an interaction--a subjectively influenced dynamic--between the participant and the

researcher. And the analysis of each transcript inevitably filtered through the subjective and biased lens of the researcher's own perspectives.

The subjective stance of the researcher, along with the other limitations described above, undoubtedly influenced findings. But awareness of these limitations and biases did allow for a certain amount of control over them. Aside from conscious attempts to maintain a neutral front and minimize bias throughout the study, third-party oversight had a balancing effect: outside review of drafts as well as consultation with others holding diverse personalities and perspectives gave the study a greater measure of balance. Despite the limitations described above and those left unsaid, the current study has interesting implications for theory, research, and practice.

Implications for Theory

Framing the study were three theoretical constructs--involvement theory, personality trait theory, and person-environment congruence theory. Findings help to illuminate our understanding of these theories.

The broad notion that greater student involvement, i.e., more time and energy spent in college-related pursuits, leads to a grab bag of positive student outcomes, has thrived for decades. It is easily understood as something like this: students who are more involved--who invest more physical or psychological energy--on campus will be more satisfied and successful in college. It is a theory backed by research that lends support to practical arguments for greater investment in campus life and greater activity among students. Its strength seems to lie in its inclusiveness--involvement in college can mean pretty much anything, from studying at the library to partying in a sorority to working at the campus coffee shop. As long as a student invests time and energy related to college, she is involved, and students who are more involved are likelier to perform well, to stay in college, and to graduate on time.

But the strength of student involvement theory, its inclusiveness and associated lack of specificity, may be a weakness in theoretical terms that translates into practical issues. The theory does not give an account of the mechanics underlying the outcomes it predicts (a reason that some critics reluctantly refer to it as a theory). Consequently, efforts aimed to increase positive outcomes for college students simply by getting them more involved on campus end up less informed, less targeted and efficient, than they could be.

Related to this, the theory's lack of specificity may also render it blind to certain biases. That is, theoretically there is little cause for concern that researchers and student affairs practitioners may in some cases inadvertently emphasize more outward, responsive forms of involvement over more reflective and quieter forms. If and when these professionals link increased involvement to positive outcomes, the theory appears to have served its purpose. Current findings perhaps demonstrate the need for greater fine-tuning of the theory in that they revealed distinctions in involvement ideals, preferences, motivations, and outcomes among the sample population, and at times suggested environmental biases or pressures toward certain forms of involvement over others.

Further, it may be time for a closer examination specifically of the positive outcomes postulated to stem from student involvement. Without specification at the theoretical level, it is easy to overlook the fact that observed links between greater involvement on one hand and things like improved grades and retention may not tell the whole story. For instance, we still do not know how the involvement-to-outcomes conversion occurs. Nor do we know what the presumably positive outcomes mentioned above actually reflect--a more fulfilling classroom experience? greater learning? deeper engagement--and if so, engagement with what? The theory as it stands does not address these questions. It also does not give an account of how or why

students who are highly involved and successful in some respects may have less than successful experiences in other respects. It has little to say about the several "highly involved" students in the present study, for example, whose success in college stemming from active involvement coincided with a tepid experience in the classroom, a place that some would argue should be the highlight of a student's college education.

So while involvement theory is said to explain how programs and policies translate to positive student outcomes--by increasing the physical and/or psychological energy students devote to the college experience--the theory and related research leave important questions unanswered. For instance, Can students be highly involved in college and have positive outcomes (even academic and cognitive gains) without being deeply engaged in curriculum? Does it matter if the answer to that is yes? Also, with respect to academic-related involvement, does involvement outside of class serve a complementary, compensatory, or even a competing function? Current findings suggest that the answer to that question differs depending on characteristics of both the involvement pursuit and the student. And finally, how much emphasis should we be placing on experiential, socially interactive forms of involvement, and how much on the more focused, reflective, and solitary forms (which are associated with things like task persistence, creativity, and development of expert-level skill)?

Above questions have their source in theory but extend far into the practical world. They suggest that it may be clearer, more efficient and effective, to narrow or individualize the theoretical precursor for student success to something more or other than simply "involvement"--i.e., to look deeply at the various meanings of involvement and success, and how the former translates to the latter differentially for diverse students. Closer specification at the theoretical

level--at what student involvement entails, what success encompasses, and how the two intersect--could have wide practical implications.

The second theoretical construct, unlike student involvement theory, appears to have specific and competing versions in the literature: numerous incarnations of personality trait theory exist while sharing a few commonalities. Personality trait theories generally hold that individuals have unique personalities that are relatively stable over time. Characterizing these personalities are a limited number of major trait domains, one of which, according to wide consensus, is extraversion-introversion. Trait domains represent continua along which individual personality traits lie. Basic traits like extraversion and introversion, for instance, represent opposite sides of one such continuum and are defined in terms of the prominence of multiple, more specific traits that tend to be associated with one another. What these specific traits are is often the subject of debate. Regardless, an extreme extravert would fall on a spot at a far end on the extraversion side of the continuum, and strongly manifest numerous of the specific traits associated with extraversion; a highly introverted individual, falling on the opposite end, would only weakly manifest many of these traits.

The most salient theoretical issue brought up by the current study is the standpoint from which some theorists view the extraversion spectrum. Introversion, they say, is merely the absence of extraversion (McCrae & Costa, 2010). This standpoint not only places undue emphasis on quantitative differences in personality, but also favors extraverted qualities in doing so.

Findings from the current study, however, underscore the perspective that "competing" personality traits may differ less in quantity and more in kind. Perhaps the view of introversion as merely low extraversion is not the most useful or well-suited framework. Even if the two

traits designate areas along a continuum, that continuum in certain respects could represent a spectrum of characteristics differing qualitatively rather than one that simply ranges from a complete absence to an overabundance of any one (extraverted) trait.

For example, some interpretations of personality trait theory maintain that extraversion is characterized by greater sociability and "warmth," and introversion by their absence (McCrae & Costa, 2010). The range of participants in the study, however, appeared to be in some sense differently, not more or less, social. And in terms of their perspectives on time (a crucial distinction for the extraversion-introversion domain) participants across the spectrum oriented toward all time frames--past, present, and future. It was the ways in which the students oriented toward different time frames that seems to have varied across groups. That is, the extraverts more often tended to interact, in some sense, directly with the present and indirectly, or instrumentally, with the future; the introverts seemed more directly and less instrumentally connected with the future and past, and in some respects less directly with the present. Further, the temptation, spurred by certain theoretical notions of extraversion, to think of extraverts as more energetic than are introverts, is perhaps misguided. Even less responsive and more reflective students in the study spent considerable energy in their (often quieter) pursuits. Thus the current project supports personality trait theory at a general level and urges caution in its specification: focusing on qualitative rather than quantitative trait differences, and being mindful of extraverted biases, may enhance the theory's explanatory power.

Turning to the third theoretical construct, person-environment congruence viewed from a practical and qualitative standpoint seems perhaps slightly simplistic for real-world conditions. According to the theory, person-environment congruence, or fit (in any specific domain), results when a person's needs and abilities complement the supplies and demands of her environment.

Various positive outcomes result from congruence; incongruence leads to efforts aimed at achieving congruence by either altering one's self or one's environment. If congruence ultimately is not achieved, negative outcomes result. It is a theory that has gained attention in studies of the workplace and academic environments

Findings underscore the need to define precisely the personal and environmental parameters of interest when looking at congruence and to account for the multifaceted interplay between competing and complementary factors involved in the balancing act that leads to a measure of congruence. Particularly in the modern world with its unprecedented complexity, congruence between one aspect of a person and her environment may accompany conflict between another. Further research and theoretical exploration may shed light on the processes, motivations, and reasoning behind the sacrifices and compromises made to achieve some level of congruence between environment and personality.

In all, observation through a qualitative lens on a modern college campus saw limits to the theoretical constructs framing the study at hand. As one might expect, real life proved more fine-grained than theory. The real-life observations, however, point to promising directions for theory in its ongoing quest to balance simplicity with explanatory power. Up next is a discussion of the study's implications for future research.

Implications for Research

Findings have several implications pointing to three main areas of focus for future research. First is the need to understand and control for personality differences in research where such differences may be a factor in observed outcomes. Second is the importance of additional research on personality development of students in the college setting. And third is the call for

greater attention in research to the practical distinction between student involvement and deep or authentic engagement, and to the role of personality in that distinction.

As for the first area, it is not unreasonable to ask, given findings from the current study, if and how results from studies conducted on college campuses and elsewhere may be skewed by the greater participation of extraverts. Extraverted participants in the current study appeared to be more outwardly responsive: they participated in a higher number of non-academic activities on campus. Although not captured by the study's findings, it is possible that research participation may be one such activity in which extraverts are more prone to participate. Less likely to reflect at length prior to taking action and more sensitive to external rewards, extraverts may respond earlier and in disproportionate numbers to calls for research participants, particularly when it comes to studies that promise incentives or compensation.

Perhaps, then, it is advisable in certain cases that researchers control for personality traits like extraversion and introversion in addition to commonly examined background characteristics such as race, ethnicity, gender, and SES. Findings based on data from extraverts may look different from findings provided by introverts; whether or not this is the case for any given research project, the rigor of certain studies and confidence in their conclusions stand to increase given greater transparency with respect to the personality characteristics of study participants.

Moving to the second implication for research, the present study raises questions about the role of college life in personality development. Evidence from it, although qualitative and thus not generalizing to a broader population, suggests that college may be a pivotal stage in such development. And the development suggested by participants in the study tended toward greater extraversion. Rises in extraversion were common among both extraverted and introverted students in the sample population. Also, the students with more introverted qualities

appeared keenly aware of the so-called "extraverted ideal." Although they may not have had a name for it, they discussed pressures, internal and from without, to conform to this ideal. Life on campus may be a platform for these and other students to make the shifts toward greater extraversion that they see as required not only in college but also in broader society. Additional insights are needed in this area from studies, particularly longitudinal ones, focused specifically on the college setting and the personality development that occurs there.

The third, final, and perhaps most significant area for discussion has to do with the distinction between student involvement on one hand and deep or authentic student engagement on the other--a distinction which, findings suggest, requires greater attention in future research.

Student engagement is a heavily employed construct said to encompass student involvement, but which appears to have different connotations and history. The "engagement premise" (Kuh, 2009) is the following:

> The more students study a subject, the more they know about it, and the more students practice and get feedback from faculty and staff members on their writing and collaborative problem solving, the deeper they come to understand what they are learning and the more adept they become at managing complexity, tolerating ambiguity, and working with people from different backgrounds or with different views.

It continues, "Engaging in a variety of educationally productive activities also builds the foundation of skills and dispositions people need to live a productive, satisfying life after college." The premise above starts with mention of studying. It also explicitly addresses topics without strong social connotations, including knowledge, writing, problem solving, and depth of understanding. Collaborative learning and interaction are salient as well, but their value is given in terms of a direct relation to educational purposes. The engagement premise thus alludes to the

construct's immediate relevance to courses of study in college. It is inclusive of both group work and quieter or more reflective work, yet its basic premise says little about extracurricular pursuits not directly pertaining to educational purposes. The premise seems to hold that valuable learning primarily occurs through the intentionally educational aspects of the college experience.

The engagement construct also has a longstanding legacy that connects it with depth of learning or authenticity of educational experiences. As Kuh pointed out in a brief history of the construct, iterations of it first surfaced over seventy years ago, with research examining time on task and quality of effort (Merwin, 1969 & Pace, 1990, as cited in Kuh, 2009). Both of these variables seem to be getting at the quality of the educational experience: they address the value of students' investment of time and effort toward educationally-relevant and challenging tasks.

Only in recent decades (coinciding with the modern rise of extraversion in western society) did the engagement construct evolve to the point where it was said to encompass Astin's less education- and learning-centered notion of student involvement. Further, more recent research on both involvement and engagement seems to place heightened emphasis on the quantity of college experiences, and to do so regardless of their direct educational value. Such emphasis may come inadvertently at the expense of examining the depth or quality of intentionally educational experiences.

It is an issue with which researchers are familiar. For instance, in an article on the conceptual and empirical foundations of the National Survey of Student Engagement (NSSE), a popular survey intended to measure college student engagement, the former director of the center conducting the survey stated, "Engagement is the term usually used to represent constructs such as quality of effort and involvement in productive learning techniques" (Kuh, 2009, p. 6). Yet in an earlier work summarizing main findings from the NSSE, that same researcher conceded

unequivocally that, with respect to active and collaborative learning activities, "NSSE data can't provide evidence of the *quality* of [those] activities, only the frequency with which students engage in them" (Kuh, 2003, p. 29). This concession addressed the question posed by Kuh, "Is the active and collaborative learning movement inadvertently undercutting academic effort?" Research relying on data from surveys such as NSSE, intended to capture student involvement and engagement, may have difficulty coming up with a satisfactory answer.

In response to this difficulty, and to the more general admission that "students can be engaged in a range of effective practices and still not be learning and understanding" (Edgerton & Lee, 2002, as cited in Kuh, 2003, p. 29), researchers introduced a measure of "deep learning" (Kuh, 2009) to the NSSE, defined as "approaches to learning that emphasize integration, synthesis, and reflection" (Nelson Laird, Shoup, Kuh, & Schwarz, 2008). One of the few studies on this measure found more frequent uses of deep approaches to learning "positively related to higher levels of self-reported intellectual and personal development" in addition to higher satisfaction with college. Interestingly, the relationship between grades and deep approaches to learning was weak (Nelson Laird, Shoup, Kuh, & Schwarz, p. 487).

Aside from measures such as the deep learning construct, surveys of student involvement or engagement may miss the quality of students' educational experiences and instead capture little more than the frequency with which students take part in various activities. These studies undoubtedly are insightful but have less to say about students' depth of learning or authentic engagement in the educational experience. Yet the two measures, participation in involvement activities and depth or authenticity of related experiences, are all too easily confounded, particularly in findings that suggest positive links between student involvement or "engagement" on one hand and outcomes like learning and satisfaction on the other.

Such confounding may result partly from the theoretical vagueness of the involvement construct itself. Whatever the cause, this confounding in the research of surface involvement with deeper engagement has the consequence of overlooking the "less involved" student who either is more deeply engaged in the educational experience or who stands to benefit from deeper or more authentic engagement but not from wider involvement. This confounding likewise overlooks the "more involved" student who may be less deeply or authentically engaged in the educational experience as it relates to the student's course of study. The current study held participants fitting both of these descriptions. Its findings urge consideration in future research of the distinction between quantity of involvement and quality of engagement, between what may be referred to as the frequency and range of involvement, on one hand, and the depth or authenticity of engagement, on the other.

A suggestion for future researchers to better capture the nuances of student involvement and its differential outcomes among diverse students is to conduct research by plugging new variables into Astin's (1993) Inputs-Environments-Outputs (I-E-O) assessment model. According to the model (a standard for research in higher education settings) outputs (O) are the gains or outcomes sought from the educational environments of interest. Conversely, environments (E), or educational experiences, are said to influence outputs. And inputs (I) are independent variables: they are the characteristics of the incoming student that may influence both the environments she chooses and the outcomes that result.

The model may be helpful to examine personality or temperament as a student input or control variable (I). It then leaves room to factor in related aspects of the college environment (E)—i.e., of the student's involvement experiences in college. Through the lens of personality, these environmental variables could demonstrate opportunities and demands aligned with

personality-related needs and abilities. Using the model in this way would render it possible to consider from a new perspective student involvement outputs or outcomes—student gains resulting from personality-linked inputs and environments, and the interaction between the two. Outputs could be broad, (e.g., measurements of retention), but they could also be more fine-grained and tied to the personality and environment measures (e.g., measurements of task persistence, "deep learning," etc....). Addressing personality distinctions through the I-E-O model in this way may demonstrate, conceptually and practically, the nuances of how both surface involvement and deeper engagement lead to positive academic outcomes, advancing an understanding of individual variability with respect to these factors.

Ultimately, further research on the association between personality, involvement, and engagement has practical value in terms of its capacity to better inform the prescriptions arrived at for practitioners in the college setting and students they serve. Several prescriptions arising from the current findings are offered in the following pages. Before continuing, though, the reader is reminded that the study's qualitative nature precludes its findings from generalizing to a broader population, and implications for practice should be received with that caution in mind.

Implications for Practice

Faculty Members and Student Affairs Practitioners

Findings from the current qualitative study, although limited to a small sample in a single institution, point to ways in which student affairs practitioners and faculty members may increase their capacities to serve students. The discussion of those ways is illuminated by insights from best-selling author Susan Cain.

In an interview with Kate Torgovnick May (2014), Cain, a lawyer-turned-author and staunch advocate for introversion, gave recommendations, informed by her own literary research

and experiences, on "how to teach a young introvert." Ironically, Cain in the interview advocated for greater attention to the needs and wants of introverted students in childhood education--in teaching and learning in the classroom, and in restorative time out of class. In Cain's experience, childhood education in America caters overwhelmingly to extraversion--even in the classroom; findings from the study at hand seemed to suggest, for several participants at least, that aspects of college-level education, particularly in the academic realm, may have catered to introversion, while non-academic aspects catered more so to extraversion. (It is speculated that the observed differences between childhood education and higher education may reflect contrasts in demographics, including personality profiles, across school teachers and faculty members. Differences may also be related to organizational or structural dissimilarities across the two types of institutions. That is, colleges and universities, even public ones, strive for independence from outside influence, yet schools and particularly public ones may be more susceptible to societal transformations through public policy shaped by popular opinion.)

Even though Cain in the interview explored ways to increase educational opportunities for introverted students in childhood education--and not for both extraverted and introverted students in various aspects of college education--the issues she raised of respecting diverse personalities in educational settings are directly relevant to the current study. And although Cain's advice pertains to teachers in school settings, it bears relevance to professors, staff, and students in college settings. Her specific advice thus makes an apt template here. Excerpts from the interview provide a foundation for the suggestions offered below, meant to increase opportunities in college for all students, for extraverts perhaps more often in the classroom and introverts more often without.

When asked what can be done in the short term to help teachers better understand how to support introverted students, Cain emphasized the "need to do general teacher training to . . . make [teachers] aware of what makes a student an introvert, what that means, and how best to cultivate the talent of those students." Later she reiterated, "I think we need way more instruction in knowledge of temperament," continuing, "There's a lot of attention in education paid to difference in learning style, and I think not enough understanding of differences of temperament."

The call for educators to pay greater attention to understanding personality differences is a practical imperative that findings from the study at hand indicate may apply to the college setting. For instance, one student in the current study remarked that she was thrilled about "the idea of thinking through a problem" and "being the architect of an entire plan." Others lit up discussing classes where they actually interacted, and where they went out and did things rather than mulled concepts and plans in their heads. This distinction between enjoyment of reflection and of responsiveness may well represent a practical manifestation of personality difference in the academic setting. Another distinction arose in terms of faculty interaction. There were introverted participants whose motivation for interacting with faculty was their shared interest in course topics; then there were extraverted participants who mentioned being motivated by the rare professors who conversed with them not about course topics but simply on a personal, casual level. These preferences are not mutually exclusive, but in the context of the interviews they surfaced as contrasts that paralleled personality distinctions.

The distinctions, though subtle, may have real consequences for students. They are evidence that personality does matter to students' college experiences. Understanding trait-related preferences and the personalities with which they are associated may better equip

practitioners in the college setting to exploit the potential and increase the satisfaction of students with diverse personalities.

Cain's second suggestion is for teachers to "avoid setting social standards for what is normal." More specifically, she emphasized that educators should avoid giving the message "You should be more social," to students who appear content with what seems a relatively subdued social life. It relates to the first piece of advice insofar as understanding personalities is an important first step toward then recognizing norms that may needlessly favor one way of doing things, one personality, over another.

The suggestion applies particularly well to student affairs practitioners and even other college students involved with extracurricular programming at the college level. Following it may help relieve pressures such as those experienced by introverted students in the present study, who reported perceived demands to be socially involved in ways with which they felt uncomfortable. Particularly during freshman year and in student groups, these students perceived external pressures to socialize casually and often. Students who reported such pressures were often satisfied with relative solitude and with intimate, purpose-driven, and small-scale socializing. The more extraverted socializing with which these students struggled may have been assumed to provide numerous benefits: support stemming from large social networks; recreation garnered through responsive and interactive modes; and rejuvenation via boisterous, stimulating activities. But these benefits may actually accrue disproportionately to students with more extraverted leanings. Recognizing personality differences and removing the biased standards surrounding them is thus an important step toward widening the opportunities for success of diverse students in and out of the classroom.

Applying this second piece of advice beyond social standards to various aspects of the academic domain would mean to avoid setting standards regarding the types of academic involvement that are normal or appropriate. This advice may apply in some instances to introverted college students, for whom certain forms of group work and in-class participation may counter personal inclinations. But it seemed to hold particular relevance for the extraverted students in the study, several of whom had disengaged with the academic side of things and turned outside the classroom for more rewarding forms of involvement. One salient reason for their disengagement appeared to be a lack of opportunities for responsiveness and interaction in academic settings and a perceived focus in academics on lifeless theories and memorization. For these students, stimulating academic experiences, even on the theoretical level, more commonly resulted from experiential action, often involving social interaction or relating directly to current events or salient personal matters. Following Cain's advice would entail accepting experiential and practical forms of academic involvement along with cerebral and more abstract forms. Both may be normal, appropriate, and beneficial to students.

All of this is to say that offering intellectual and social opportunities through a variety of modes is conducive to developing diverse students into well-rounded members of a balanced society. Further, the advice is meant not to create new biases but to override current ill-conceived norms that perhaps unnecessarily complicate rather than enhance learning and socializing. Practically speaking, the above advice translates into giving students more options. Options may be expanded by offering more inclusive college environments, with the diversity that serves a range of students with different interests, talents, and goals. Or it could involve highly specialized environments—campuses, divisions, departments--that cater to students with particular interests, leanings, and goals (outside of academic ones). Although more research

would be needed to determine how best to increase this variability for students, the basic idea, in the words of Cain, "is just to maximize choice," and to do so "by providing lots of different alternatives for how [students] get [their] learning" and their "restorative time." (May 2014, p. 9)

Having choice alone, however, may not suffice. Students must be educated and empowered to recognize, value, and use their own personal inclinations, intentions, and motivations as assets that guide them through college. Together, self knowledge and college "navigational skills" may optimize how students are involved, what strategies they use to get the most of the college experience, and how they grow and find balance in themselves and their lives.

Thus findings from the current study, resonating with the advice of Susan Cain, point toward practical suggestions for college educators, student affairs practitioners, and the students they serve. One is to increase faculty and practitioner knowledge on temperament and personality. Another is to avoid setting unintentional, arbitrary, or misguided academic and social norms in the college setting. A third is to educate students on personalities while giving them the skills to navigate college in ways that capitalize on their personalities and goals. And tying all of these together is the idea of maximizing choice, of expanding students' opportunities to access the learning and recreational environments that lead to desired outcomes.

Institutions of Higher Learning

It is the general idea of maximizing choice for positive outcomes that Malcolm Gladwell explored in his lighthearted talk, *Choice, Happiness, and Spaghetti Sauce* (2006). Applying bits of earnest wisdom from Gladwell's irreverent lecture brings out the current study's implications for institutions of higher learning.

The talk centered on Howard Moskowitz, whom Gladwell praised as having "done as much to make Americans happy as perhaps anyone over the last 20 years." Muskowitz gained prominence through his consulting work that forever changed bottled pasta sauce in America. But before that, Gladwell explained, Pepsi had approached Moskowitz for help determining the ideal amount of a new sweetener to use in their diet soda. So Moskowitz ran massive taste trials of the soda containing various levels of the sweetener, collecting data to find the perfect level--presumably, the level most preferred by the highest number of tasters. The resulting data, however, did not give the neat bell-shaped curve they all sought. The data points, instead, seemed scattered indeterminately. It later occurred to Moskowitz that the neat answer had been allusive because they had been asking the wrong question: "They were looking for the perfect Pepsi, and they should have been looking for the perfect Pepsis."

Moskowitz applied this new insight when approached by a major company struggling with low sales of spaghetti sauce. This time, he worked with the company to make dozens of varieties of sauce varied in "every conceivable way that you can vary tomato sauce." They gathered data from tasters nationwide. Rather than searching the data in a quest for the one perfect pasta sauce, they looked to "group all these different data points into clusters." It worked. Their analysis suggested that "all Americans fall into one of three groups. There are people who like their spaghetti sauce plain; there are people who like their spaghetti sauce spicy; and there are people who like it extra chunky." Even though a third of Americans tested preferred the "extra-chunky" sauce, no such option had existed on the market. (Evidently, Gladwell explained, Americans previously tested through focus groups did not know what they wanted. Their preferences were unveiled not from being asked what they wanted but only after actually tasting

various styles and providing immediate feedback on the direct experience.) So, drawing from the new data, the company expanded its offerings to include the chunky variety of sauce.

It was a huge success. "Over the next 10 years, they made 600 million dollars off their line of extra-chunky sauces." According to Gladwell, with this innovation Moskowitz changed industry practices, "That's when you started to get seven different kinds of vinegar, and 14 different kinds of mustard, and 71 different kinds of olive oil." Gladwell described it as "Howard's gift to the American people."

Howard Moskowitz, he said, "fundamentally changed the way the food industry thinks about making you happy." The change occurred on multiple levels. One of these has to do with the notion of "horizontal segmentation." Moskowitz brought to the attention of the food industry the idea that spaghetti sauce and other food "does not exist on a hierarchy." Instead of there being one ideal pasta sauce, or mustard, or whatever, there are "different kinds . . . that suit different kinds of people." Moskowitz thus shifted attention away from the quest for a perfect pasta sauce to an understanding that there is no perfect, only different. Of course, there was more to the talk than just preferences for spaghetti sauce. Gladwell closed by telling his audience that science, too, has evolved in parallel respects to the commercial food industry. The last few decades have seen a shift in science away from an obsession with the idea of universals toward a search for "the understanding of variability."

Gladwell's talk demonstrates that how society views things, the way we frame our understanding of the world, is not simply the way the world is. Our global understanding, be it through science, industry, education, etc., is contextually situated and changes focus when we advance new perspectives. These perspective shifts have real implications for life experiences from mundane to extraordinary. One such shift is the turn toward understanding and welcoming

diversity. It is this shift and its potential for enhancing our lives that Gladwell shared in his concluding remark on "the most beautiful lesson" gained from Moskowitz: "That in embracing the diversity of human beings, we will find a surer way to true happiness."

Like with science, with Pepsi, and with pasta sauce, the college experience is better conceived in terms not of hierarchical ideals but of democratic diversity. There is no one perfect way to be involved, in class or out. And more college involvement is not necessarily better in terms of leading to greater satisfaction or active engagement. Further, the preferences people report on surveys and even in interviews may not be trustworthy indicators of what actually makes them learn, grow, and thrive. Having diverse options and being able to explore those options without pressure to meet a perceived standard are essential in cultivating the success and satisfaction of students with diverse personalities. The educational institutions that promote environmental diversity thus will better support the needs of diverse personalities, and in so doing may reveal a surer way to happiness for their students.

Appendix A

Characteristics Associated with Extraversion and Introversion

Characteristic	Description	Extraversion	Introversion
Sensory-processing sensitivity	Level and ease of arousal in response to external stimuli	Low	High
	Negatively associated with facility in performing cognitive tasks in louder environments		
Reflectivity	Thorough subjective processing of information	Low	High
	Positively associated with mulling the past, planning the future, self-talk, and problem solving		
Responsiveness	Propensity to act and interact with one's immediate external environment	High	Low
	Negatively associated with behavioral inhibition		
Sensitivity to external rewards; Incentive motivation	Heightened perception, influence, or appreciation of rewarding stimuli in one's external environment; pleasantly aroused motivations toward the promise and enjoyment of rewards	High	Low
	Positively associated with positive affect and sociability		

Appendix B

Interview Protocol

1. Introduction
    a. Statement of confidentiality
    b. Review of purpose of interview
        i. To explore how extraverted and introverted students invest their energy, i.e., how they are involved, in college
        ii. To examine the connections between involvement and both satisfaction and academic progress
    c. Review of logistics
        i. Interview is meant to be relaxed and conversational.
        ii. Interview will be recorded and last about 30 to 60 minutes.
        iii. I will start with some background questions, then ask a few questions related specifically to [introversion/extraversion]. Next I will ask about your involvement in college. The last half of the interview will include questions about the match between your personality and your involvement in college, and about your academic progress and how satisfied you are with the college experience.
        iv. Some questions may seem vague, others may seem to present false dichotomies. Please take your time and answer as best you can. You may also skip any question you don't feel comfortable to answer.
    d. Questions?
2. General-Background Information
    a. What made you think that UCLA would be a good fit for you?

b. What are you studying, and when do you expect to graduate?

c. How involved or invested have you been in the college experience, both in and out of class?

3. Involvement in College

The things you do and think about while in college, if they're directly or indirectly tied to the academic experience, can be categorized as "student involvement." Your involvement is the physical and psychological energy you spend in college. It can be directly related to coursework or to campus life outside of classes

a. Looking back now, what have been the most meaningful or impactful ways that you've been invested in the college experience? How have you been spending your energy while here? How satisfied are you with that involvement?

b. How has your investment in the college experience, i.e., your involvement, changed over time--starting with your initial expectations, continuing to your first experiences in college, then on to how things progressed as you became a more advanced student...

i. Before you came to campus, what did you expect to be doing and thinking about while here?

ii. Once you arrived on campus and got a better idea of how things operate and what was available, what sorts of things were you eager to invest your time and energy in, what stood out as unappealing, and why?

iii. What ways of getting involved were promoted by those around you (faculty, counselors and other staff, peers)?

iv. Knowing what you now know, what, if anything, would you do differently?

4. Extraversion-Introversion

a. Self-perception, self-identity, self-evaluation

   i. You were invited to participate in the interview due to your score as an [introvert/extravert] on the personality inventory. Do you see yourself as an [introvert/extravert], and what does that mean to you?

   ii. How has your [extraversion/introversion] changed with time, and how do you expect it to change in the future?

Research has associated several distinct features with the extraversion-introversion trait. But the associations in the research are not at all clear cut. Each individual is unique in his or her preferences and ways of acting and thinking. Next I'll be asking about a few features that have been associated with extraversion-introversion. My goal is to find out your unique preferences, habits, and thoughts, and to explore how they relate to your student involvement. These are all things that may add new insights to the research literature.

b. Sensory-processing sensitivity

Sensory processing sensitivity refers to one's sensitivity to various external stimuli. It helps to explain why some students prefer to study with loud music and others must have absolute quiet: different people function optimally at different levels of outside stimulation.=

   i. What are your preferences when it comes to outside stimulation like sounds, sight, movement, etc., and how do these preferences shape the choices you make in your daily life as a college student, both in and out of class?

c. Reflectivity and responsiveness

Reflectivity here refers to the tendency to think about things in the past and plan for the future, while responsiveness refers to reactions to stimuli in the immediate environment.

i. Do you consider yourself more of a "doer" or a "thinker," more responsive or reflective (or a balance of the two)? How has this impacted your educational experiences (pros and cons)?

ii. Please give an example of a time when you acted "out of character" in this respect.

d. Reward sensitivity, sociability, and positive affect

Reward sensitivity refers to the level of reinforcement an individual gains from certain (external) stimuli commonly regarded as positive or reinforcing. For example, one person who wins money in a poker game may find the experience a huge thrill, while another person who wins the same amount of money in the same type of game isn't that impressed. All else being equal, the first person would be said to have higher reward sensitivity in that context than did the second person. Reward sensitivity has been tied to both sociability and positive affect.

i. In terms of campus life, what settings or environments do you find rewarding, and why?

ii. What settings or environments do you find less rewarding or prefer to avoid?

iii. When interacting with others, do you have any general preference for the number of people or the size of group you're with (one-on-one, small gatherings of a few good friends, "the more the merrier""...)? Please say a little bit more about the rewards and drawbacks of interacting in groups of different sizes, and of spending time alone.

5. Person-Involvement Fit

a. Please describe how your investment of energy (i.e., involvement) in the college experience has been a better or worse fit with your personality, in terms of extraversion-

introversion. It may help to pick one or two instances in particular and describe how your involvement was more or less well-suited to your abilities, strengths, and needs.

i. How did your involvement capitalize on your existing strengths and abilities as an [introvert/extravert]?

ii. How did your involvement meet your needs as a student and an [introvert/extravert]?

iii. How has your involvement placed demands on you as an [introvert/extravert]?

iv. What obstacles prevented you from finding a good fit?

v. How did you adapt to, cope with, or change a less than ideal fit?

6. Outside Concerns and Additional Aspects Less Directly Related to P-I Fit

a. What role do you think your social class, age, gender, ethnic or racial culture or identity, or other background factors have played in your college involvement?

b. How have outside pressures, practical concerns, or personal interests and passions dictated your involvement?

c. Do you see yourself as more of a practical person or an idealist, and related to this, what guides you to set and prioritize goals?

i. How important it is to you to capitalize on your existing talents?

ii. How important is it to you to find balance in life?

iii. What importance do you place on staying within your "comfort zone"?

7. Impact of Involvement on Satisfaction and Progress to Degree

a. Please describe the progress you've made toward the degree, discussing setbacks as well as successes.

i. Compared to your expectations, how would you describe the progress you've made?

ii. If your progress has gone smoothly, what factors would you attribute that progress to?

iii. If you've had any big setbacks to your academic progress, what are some factors that contributed to them, and how did you overcome them?

b. You've already talked about your involvement experiences. What role do you think this involvement has played in your satisfaction or dissatisfaction with college and your progress toward the degree?

i. How would you describe your level of satisfaction with the college experience so far?

ii. What factors do you think contributed to that satisfaction?

iii. How has your involvement (as discussed above) contributed to or detracted from this satisfaction?

Appendix C

Theoretical Constructs and Protocol Items Informing Research Questions

Research question	Primary theoretical construct	Protocol question
Q1: How are extraverted and introverted students involved in college?	Student involvement	3a-3b
Q2: What aspects of students' extraversion-introversion are associated with their student involvement and in what way are they associated?	Personality trait (extraversion-introversion)	4a-4d
Q3: How do extraverts and introverts achieve fit between their personalities and their involvement?	Person-involvement congruence	5a, 6a-6c
Q4: How is involvement tied to student outcomes for extraverted and introverted students?	Student involvement	7a-7b

Appendix D

Tables Indicating Personality Designation, Gender, Income, Race/Ethnicity, Year in School, and Academic Division for UCLA, Survey, and Interview Samples

Table D1

*Personality Designation of Survey and Interview Samples**

	Survey participants (n=295)		Interview participants (n=34)	
Personality	Frequency	Percent	Frequency	Percent
Introvert	60	20%	14	41%
Extravert	116	39%	20	59%
Undetermined	119	40%	--	--

*Data not available for UCLA undergraduate population.

Table D2

Gender of UCLA Population and Research Samples

	UCLA undergraduates (n=27,941)		Survey participants (n=296)		Interview participants (n=34)	
Gender	Frequency	Percent	Frequency	Percent	Frequency	Percent
Female	15,368	55%	228	77%	28	82%
Male	12,573	45%	64	22%	6	18%

Table D3

Gender of Interview Sample by Personality Designation

	Extravert		Introvert		Total	
Gender	Frequency	Percent	Frequency	Percent	Frequency	Percent
Female	16	80%	12	86%	28	82%
Male	4	20%	2	14%	6	18%
Total	20	100%	14	100%	34	100%

Table D4

*Self-Reported Household Income of Research Samples**

	Survey participants (n=296)		Interview participants (n=34)	
Average approx. household income	Frequency	Percent	Frequency	Percent
$0-$49,999	83	28%	13	38%
$50,000-$99,999	74	25%	7	21%
$100,000 and up	83	28%	11	32%
Don't know	47	16%	3	9%
Unspecified	9	3%	--	--

*While self-reported data for household incomes of UCLA undergraduates are not available for the 2012-13 academic year, more than 38% of UCLA undergraduates that year received a Federal Pell Grant (a need-based grant awarded to low-income students).

Table D5

Self-Reported Household Income of Interview Sample by Personality Designation

	Extravert		Introvert		Total	
Average approx. household income	Frequency	Percent	Frequency	Percent	Frequency	Percent
$0-$49,999	8	40%	5	36%	13	38%
$50,000-$99,999	4	20%	3	21%	7	21%
$100,000 and up	7	35%	4	29%	11	32%
Unsure	1	5%	2	14%	3	9%
Total	20	100%	14	100%	34	100%

TableD6

Race/Ethnicity of UCLA Population and Research Samples

	UCLA undergraduates (n=27,941)		Survey participants (n=292)		Interview participants (n=34)	
Race/Ethnicity	Frequency	Percent	Frequency	Percent	Frequency	Percent
African American	839	3%	4	1%	--	--
Asian/Pacific Islander	8,941	32%	129	44%	15	44%
Hispanic	5, 029	18%	34	12%	6	18%
White	8,382	30%	92	32%	9	26%
Other	4750	17%	33	11%	4	12%

TableD7

Race/Ethnicity of Interview Sample by Personality Designation

	Extravert		Introvert		Total	
Race/Ethnicity	Frequency	Percent	Frequency	Percent	Frequency	Percent
Asian/Pacific Islander	8	40%	7	50%	15	44%
Hispanic	2	10%	4	29%	6	18%
White	7	35%	2	14%	9	26%
Other	3	15%	1	7%	4	12%
Total	20	100%	14	100%	34	100%

Table D8

Most Recently Completed Year in College of Interview Sample by Personality Designation

	Extravert		Introvert		Total	
Year in college	Frequency	Percent	Frequency	Percent	Frequency	Percent
Senior	6	30%	4	29%	10	29%
Junior	8	40%	5	36%	13	38%
Sophomore	3	15%	4	29%	7	21%
Freshman	3	15%	1	7%	4	12%
Total	20	100%	14	100%	34	100%

Table D9

*Enrollment by Academic Division of UCLA College Population and Research Samples**

	UCLA undergraduates** (n=23,321)		Survey participants (n=294)		Interview participants (n=34)	
Academic division	Frequency	Percent	Frequency	Percent	Frequency	Percent
Humanities	2,990	13%	47	16%	6	18%
Life sciences	7,776	33%	116	40%	11	32%
Physical sciences	3,701	16%	42	14%	5	14%
Social sciences	8,032	34%	107	36%	13	38%
Institute of the Environment	254	1%	1	>1%	--	--
International Institute	455	2%	18	6%	4	12%
General	113	>1%	--	--	--	--

Students may be in enrolled in multiple majors across divisions* Students enrolled in the College of Letters and Science**

Table D10

*Enrollment by Academic Division of Interview Sample by Personality Designation**

	Extravert		Introvert		Total	
Academic division	Frequency	Percent	Frequency	Percent	Frequency	Percent
Humanities	2	10%	4	29%	6	18%
Life sciences	6	30%	5	36%	11	32%
Physical sciences	3	15%	2	14%	5	14%
Social sciences	9	45%	4	29%	13	38%
Institute of the Environment	--	--	--	--	--	--
International Institute	3	15%	1	7%	4	12%
General	--	--	--	--	--	--

Students may be in enrolled in multiple majors across divisions*

Appendix E

Interview Participants' Background and Involvement Classifications by Personality

Table E1

Extraverted Participants' Background and Involvement Classifications

High extraversion					
Pseudonym	Major	Year in college	Race/Ethnicity	Income	Involvement focus
Paul	Political science	Junior	White	Low	Academic
Lisa	IDS*	Sophomore	White	High	Mixed
Kara	Psychology	Junior	Other/unspecified	High	Mixed
Stacey	Sociology, psychology	Freshman	Asian/Pac. Islander	Unspecified	Mixed
Carlos	Biochemistry	Freshman	Hispanic	Middle	Mixed
Fei Yen	Biochemistry	Junior	Asian/Pac. Islander	Middle	Mixed
David	Political science	Junior	White	Low	Extracurricular
Ritu	Political science	Senior	Asian/Pac. Islander	Low	Extracurricular
Moderate extraversion					
Pseudonym	Major	Year in college	Race/Ethnicity	Income	Involvement focus
Sara	English, political science	Junior	White	High	Academic
Lien	Biochemistry	Senior	Asian/Pac. Islander	Low	Academic
Maya	European studies	Sophomore	White	High	Academic
Patricia	English	Junior	Other/unspecified	High	Academic
Caelin	Psychology	Junior	Hispanic	Low	Mixed
Audrey	Psychobiology	Senior	Asian/Pac. Islander	Low	Mixed
Sunita	History, IDS*	Senior	Asian/Pac. Islander	Middle	Mixed
Julie	Psychology	Senior	White	High	Mixed
Stella	Political science	Senior	Other/unspecified	Middle	Extracurricular
Andrew	Economics	Sophomore	White	Low	Extracurricular
Chiara	Psychology	Junior	Asian/Pac. Islander	High	Extracurricular
Vivian	Business economics	Freshman	Asian/Pac. Islander	Low	Extracurricular

*International Development Studies

Table E2

Introverted Participants' Background and Involvement Classifications

Moderate introversion					
Pseudonym	Major	Year in college	Race/Ethnicity	Income	Involvement focus
Anne	Economics, psychology	Junior	Asian/Pac. Islander	High	Academic
Hannah	English/Physio-logical science	Sophomore	Asian/Pac. Islander	High	Academic
Christine	Math	Sophomore	Asian/Pac. Islander	Middle	Academic
Rosa	IDS*	Junior	Hispanic	Low	Mixed
Amy	Business economics	Sophomore	Asian/Pac. Islander	High	Mixed
Teresa	Psychobiology	Senior	Hispanic	Middle	Mixed
Michelle	Psychobiology	Junior	Asian/Pac. Islander	Low	Mixed
Jeff	Biology	Junior	Asian/Pac. Islander	Low	Mixed
High introversion					
Pseudonym	Major	Year in college	Race/Ethnicity	Income	Involvement focus
Holly	Business economics	Sophomore	Other/unspecified	Unspecified	Academic
Branden	English	Junior	White	High	Academic
Camila	English	Senior	Hispanic	Low	Academic
Jackie	English	Senior	White	High	Academic
Marisela	Political science	Freshman	Hispanic	Low	Academic
Jane	Biochemistry	Senior	Asian/Pac. Islander	Unspecified	Mixed

*International Development Studies

Appendix F

Trait-Related Involvement Preferences and Interests

Involvement domain	Preferences and interests	
	Extraverted	Introverted
Extracurricular	High levels of activity Spontaneously pursued interests and immediate impacts High-stimulation environments Large, diverse social networks Frequent interactions Casual interactions	Purposive activity Development-driven interests in long-term progress Low-stimulation environments Small-scale social groups Frequent solitude Intimate relationships
Academic	Experiential and interactive learning Immediately relevant curriculum Instrumental and casual interactions	Critical thinking and knowledge gains Curriculum aligned with future plans and prompting self-reflection Interactions via shared interests

References

Aron, E. N. (2004). Revisiting Jung's concept of innate sensitiveness. *Journal of Analytical Psychology, 49,* 337-367.

Aron, E. N., & Aron, A. (1997). Sensory-processing sensitivity and its relation to introversion and emotionality. *Journal of Personality and Social Psychology, 73*(2), 345-368.

Associated Students UCLA. (2012). *Working for UCLA.* Retrieved December 18, 2012, from http://www.asucla.ucla.edu/jobs/index.asp

Astin, A. W. (1984). Student involvement: A developmental theory for higher education. *Journal of College Student Personnel, 25*(4), 297-308.

Astin, A. W. (2002). *Assessment for excellence: The philosophy and practice of assessment and evaluation in higher education.* Westport, CT: Oryx Press.

Astin, A. W. (1993). *What matters in college? Four critical years revisited.* San Francisco: Jossey-Bass.

Astin, A. W., & Holland, J. L. (1961). The environmental assessment technique: A way to measure college environments. *Journal of Educational Psychology, 52*(6), 308-316.

Barrett, L. & Connot, R. (1986). Knowing student personality can help school, classroom, activity participation. *NASSP Bulletin, 70*(487), 39-45.

Bartlett, L. (2006, August 14). UCLA is named to the New Ivies list by Kaplan/ Newsweek. *UCLA Newsroom.* Retrieved December 18, 2012, from http:// newsroom.ucla.edu/portal/ucla/UCLA-Is-Named-to-the-New-Ivies-7255.aspx? RelNum=7255

Berger, J. P., & Milem, J. F. (1999). The role of student involvement and perceptions of integration in a causal model of student persistence. *Research in Higher Education, 40(6),* 641-664.

Blake, R. J., & Sackett, S. A. (1999, Summer). Holland's typology and the Five-Factor Model: A rational-empirical analysis. *Journal of Career Assessment, 7*(3), 249-279.

Borg, M. O. & Shapiro, S. L. (1996). Personality type and student performance in principles of economics. *The Journal of Economic Education, 27*(1), 3-25.

Bouchard, Jr., T. J., & McGue, M. (2003). Genetic and environmental influences on human psychological differences. *Journal of Neurobiology, 54*(1), 4-45.

Brebner, J., & Cooper, C. (1978). Stimulus- or response-induced excitation: A comparison of the behavior of introverts and extraverts. *Journal of Research in Personality, 12*, 306-311.

Briggs, K. C. (1976). *Myers-Briggs type indicator.* Palo Alto, CA: Consulting Psychologists Press.

Campbell, J. B., & Hawley, C. W. (1982). Study habits and Eysenck's theory of extraversion-introversion. *Journal of Research in Personality 16*(2), 139-146.

Caplan, R. D. (1987). Person-environment fit theory and organizations: Commensurate dimensions, time perspectives, and mechanisms. *Journal of Vocational Behavior, 31*(3), 248-267.

Center for Applications of Psychological Type. (2015). Estimated frequencies of the types in the United States population. Retrieved February 20, 2015, from http://www.capt.org/mbti-assessment/estimated-frequencies.htm

Cohen, M. X., Young, J., Baek, J., Kessler, C., & Ranganath, C. (2005). Individual differences in extraversion and dopamine genetics predict neural reward responses. *Cognitive Brain Research, 25,* 851-861.

Costa, P. T., Jr., & McCrae, R. R. (1988). Personality in adulthood: A six-year longitudinal study of self-reports and spouse ratings on the NEO Personality Inventory. *Journal of Personality and Social Psychology, 54*(5), 853-863.

Costa, P. T., Jr., Terraciano, A., & McCrae, R. R. (2001). Gender differences in personality traits across cultures: Robust and surprising findings. *Journal of Personality and Social Psychology, 81*(2), 322-331.

Creswell, J. W. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches* (3rd ed.). Thousand Oaks, CA: Sage.

Daughenbaugh, R., Daughenbaugh, L., Surry, D., & Islam, M. (2002, November 3). Personality type and online versus in-class course satisfaction. *Educause Quarterly*, 71-72.

Depue, R. A., & Collins, P. F. (1999). Neurobiology of the structure of personality: Dopamine, facilitation of incentive motivation, and extraversion. *Behavioral and Brain Sciences, 22*, 491-569.

DeYoung, C. G., Hirsch, J. B., Shane, M. S., Papademetris, X., Rajeevan, N., & Gray, J. R. (2010, June). Testing predictions from personality neuroscience: Brain structure and the Big Five. *Psychological Science, 21*(6), 820-828.

Digman, J. M., & Inouye, J. (1986). Further specification of the five robust factors of personality. *Journal of Personality and Social Psychology, 50*(1), 116-123.

Endo, J. J., & Harpel, R. L. (1982). The effect of student-faculty interaction on students'

educational outcomes. *Research in Higher Education, 16*(2), 115-138.

Feldman, K. A., Smart, J. C., & Ethington, C. A. (1999). Major field and person-environment fit: Using Holland's theory to study change and stability of college students. *Journal of Higher Education, 70*(6), 642-669.

Feldman, K. A., Smart, J. C., & Ethington, C. A. (2004). What do college students have to lose? Exploring the outcomes of differences in person-environment fits. *Journal of Higher Education, 75*(5), 528-555.

Fisher, D. R., Bagiati, A., & Sarma, S. E. (2014, June). *Fostering 21st century skills in engineering undergraduates through co-curricular involvement.* Paper presented at the meeting of the American Society for Engineering Educations, Indianapolis, IN.

French, J. R. P., Rodgers, W., & Cobb, S. (1974). Adjustment as person-environment fit. In G. V. Coelho, D. A. Hamburg, & J. E. Adams (Eds.), *Coping and adaptation* (pp. 316-333). New York: Basic Books.

Geen, R. G. (1984). Preferred stimulation levels in introverts and extraverts: Effects on arousal and performance. *Journal of Personality and Social Psychology, 46*(6), 1303-1312.

Gellin, A. (2003). The effect of undergraduate student involvement on critical thinking: A meta-analysis of the literature from 1991-2000. *Journal of College Student Development, 44*(6), 746-762.

Gillihan, S. T., Farah, M. J., Sankoorikal, G. M., Breland, J., & Brodkin, E. S. (2007). Association between serotonin transporter genotype and extraversion. *Psychiatric Genetics, 17*, 351-354.

Gladwell, M. (Speaker). (2006, September). *Choice, happiness, and spaghetti sauce*. Transcript of talk presented at the 2004 conference of the Technology, Entertainment, and Design (TED) organization on the Pursuit of Happiness, Monterey, CA. Retrieved January 15, 2015, from http://www.ted.com/talks/malcolm_gladwell_on_spaghetti_sauce/transcript?language=en

Goldberg, L. R. (1981). Language and individual differences: The search for universals in personality lexicons. In L. Wheeler (Ed.), *Review of personality and social psychology* (pp. 141-165). Beverly Hills, CA: Sage.

Gottfredson, G. D., Jones, E. M., & Holland, J. L. (1993). Personality and vocational interests: The relation of Holland's six interest dimensions to five robust dimensions of personality. *Journal of Counseling Psychology, 40*(4), 518-524.

Hammersley, M., & Atkinson, P. (1995). *Ethnography: Principles in practice* (2nd ed.). New York: Routledge.

Holland, J. L. (1963). Explorations of a theory of vocational choice part one: Vocational images and choice. *Vocational Guidance Quarterly 11*(4), 232-239.

Huang, Y., & Chang, S. (2004). Academic and cocurricular involvement: Their relationship and the best combinations for student growth. *Journal of College Student Development, 45(4),* 391-406

Johnson, D. L., Wiebe, J. S., Gold, S. M., Andreasen, N. C., Hichwa, R. D., Watkins, G. L., et al. (1999). Cerebral blood flow and personality: A positron emission tomography study. *American Journal of Psychiatry, 156*(2), 252-257.

Jonassaint, C. R., Siegler, I. C., Barefoot, J. C., Edwards, C. L., & Williams, R. B. (2011). Low life course socioeconomic status (SES) is associated with negative NEO PI-R personality patterns. *International Journal of Behavioral Medicine, 18*, 13-21.

Jung, C. G. (1926). *Psychological types*. NY: Harcourt, Brace & Company, Inc.

Kim, H. S. (2002). We talk, therefore we think? A cultural analysis of the effect of talking on thinking. *Journal of Personality and Social Psychology, 83*(4), 828, 842.

Kuh, G. D. (2003). What we're learning about student engagement from NSSE: Benchmarks for effective educational practices. *Change: The Magazine of Higher Learning, 35*(2), 24-32.

Kuh, G. D. (2009). The National Survey of Student Engagement: Conceptual and empirical foundations. *New Directions for Institutional Research, 141*, 5-20.

Kuh, G. D., Schuh, J. H., Whitt, E. J., Andreas, R. E., Lyons, J. W., Strange, C. C., et al. (1991). *Involving colleges: Successful approaches to fostering student learning and development outside the classroom*. San Francisco: Jossey-Bass.

Laanan, F. S. (2001). Transfer student adjustment. *New Directions for Community Colleges, 2001(114)*, 5-13.

Lamport, M. A. (1993). Student-faculty informal interaction and the effect on college student outcomes: A review of the literature. *Adolescence, 28*, 971-990.

Lucas, R. E., Diener, E., Grob, A., Suh, E. M., & Shao, L. (2000). Cross-cultural evidence for the fundamental features of extraversion. *Journal of Personality and Social Psychology, 79*(3), 452-468.

May, K. T. (2014, September 2). *How to teach a young introvert.* Retrieved September 3, 2014, from http://ideas.ted.com/how-to-teach-a-young-introvert/

McCrae, R. R. (2004). Human nature and culture: A trait perspective. *Journal of Research in Personality, 38,* 3-14.

McCrae, R. R., & Costa, P. T., Jr. (1987). Validation of the five-factor model of personality across instruments and observers. *Journal of Personality and Social Psychology, 52*(1), 81-90.

McCrae, R. R., & Costa, P. T., Jr. (1989). Reinterpreting the Myers-Briggs Type Indicator from the perspective of the five factor model of personality. *Journal of Personality, 57*(1), 17-40.

McCrae, R. R., & Costa, P. T., Jr. (1994). The stability of personality: Observations and evaluations. *Current Directions in Psychological Science, 36*(6), 173-175.

McCrae, R. R., & Costa, P. T., Jr. (2010). *NEO inventories for the NEO Personality Inventory-3 (NEO-PI-3), NEO Five-Factor Inventory-3 (NEO-FFI-3), NEO Personality Inventory-Revised (NEO PI-R) professional manual*. Lutz, FL: PAR.

McCrae, R. R., & Terraciano, A. (2005). Personality profiles of cultures: Aggregate personality traits. *Journal of Personality and Social Psychology, 89*(3), 407-425.

Moore, J., Lovell, C. D., McGann, T., & Wyrick, J. (1998). Why involvement matters: A review of research on student involvement in the collegiate setting. *College Student Affairs Journal, 17*(2), 4-17.

Myers, I. B. and McCaulley, M. H. (1985). *Manual: A guide to the development and use of the Myers-Briggs Type Indicator*. Palo Alto, CA: Consulting Psychologists Press.

Nakao, K., Takaishi, J., Tatsuta, K., Katayama, H., Iwase, M., Yorifuji, K., et al. (2000).

The influences of family environment on personality traits. *Psychiatry and Clinical Neuroscience, 54*, 91-95.

Nelson Laird, T. F., Shoup, R., Kuh, G. D., & Schwarz, M. J. (2008). The effects of discipline on deep approaches to student learning and college outcomes. *Research in Higher Education, 49*(6), 469-494.

Omura, K., Constable, R. T., & Canli, T. (2005). Amygdala gray matter concentration is associated with extraversion and neuroticism. *Neuroreport, 16*(17), 1905-1908.

Opt, S. K., & Loffredo, D. A. (2000). Rethinking communication apprehension: A Myers-Briggs perspective. *Journal of Psychology, 134*(5), 556-570.

Pascarella, E. T., & Terenzini, P. T. (1991). *How college affects students: Findings and insights from twenty years of research*. San Francisco: Jossey-Bass.

Pascarella, E. T., & Terenzini, P. T. (2005). *How college affects students: A third decade of research.* San Francisco: Jossey-Bass.

Pervin, L. A. (1967a). Satisfaction and perceived self-environment similarity: A semantic differential study of student-college interaction. *Journal of Personality, 35*, 623-634.

Pervin, L. A. (1967b). A twenty-college study of student x college interaction using TAPE (transactional analysis of personality and environment): Rationale, reliability, and validity. *Journal of Educational Psychology, 58*(5), 290-302.

Pervin, L. A., & Rubin, D. A. (1967). Student dissatisfaction with college and the college dropout: A transactional approach. *Journal of Social Psychology, 72*(2), 285-295.

Piedmont, R. L. (1998). The Revised NEO Personality Inventory: Clinical and research applications. In C. R. Snyder (Ed.), *The Plenum Series in Social/Clinical Psychology*.

New York: Plenum Press

Porter, S. R., & Umbach, P. D. (2006). College major choice: An analysis of person-environment fit. *Research in Higher Education, 47*(4), 429-449.

Rauch, S. L., Milad, M. R., Orr, S. P., Quinn, B. T., Fischl, B., & Pitman, R. K. (2005). Orbitofrontal thickness, retention of fear extinction, and extraversion. *Neuroreport, 16*(17), 1909-1912.

Roberts, B. W., & DelVecchio, W. F. (2000). The rank-order consistency of personality traits from childhood to old age: A quantitative review of longitudinal studies. *Psychological Bulletin, 126*(1), 3-25.

Robinson, M. D., Moeller, S. K., & Ode, S. (2010). Extraversion and reward-related processing: Probing incentive motivation in affective priming tasks. *Emotion, 10*(5), 615-626.

Shipnuck, A. (2005, April 14). The Winner's Circle. *Sports Illustrated.* Retrieved December 18, 2012, from http://sportsillustrated.cnn.com/2005/sioncampus/04/11/ucla0414/index.html

Smart, J. C., Feldman, K.A., & Ethington, C. A. (2000). *Academic disciplines: Holland's theory and the study of college students and faculty*. Nashville, TN: Vanderbilt University Press.

Spokane, A. R. (1985). A review of research on person-environment congruence in Holland's theory of careers. *Journal of Vocational Behavior, 26*, 306-343.

Tinto, V. & Russo, P. (1994). Coordinated studies programs: Their effect on student involvement at a community college. *Community College Review, 22*(2), 16-25.

Twenge, J. M. (2001). Birth cohort changes in extraversion: A cross-temporal meta-analysis, 1966-1993. *Personality and Individual Differences, 30,* 735-748.

UCLA Center for Student Programming. (2011). *List of campus organizations*. Retrieved December 17, 2012, from http://www.studentactivities.ucla.edu/grouplist.html

UCLA Counseling & Psychological Services. (2012). *The counseling center.* Retrieved December 18, 2012, from http://www.counseling.ucla.edu

UCLA Fraternity & Sorority Relations. (2012). *UCLA Greek life*. Retrieved December 17, 2012, from http://www.greeklife.ucla.edu

UCLA Office of Analysis and Information Management. (2012). *2011-2012 Undergraduate profile* [Brochure]. Los Angeles, CA: Author.

UCLA Office of Analysis and Information Management. (2013). *2012-2013 Undergraduate profile* [Brochure]. Los Angeles, CA: Author.

UCLA Office of Residential Life. (n.d.). *Community living*. Retrieved December 17, 2012, from http://www.orl.ucla.edu/community/

UCLA Recreation. (n.d.). *Explore recreation.* Retrieved December 18, 2012, from http://www.recreation.ucla.edu

Walsh, W. B. (1973). *Theories of person-environment interaction: Implications for the college student.* Iowa City, Iowa: American College Testing Program.

Walsh, W. B., Craik, K. H., & Price, R. H. (1992). *Person-environment psychology: Models and perspectives.* Hillsdale, NJ: Lawrence Erlbaum Associates.

Walsh, W. B., & Holland, J. L. (1992). A theory of personality types and work environments. In W. B. Walsh, K. H. Craik, & R. H. Price (Eds.), *Person-environment psychology: Models and perspectives.* Hillsdale, NJ: Lawrence Erlbaum Associates.

Zacherman, A., & Foubert, J. (2014). The relationship between engagement in cocurricular activities and academic performance: Exploring gender differences. *Journal of Student Affairs Research and Practice, 51*(2), 157-169.

Zhao, C. M., & Kuh, G. D. (2004). Adding value: Learning communities and student engagement. *Research in Higher Education, 45*(2), 115-138.