

**THE LIFE SPACE: A FRAMEWORK AND
METHOD TO DESCRIBE THE INDIVIDUAL'S
EXTERNAL TRAITS**

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ABSTRACT

A revised measure of the Life Space with a large sample ($N = 1021$) of university undergraduates was developed. The Life Space divides the external environment into four domains, which broadly encompass a person's biological foundations, owned possessions, daily interactions and activities, and group memberships. Factor analysis of over 1000 items divided among each domain resulted in 96 factor-based scales that provided a rich description of college students' personal surroundings and everyday behavior. A 2nd-order factor analysis of the primary scales resulted in seven global dimensions that replicate and expand upon prior research in the area: Positive and Social Orientation, Sports Orientation, Drug Culture Environment, Music and Arts Achievement, Media Consumer, Negative and Unhealthy Lifestyle, and Intellectual Pursuits. The Life Space scales also were examined for gender differences and associations with social desirability response bias. The discussion focuses on the value of a more detailed and comprehensive approach to studying personality within the context of the external systems that surround the person.

Imagine two college students who we will name Jane and Joe:

Jane sleeps less than five hours per night, smokes cigarettes, and eats mostly fried food. In her dorm room are dozens of heavy metal CDs, a collection of vodka bottles, and over 100 video game cartridges. Jane is usually late to

school and frequently drives 15 to 20 miles per hour over the speed limit on her way to class. Her free time is spent at the local college bar where she hangs out with a bunch of friends. Jane has dated three different men this semester and has never had a long-term relationship. When not working or at school, she watches reality-based television shows.

Joe sleeps about eight hours per night and is a strict vegetarian. He has a stack of vitamin supplements and homeopathic cold medicines in his dorm room. Joe attends Yoga class about three times per week, and plays guitar for a local band. His dorm room is decorated with posters of famous rock stars and a large self-portrait that he painted in high school. Joe spends at least three hours per day doing homework and in his spare time reads science fiction books. On weekends, Joe and his girlfriend of three years often go to the movies and spend time at museums.

If we could regularly assess this kind of rich detail about an individual's life, then there would be no end to the sorts of rich hypotheses we could come up with as to which personality traits could be used to distinguish the lifestyles of Jane from Joe.

Today, journals in our field are inundated with new personality scales and studies on the structure of personality traits such as the Big Five (Costa & McCrae, 1992; Digman, 1990; Goldberg, 1990). There is, however, a paucity of studies that attempt to organize a person's Life Space or external surroundings in which personality is expressed (Frederiksen, 1972; Funder, 2001; Lewin, 1936; Magnusson & Torestad, 1992).

One recent framework for studying personality, the systems framework, provides a clear distinction between internal and external personality (Mayer, 1998). That model describes four areas that surround personality: biological foundations (e.g., health and fitness), situational elements (e.g., clothing and props), interactive (daily activities and interactions with others), and incorporative (memberships and demographic information). These outside areas are distinguishable from the person's mental models and traits, which are inside. This model also makes possible the development of assessment procedures to assess the external "Life Space," by asking questions within each area; that is, about a person's body, social setting, social interactions, and group memberships. However, to date, these procedures have been approximate (Brackett, 2001; Mayer, Carlsmith, & Chabot, 1998).

The purpose of this research is to further develop a vision of the areas and "traits," if you will, of a person's surrounding environment by developing an omnibus measure of the Life Space, the College Student Life Space Scale (CSLSS). This study offers an advance over prior research by: a) defining and differentiating Life Space data from other sources of data; b) creating a highly distinctive and fine-grained set of conceptual categories for describing the Life Space; c) using a more complete item set than before to measure those areas; d) examining the higher-order structure of the Life Space; e) assessing whether

there are gender differences in the Life Space; and f) examining whether Life Space scales are relatively independent of social desirability, as claimed.

BACKGROUND

Various definitions of the Life Space exist (e.g., Lewin, 1936, 1951; Mayer et al., 1998; Richards & Larson, 1989), but here the term is used to denote the comprehensive environment that surrounds the individual. In this section conceptions and current research on the Life Space are reviewed and Life Space data are explained in detail.

Initial Conception of the Life Space

Lewin (1936) initially conceptualized personality within the context of the various systems surrounding the person. He employed the term “Life Space”—the totality of factors that influence a person at any one time. For Lewin, understanding the Life Space was the first prerequisite for understanding an individual’s actions. According to Lewin, some parts of the Life Space were objectively real (i.e., part of the physical world), others were psychological (e.g., a person’s motives, emotions, and feelings), and a few were imaginary (e.g., illusions of what might happen in the future). He also emphasized the “boundary zone” where things could move in and out of the periphery of the Life Space at different points in time.

According to Lewin (1951), the primary task of the psychologist was to represent the field correctly as it exists for the individual at a particular point in time (p. 240). He also placed an emphasis on the interdependency of its various parts (i.e., the specific contents of each domain and their interrelatedness). Despite Lewin’s pioneering work in the area, however, he never provided guidelines for exactly what is part of the Life Space and what is not. He also never developed an empirical method to measure the external key components of the Life Space.

Initial Measurement of the Life Space

Mayer et al. (1998) borrowed the term “Life Space” from Lewin and redefined it so that it strictly pertained to the external environment. Guided by a systems framework (Mayer, 1998), they created an initial structure for the Life Space. The structure was based on two dimensions, a molecular-molar dimension and an internal-external dimension, as can be seen in Figure 1. The molecular-molar dimension arranges systems from biological to psychological, to societal. The internal-external dimension separates internal personality from the outside environment.

These dimensions lead to four domains (biological, situational elements, interactive, and incorporative) that surround personality. The biological domain includes one’s physical attributes (height, weight, and strength), medical history such as psychiatric diagnoses, and general health habits, including diet and sleep.

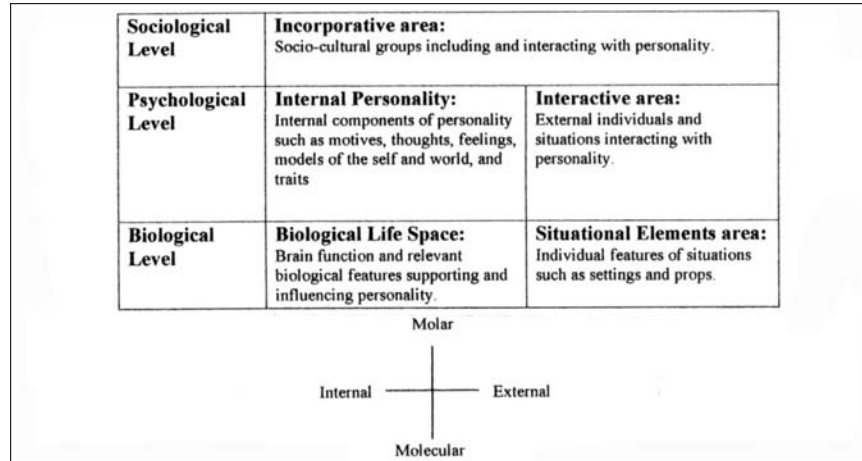


Figure 1. Initial model of the Life Space (after Mayer, Carlsmith, & Chabot, 1998).

At the more molecular level is the situational elements domain, which consists of settings and possessions with which the person interacts (e.g., owned philosophy books, pictures of family members displayed in the home, and clothing). The interactive domain refers to individuals and situations that interact with personality (e.g., displaying affection with parents, time spent reading and listening to music, and personal hygiene habits). At the top of the molecular-molar continuum is the incorporative domain, which concerns itself with socio-cultural groups that interact with personality, including memberships in organizations (e.g., political affiliation and varsity sports team membership), family situation (e.g., socioeconomic status and residency), and other demographic variables such as ethnicity and religion.

Mayer et al. (1998) initially sampled over 500 items from the four domains to assess the Life Space empirically. Factor analysis of the items within each domain resulted in 26 scales that described the external environment and behaviors of college students. A second-order (hierarchical) factor analysis of the first-order scales yielded five global dimensions: a) Caring Environment, related to health and appearance possessions and positive interactions with family and friends; b) Socially Active Environment, characterized by high levels of interpersonal interactions and party-going; c) Drug Culture Environment, typified by involvement with drug-related possessions and drug users; d) Sports Environment, involving participation in team sports; and e) Isolated Environment, describing a pronounced lack of interactions with others. Both the first-order scales and global dimensions provided meaningful descriptions of college students and many of the scales were related to internal personality variables, as expected.

College Student Life Space Scale

The College Student Life Space Scale (CSLSS; Brackett, 2001) followed Mayer et al.'s (1998) Life Space scales. The CSLSS included a more comprehensive item sample (over 900 items versus 500 items), it measured under-represented areas within each domain of the original Life Space, and most notably, it divided each Life Space domain (biological, situational elements, interactive, incorporative) into well-defined narrower areas with subcategories. For example, the situational elements domain was divided into distinct areas pertaining to personal care, clothing and accessories, and media-related possessions. Subdividing the domains allowed for a clearer depiction of the Life Space and helped to gather and organize relevant items (see Figure 2).

In keeping with Mayer et al. (1998), Brackett (2001) used a multi-domain factor analytic approach to analyze items from each Life Space domain. This resulted in 75 factor-based scales (compared to 26 scales in the initial study). Each scale was defined by multiple items and had fairly high reliability. Hierarchical factor analysis of the first-order scales resulted in six global dimensions, which, despite the inclusion of almost 400 new items, clearly replicated and expanded upon Mayer et al.'s (1998) global dimensions.

The "Caring Environment" accounted for the most amount of variance; its highest loading first-order scales pertained to the care of one's self and others (e.g., time spent grooming). The "Sedentary Media Consumer" was comprised of scales that described a person who engages in passive activities such as playing video games and watching television. The "Music and Arts Achievement" was comprised of scales pertaining to activities that involve both skill and concentration in the area of artistic expression (e.g., playing in a band, singing in a choir, or performing in a play). The "Drug-Culture Environment" contained scales pertaining to drug use, alcohol consumption, and deviant behavior. The "Introspective Lifestyle" was comprised of first-order scales pertaining to reading and writing activity, and time listening to blues and jazz music. Finally, the "Sports Environment" was comprised of scales pertaining to organized and leisure sports.

This replication and extension of Mayer et al.'s (1998) scales supported the notion that these dimensions are central characteristics of college students. The dimensions provided a lucid, in-depth description of the daily contexts of college students lives: what they own, what they do, with whom they associate, and the groups to which they belong. They also provided criteria that can discriminate among different types of college students. For example, students with high scores on the Sedentary Media Consumer dimension looked different from students with high scores on the Introspective Lifestyle or Music and Arts Achievement dimensions.

In a separate validation study, Brackett, Mayer, and Warner (2004) correlated theoretically relevant Life Space scales with an ability measure of emotional intelligence (Mayer, Salovey, & Caruso, 2002). Emotional intelligence correlated

More Molar Level	<p align="center">Incorporative Domain <i>Socio-cultural groups including and interacting with personality</i></p>		Family Background and Demographics	Academic Setting and Group Memberships								
Level of the Individual	<p>Internal Personality: <i>Internal mechanisms such as motives, thoughts, feelings, and traits that comprise internal personality (e.g., Big Five, Well-Being, and Intelligence)</i></p>	<p align="center">Interactive Domain <i>Individuals and situations interacting with personality</i></p> <table border="1"> <tr> <td data-bbox="646 1012 755 1171">Personal Care & Grooming</td> <td data-bbox="646 856 755 1012">Social Deviance</td> <td data-bbox="646 701 755 856">Sports & Leisure Activity</td> <td data-bbox="646 508 755 701">Social & Solitary Activity</td> </tr> <tr> <td data-bbox="755 1012 847 1171">Recreational Drug Use</td> <td data-bbox="755 856 847 1012">School & Work Activity</td> <td data-bbox="755 701 847 856">Media Consumption</td> <td data-bbox="755 508 847 701">Relations with Selected Individuals</td> </tr> </table>			Personal Care & Grooming	Social Deviance	Sports & Leisure Activity	Social & Solitary Activity	Recreational Drug Use	School & Work Activity	Media Consumption	Relations with Selected Individuals
Personal Care & Grooming	Social Deviance	Sports & Leisure Activity	Social & Solitary Activity									
Recreational Drug Use	School & Work Activity	Media Consumption	Relations with Selected Individuals									
More Molecular Level	<p align="center">Situational Elements Domain <i>Settings and possessions surrounding personality</i></p> <table border="1"> <tr> <td data-bbox="971 1171 1107 1558"> <p align="center">Biological Domain <i>Brain function and relevant features supporting and influencing personality</i></p> <p align="center">Physical Health</p> <p align="center">Psychological Health</p> <p align="center">Diet, Exercise, & Sleep</p> </td> <td data-bbox="971 961 1107 1171">Personal Care Possessions</td> <td data-bbox="971 751 1107 961">Sports, Hobby, & Leisure Possessions</td> <td data-bbox="971 508 1107 751">Room Furnishings & Personal Mentions</td> </tr> <tr> <td></td> <td data-bbox="1107 961 1169 1171">Illicit Drug Possessions</td> <td data-bbox="1107 751 1169 961">Media Related Possessions</td> <td data-bbox="1107 508 1169 751">Clothing & Accessories</td> </tr> </table>				<p align="center">Biological Domain <i>Brain function and relevant features supporting and influencing personality</i></p> <p align="center">Physical Health</p> <p align="center">Psychological Health</p> <p align="center">Diet, Exercise, & Sleep</p>	Personal Care Possessions	Sports, Hobby, & Leisure Possessions	Room Furnishings & Personal Mentions		Illicit Drug Possessions	Media Related Possessions	Clothing & Accessories
<p align="center">Biological Domain <i>Brain function and relevant features supporting and influencing personality</i></p> <p align="center">Physical Health</p> <p align="center">Psychological Health</p> <p align="center">Diet, Exercise, & Sleep</p>	Personal Care Possessions	Sports, Hobby, & Leisure Possessions	Room Furnishings & Personal Mentions									
	Illicit Drug Possessions	Media Related Possessions	Clothing & Accessories									

Figure 2. Revised model of the Life Space for college students.

(negatively) with fighting, illegal drug use, and gambling. Individuals with lower emotional intelligence were also prone to negative interpersonal relations (e.g., arguments and criticizing others). On the other hand, individuals with higher emotional intelligence reported more positive relations with others (e.g., displaying affection, seeking advice) and reported more sentimental items in their possession (e.g., pictures of loved ones and old love letters).

In sum, past research has demonstrated that Life Space scales provide a detailed description of people's lives and are useful as external criteria to show how aspects of personality characteristics are expressed in people's everyday lives. But what exactly are Life Space data?

Life Space Data

For decades, researchers have measured subsets of the Life Space. For example, Cattell (1965, p. 61) discussed "L-data" (life record), and Buss and Craik (1983) collected act-frequency data, which specified particular acts that correspond to different dispositional categories. Other researchers have used diary methods (e.g., Moss & Lawton, 1982) and experience sampling (e.g., Larson, 1989) to understand people better. Recently, Craik (2000) employed a "lived day analysis" method in which participants used video recorders to capture daily events, in addition to writing down images, scenes, and objects that are central to understanding their lives.

These and other methods have led to many advances in personality research. A major contribution of the experience sampling method, for instance, is that information is recorded during or shortly after a behavior occurs, which may increase accuracy and decrease distortion. Research on the Life Space supplements these existing methods by providing both a comprehensive model of the person's external environment and a method for its assessment.

The Life Space scales developed here are distinct from traditional self-report scales in four noteworthy ways; the items: a) pertain to reports of one's external qualities; b) are aggregated into scales about the person's belongings, daily life, and group memberships; c) are focused on a specific population of individuals during a specified time frame; and d) are organized according to a comprehensive systems framework.

Life Space Data Focus on the Observable External Environment

Most data in personality research pertain to self-reported projected behavioral tendencies (Fiske, 1973). For example, the question, "Do you enjoy going to parties?" would be found on an extraversion survey. Life Space data, similar to bio-data (e.g., Mael, 1991; Stokes, Mumford, & Owens, 1994) strictly focus on the outside world of the individual (Mayer, 2004). The items are based on external, observable, discrete aspects of the individual's environment. The items also are

factual, require minimal interpretations on the part of the participant, and the answers are definite and potentially verifiable. For example, the question, “How many times in the last month have you gone to a party?” is quite different from the aforementioned parallel self-report question. Such question formats appear to minimize social desirability response bias (Mael & Hirsch, 1993). The rationale is that when people report on concrete, verifiable acts they are less tempted to dissimulate. Job applicants, for instance, tend to fake less when responding to bio-data questions than when responding to scales on attitudes or preferences (Becker & Colquit, 1992; Mael & Hirsch, 1993).

The Life Space Measures Aggregated Information about a Person's Life

A measure of behavior may be very specific as, for example, a single item measure of regularity in coming on time to a class; or much broader, such as a multiple item assessment of broad behavioral aspects of conscientiousness (Mischel & Peake, 1982). A large number of studies employ the former, single-item assessments of behavior as opposed to the latter. Paunonen and colleagues (Paunonen, 1998; Paunonen & Ashton, 2001), for instance, have employed a number of single-item assessments of behavior (e.g., “Have you ever engaged in a long-term diet?”) in their research. The rather low correlation coefficients these researchers obtained between personality traits and behavior may in part be due to the high measurement error of single-item behavioral assessments (Epstein, 1979, 1983; Epstein & O'Brien, 1985). Life Space scales, on the other hand, are comprised of multiple interrelated items. Having more items widens the range of possible responses and lessens measurement error, which can help to strengthen predictions.

Life Space Scales Target a Specific Population

Neugarten (1979) noted that society imposes normative, age-related expectations concerning the situations to which people are exposed and their expected behavior in these situations. That is, situations are not open to all people of all ages in all locations. Nor can it be assumed that traits will be predictive of the same behaviors at different points in time or that a measure that performs well with one population will work as successfully in another (see Shoda & Mischel, 1996).

College students, for example, take specific courses (e.g., band), join certain societies (e.g., fraternity/sorority), and participate in particular activities (e.g., intercollegiate sports) that will manifest as correlates of personality for that population, but not for other groups. In college, for instance, having extraverted tendencies may lead to going to lots of parties, staying out late on the weekends, and dating frequently. At age 50, however, extraversion may take on a quite different form; it may manifest itself in hosting formal dinner parties and joining many community activities (cf. Piedmont, 1998). Life Space items are carefully

selected to address relevant information for a targeted population. In turn, correlations between dispositional constructs and external criteria may be higher because both inventories are tapping relevant tendencies and life experiences of the participants being studied (Owens, 1976).

Life Space Data are Organized According to a Systems Framework

The totality of the Life Space has properties that cannot be derived by summing results from studies on single-item behaviors. Moreover, employing a limited number of criteria provides an incomplete picture of the whole person and may even mask dispositional effects (Kenrick & Funder, 1988). The Life Space includes a broad range of criteria, which are organized according to a well-defined systems framework that divides the external environment into four broad domains (biological, situational elements, interactive, incorporative) as previously discussed (Brackett, 2001; Mayer et al., 1998). The framework is important because it guides the sampling of items.

INTRODUCTION TO THE PRESENT RESEARCH

The purpose of this research is to develop an omnibus measure of the Life Space for college students. First, the methods used to develop the revised item pool are presented. We then examine the first- and second-order factor structure of the Life Space and develop factor-based scales. We also examine gender differences in the scales and test whether the scales are relatively independent of social desirability.

DEVELOPMENT OF THE REVISED ITEM POOL

The first step was to examine Brackett's (2001) scales. Only high-quality items were retained, which left adequate space for new, better-suited items. Specifically, superfluous and ambiguous items, and items for which there were no endorsements were eliminated. Furthermore, only the top 15 items from larger scales were retained so long as the original scale's meaning or reliability was not altered.

Gathering of New Life Space Items

In order to obtain new items, open-ended questionnaires were administered to male and female college students ($N = 90$). Participants answered questions that were based on Brackett's (2001) Life Space scales. The questions inquired about various health factors, possessions, interactions, and group memberships that pertain to college students. For example, to gain items for the interactive domain, students were asked to describe ways in which they socialize with friends and family (e.g., e-mail, cell phone, post cards), the extracurricular activities in which they participate (e.g., soccer, chess), and other, more general leisure pursuits (e.g., types of movies seen, kinds of books read, music recently purchased).

Additional items for all domains were obtained from a variety of resources such as high school and college catalogs (e.g., organized clubs and courses), various Internet sites (e.g., lists of books and music), popular magazines (e.g., electronics equipment or accessories), department store catalogs (e.g., personal care products, sports equipment, clothing), theoretical books and scholarly articles (e.g., leisure activities and interests of college students), medical checklists, and communication with health services and the counseling center at our university.

The Final Life Space Scale

Although a systematic approach to item sampling was used to develop the CSLSS, it was admittedly impossible to cover the entire Life Space. A focus was instead placed on the diversity and full representation of important aspects of the Life Space for a college student population. When building the final version of the scale every attempt was made to adequately cover the most relevant information for the biological, situational elements, interactive, and incorporative domains.

The final scale had 1073 items.¹ The items were separated into conceptually distinct areas within each domain, and in certain cases, items were further divided into narrower subcategories. See Table 1 for an outline of the domains, areas, and subcategories of the revised CSLSS.

DEVELOPMENT OF FIRST-ORDER SCALES AND GLOBAL DIMENSIONS

Methods

Participants and Procedure

One thousand twenty-one college students originally participated in this research. After handling incomplete, missing, and invalid data, the final sample consisted of 936 students (326 males and 610 females). Most students were between 17 and 22 years (96.7%). Just 33 students (3.3%) were over 23 years old. The sample was predominately white (94.9%) and middle class (73.8% of students reported household incomes above \$60,000).

The majority of the participants (73.6%) were recruited from introductory psychology courses; the remainder of the sample came from four personality psychology courses. All participants received course credit. Because multiple sessions were necessary to collect the data, participants were given code numbers so data from each session could be matched. The participants' data were kept

¹The first author wrote the final version of the revised CSLSS with the help of five Ph.D. level psychologists, a senior graduate student in personality psychology, and focus groups comprised of research assistants from undergraduate personality psychology classes.

Table 1. Overview of the Domains, Areas, and Categories of the Life Space

<p>A. Biological Domain Physical Health Psychological Health Diet, Exercise, and Sleep</p> <p>B. Situational Elements Domain Personal Care Products Clothing and Accessories Apparel Body Adornments Illicit Drug Possessions Media-Related Possessions Books and Videos Music Recordings Room Furnishings Religious and Spiritual Items Home Electronics Endorsements Personal Room Surroundings Sports, Avocation, and Leisure Possessions General Sports Instruments Games</p>	<p>C. Interactive Domain Personal Care Recreational Drug Use Social deviance School and Work Leisure and Sports Arts Sports Media Consumption Daily Internet Social and Solitary Activity Sexual Activity Social Behavior Interactions with Others Mother Father Significant Other Best Friend</p> <p>D. Incorporative Domain Family Demographics Family Social Status Family Biological Characteristics Academic and Professional Training</p>
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completely confidential. Informed consent was obtained in the first testing session and debriefing forms were presented to respondents upon completion of the study.

Originally, all participants took the revised CSLSS and additional personality scales in three sessions, each lasting 1¼ hours. Session 1 included the social desirability scales (Paulhus, 1998), and items from the biological domain of the CSLSS. Session 2 included items from the interactive domain. Session 3 included items from the situational elements and incorporative domains. All surveys were pre-tested to make certain that students could thoughtfully complete the surveys in the allotted time.

College Student Life Space Scale

Participants recorded their responses using a 1 to 5 scale, with higher numbers representing response categories that involved greater amounts of a behavior or

numbers of possessions. This method accommodated computer scoring, which was highly efficient for collecting such large amounts of data (over 1.3 million data points). One disadvantage was that the resulting Life Space criteria did not have strict interval scale properties. This method, however, was successfully employed in previous studies (Ashton, 1998; Brackett, 2001; Mayer et al., 1998) and any problems concerning the metric properties of the resulting criteria were not expected to inflate correlation coefficients (Ashton, 1998).

Biological domain—This domain contained 117 items that assessed three general biological characteristics: a) Physical Health (e.g., number of headaches in the last month, number of doctor's visits for flu in the last year); b) Psychological Health (e.g., psychiatric diagnoses, time spent in psychotherapy); and c) Diet, Exercise, and Sleep (e.g., physical strength, hours of sleep, and days ate breakfast).

Situational elements domain—This domain contained 347 items that pertained to the possessions a person keeps in his or her environment. The items were divided into various merchandising categories similar to department store catalogs, such as personal care products, clothing, and electronics. The six areas of this domain are: a) Personal Care Products (e.g., make up, disposable razors); b) Clothing and Accessories, which is divided into two subcategories: Apparel (e.g., button-down shirts, skirts, silver bracelets) and Body Adornments (e.g., number of tattoos, number of piercings); c) Illicit Drug Possessions (e.g., bong, marijuana joints); d) Media-Related Possessions, which is divided into two subcategories: Books and Videos (e.g., novels, action movies), and Music Recordings (e.g., pop, jazz); e) Room Furnishings, which is divided into four subcategories: Religious and Spiritual Items (e.g., bibles, occult objects), Home Electronics (e.g., computer, stereo), Endorsements (e.g., pro-choice emblem), and Personal Room Surroundings (e.g., photos of family displayed, posters of art); and, finally f) Sports, Avocation, and Leisure Possessions, which is divided into three subcategories: General Sports Possessions (e.g., footballs, roller blades), Instruments (bass guitar, keyboard), and Games (e.g., number of board games).

Interactive domain—This domain was measured with 480 items that were organized according to eight broad areas: a) Personal Care (e.g., time spent grooming); b) Recreational Drug Use (e.g., alcohol consumption, illicit drug use); c) Social Deviance (e.g., physical fights, verbal assaults); d) School and Work (e.g., study habits, hours worked per week); e) Leisure and Sports, which is divided into two subcategories: Arts (e.g., arts and crafts, attending plays), Sports (e.g., kayaking, wrestling event); and f) Media Consumption, which is divided into two subcategories: Daily Media Consumption (e.g., pleasure reading, watching television), Internet Activity (e.g., e-mails received, sent);

g) Social and Solitary Activities, which is divided into two subcategories: Sexual Activity (e.g., number of romantic partners), and Social Behavior (e.g., telephone use, church attendance); and, finally h) Interactions with Others, which is divided into interactions with Mother and Father (e.g., having a meal with mother/father), Significant Other Relations (e.g., making love, going to movies), and Best Friend Relations (e.g., attending a party, watching television together).

Incorporative domain—This domain was measured with 133 items pertaining to socio-cultural groups. Incorporative memberships include general demographics and vocational (school) pursuits. Grouping of items in this domain resulted in two areas: a) Family Demographics, which was divided into Family Social Status (e.g., parent's income, family size) and Family Biological Characteristics (e.g., depression diagnosis, heart attacks); and b) Academic and Professional Training (e.g., physics or calculus courses and sports team memberships).

Social desirability—Social desirability was assessed with the Paulhus Deception Scales (PDS; Paulhus, 1998). This 40-item questionnaire has two subscales. The first is Self-Deceptive Enhancement, the tendency to give honest but inflated self-descriptions that show a pervasive lack of insight or an unconscious bias related to narcissism. Individuals with high scores on this scale unconsciously provide unrealistically favorable self-portrayals on questions such as, "I don't care to know what other people really think of me." The second is, Impression Management, the tendency to give inflated self-descriptions because of contextual factors (i.e., faking or lying). Individuals with high scores on this scale purposely try to respond to items such as "I have never dropped litter on the street," in a way that casts them in an overly positive light to whomever will interpret their results. Participants rate the degree to which they typically performance these desirable, but uncommon behaviors using a 1 (not true) to 5 (very true) response format. Both subscales have extensive empirical confirmation of reliability and validity (Paulhus, 1998).

Results

Results are divided into three sections. First, the development of the first-order factor-based scales for the biological, situational elements, interactive, and incorporative domains of the Life Space are presented. Then, findings from the second-order factor analysis are presented. Finally, relations between Life Space scales and social desirability scales are presented. Prior to the results, an overview of the analyses is presented.

Overview of the Analyses

Given the size of the CSLSS, participants' responses were checked for missing, invalid, and inconsistent data.² After thoroughly screening the data, 936 participants were retained. Some analyses (e.g., romantic partner relations) are based on a smaller sample because data were only available for students who reported such relationships.

To analyze the Life Space, principal components analyses were performed. More specifically, each domain of the Life Space was treated independently and factor analysis took place at the level of area or narrower subcategory depending on the conceptual divisions and number of items in each domain. Given the large number of items this multi-domain approach was ideal because it tailored the analyses to a manageable set of items with similar qualities (cf. Mayer et al., 1998; Mayer, Salovey, Gomberg-Kaufman, & Blainey, 1991). It also allowed for the development of meaningful first-order criterion scales. A clear drawback was that factors across domains may correlate. This concern is addressed in a subsequent second-order factor analysis in which the first-order scales from each domain are treated as items themselves in a higher-order factor analysis to develop global dimensions.

For both the first- and second-order analyses, the number of factors extracted and rotated for the final solution was decided on the basis of a joint scree/meaningfulness criterion. As recommended by Tabachnick and Fidell (2001), factor-based scales were created using the pattern matrix coefficients (after oblique rotation) because the factor loadings do not include the overlapping variance of the other factors. An item was included on a scale if its loading was above the absolute value of .30. Complex items, that is, items with loadings on more than one factor (less than 1%) were placed on the factor with the largest (absolute value) loading. A few complex items (less than .05%) were placed on a secondary factor (based on a conceptual criterion) to improve the interpretation or reliability of a scale. To create the scales, all raw items were *z*-scored and then

² Thirty of the original 1021 participants were removed because they did not complete all three testing sessions. Another 26 participants were removed because more than 5% of their overall data were missing. Finally, 31 participants were removed due to invalid data; these were students who provided either inconsistent or random responses to questions. For example, if a participant had more than three questions with invalid responses (i.e., the question was restricted to a response of either 1 or 2 and the participant filled in 4) he or she was removed. Inconsistent data were also checked by comparing responses on two separate but related questions. For example, the responses to the questions "How long has your longest lasting monogamous relationship lasted?" and "If you are in a monogamous relationship, how long have you been together?" were checked for response consistency. If a subject answered "one month" to the first question and "3 years" to the second question, he or she was eliminated.

averaged. Most scales were comprised of between 4 and 15 items and had reliabilities greater than $\alpha = .60$.³

Development of First-Order Life Space Scales

Biological domain—Three factor analyses were performed on the 117 items in this domain. Analyses were conducted separately for items in the Physical Health, Psychological Health, and Diet, Exercise, and Sleep areas. These analyses resulted in seven meaningful factor-based scales, which had between 8 and 15 items and reliabilities from $\alpha s = .60$ to $.82$ (see Table 2A).

As revealed in our analyses, people's biological Life Space is a varied place. First, most people commonly respond to dimensions related to everyday health issues, that included minor aches and pains of the "Somatic Complaints" scale (e.g., stomachache, nausea, headache) and the respiratory issues of the "Allergy, Sinus, and Cold" scale (e.g., allergy medications, inhalers, diagnosed with asthma). More seriously, some people's Life Space took them into one of two factors in a psychopathological world, indicated by the "Psychopathology" scale (e.g., prescriptions for psychotropic drugs, depression diagnosis) and the "Nervous Behavior" scale (e.g., feelings of restlessness, chewing a pen.). Finally, people's everyday health behaviors were expressed in three separate factors, including the "Physical Fitness" scale (e.g., pounds can bench press, number of pushups can do), "Healthy Diet" scale (e.g., keeps bottle of water around, vegetables per day), and "Unhealthy Lifestyle" scale (e.g., sleeps less than 5 hours, skips dinner).

Significant gender differences were found for six of the seven scales. The two largest differences were on the Physical Fitness scale, with males significantly higher than females and on the Healthy Diet scale, with females significantly higher than males. On the other hand, there were no gender differences on the Unhealthy Lifestyle scale, indicating that males and females are equally susceptible to forfeiting healthful practices under the stress of college.

Situational elements domain—Fourteen factor analyses were performed on the 347 items in this domain. Analyses were broken-down by the six areas and narrower categories described earlier in the methods section. For two areas (Personal Care and Clothing and Accessories) factor analyses were performed separately for male and female participants due to gender specific content. For example, only female participants owned lingerie or feminine hygiene products, whereas only men owned aftershave. The factor analyses resulted in 35 scales, which had between 4 and 15 items and reliabilities from $\alpha s = .57$ to $.86$ (see Table 2B). Due to the large number of scales, only one or two from each area are presented here.

³ On a few occasions a scale with three items or a scale with lower reliability was retained because of its conceptual importance to understanding. The final set of scales are available from the first author.

Table 2. Factor-Based Scales and Preliminary Analyses for All Life Space Domains

	α	Mean z score difference (gender)	t	η^2
A. BIOLOGICAL				
<i>Physical Health</i>				
Somatic complaints	.82	-.31	-8.72 ^c	.075
Allergy, sinus, and cold	.79	-.33	-9.11 ^c	.082
<i>Psychological Health</i>				
Psychopathology	.78	-.13	-3.17 ^b	.010
Nervous behavior	.60	-.28	-8.63 ^c	.075
<i>Diet/Exercise/Sleep</i>				
Physical fitness	.80	.52	15.73 ^c	.210
Healthy diet	.73	-.29	-9.98 ^c	.096
Unhealthy lifestyle	.65		-.45	
B. SITUATIONAL ELEMENTS				
<i>Personal Care</i>				
Attention to appearance (f)	.65			
Attention to appearance (m)	.86			
Personal hygiene (f)	.61			
Personal hygiene (m)	.65			
<i>Drug Possessions</i>				
Illicit drugs	.82	.00	.12	
Alcohol	.73	.00	-1.43	
Smoking	.76	.09	1.98 ^a	.004
<i>Sports, Avocation, and Leisure Possessions</i>				
<i>General</i>				
Popular masculine sports	.72	.47	11.89 ^c	.149
Hunting	.77	.62	15.62 ^c	.207
Outdoor sports	.66	.18	4.71 ^c	.023
<i>Instrument ownership</i>				
Musical instruments	.60	.16	4.89 ^c	.025
<i>Game ownership</i>				
Video games	.76	.65	13.35 ^c	.160
Challenging games	.77	.00	-1.00	
<i>Media-related possessions</i>				
<i>Music</i>				
Nonconforming music	.79	.00	.75	
Popular music	.71	-.25	-5.88 ^c	.036
Alternative rock music	.77	.28	6.55 ^c	.044

Table 2. (Cont'd.)

	α	Mean z score difference (gender)	t	η^2
<i>Books and videos</i>				
Reading orientation	.85	.00	1.55	
Movie orientation	.79	.00	-.26	
Self-help books	.72	-.38	-10.12 ^c	.099
<i>General room furnishings</i>				
<i>Religious and spiritual</i>				
Religious	.73	-.26	-5.46 ^c	.031
New age	.69	-.19	-4.74 ^c	.023
<i>Home electronics</i>				
General media	.63	-.15	-3.63 ^c	.014
Computer	.60	.11	3.15 ^b	.011
<i>Endorsements</i>				
Liberal politics	.65	-.09	-2.82 ^b	.008
<i>Personal room surroundings</i>				
Sentimental objects	.82	-.92	-30.76 ^c	.503
Artistic Objects	.73	-.36	-8.96 ^c	.079
Collectibles	.57	.07	2.30 ^a	.006
<i>Clothing and Accessories</i>				
<i>Apparel</i>				
Casual clothing (f)	.86			
Casual clothing (m)	.74			
Sophisticated wear (f)	.75			
Sophisticated wear (m)	.78			
Alternative accessories (f)	.78			
Accessories (m)	.78			
<i>Body adornments</i>				
Conventional earrings	.71	-.81	-23.03 ^c	.362
Unconventional piercings	.63	.00	-.98	
C. INTERACTIVE				
<i>Personal Care</i>				
Appearance maintenance	.77	-.62	-18.96 ^c	.278
Cleanliness orientation	.60	-.11	-3.74 ^c	.015
<i>Recreational Drug Use</i>				
Alcohol abuse	.88	.11	2.13 ^a	.005
Smoking addiction	.89	.00	.66	
Drug abuse	.69	.10	2.59 ^a	.007
Illicit drug use lifestyle	.85	.24	5.19 ^c	.028

Table 2. (Cont'd.)

	α	Mean z score difference (gender)	t	η^2
<i>Social Deviance</i>				
Physical aggression	.64	.30	7.89 ^c	.062
Verbal aggression	.74	.10	2.39 ^a	.006
Stealing	.68	.11	2.82 ^b	.008
Gambling	.64	.45	9.00 ^c	.080
<i>School and Work Activity</i>				
Studious lifestyle	.55	-.10	-2.80 ^b	.008
Delinquent student	.50	.23	6.36 ^c	.042
Work ethic	.89	.00	-.66	
<i>Sports and Leisure Activity</i>				
<i>The Arts</i>				
Artistic activity	.78	-.15	-4.18 ^c	.018
Musical ability and achievement	.83	.16	3.87 ^c	.016
Artistic expression and Appreciation	.69	-.16	-4.88 ^c	.025
<i>Sports</i>				
Outdoor sports enthusiast	.80	.13	3.50 ^c	.013
Sports consumption	.70	.30	7.90 ^c	.063
Hunting	.67	.42	9.30 ^c	.085
Military arts	.48	.21	4.70 ^c	.023
<i>Media Consumption</i>				
<i>General media</i>				
Book consumer	.82	-.15	-3.00 ^b	.010
Television consumer	.76	-.15	-3.67 ^c	.014
Movie consumer	.70	.20	4.68 ^c	.023
News consumer	.65	.31	7.86 ^c	.062
Music consumer	.61	.15	3.51 ^c	.013
<i>Internet</i>				
Internet enthusiast	.80	-.14	-3.58 ^c	.014
<i>Social and Solitary Activity</i>				
<i>Sexual activity</i>				
Promiscuous lifestyle	.72	.00	-.04	
Masturbation	.73	.87	22.79 ^c	.357
<i>Social behavior</i>				
Conversationalist	.74	.00	.01	
Telephone enthusiast	.75	-.43	-11.47 ^c	.123
Social and party orientation	.72	.09	2.57 ^a	.007
Game playing	.72	.14	3.80 ^c	.015
Caring person	.52	-.14	-3.39 ^b	.012
Solitary lifestyle	.66		-.57	

Table 2. (Cont'd.)

	α	Mean z score difference (gender)	t	η^2
<i>Interactions with Selected Individuals</i>				
<i>Mother and father</i>				
Positive relations with mother	.87	-.48	-12.98 ^c	.153
Relationship conflict with parents	.79	.00	-.68	
Social activity with parents	.78	-.09	-2.20 ^a	.005
Positive relations with father	.87	-.23	-5.77 ^c	.034
<i>Significant other</i>				
Positive relations with partner	.89	-.23	-4.87 ^c	.025
Relationship conflict with partner	.75	-.30	-1.74	
Social activity with partner	.76	-.11	.98	
<i>Best friend</i>				
Social activity with best friend	.85	.00	.07	
Positive relations with best friend	.82	-.41	-9.69 ^c	.091
Relationship conflict with best friend	.75	.15	3.53 ^c	.013
 D. INCORPORATIVE				
<i>Family Demographics</i>				
<i>Parents health</i>				
Parents' psychopathology	.61	-.08	-2.15 ^a	.005
Parents' poor physical health	.54	-.11	-3.03 ^b	.010
<i>Family financial situation</i>				
Family wealth	.68	.00	-.61	
<i>Academic Setting and Group Memberships</i>				
Political action	.71		-.25	
Music and arts groups	.76	-.12	-3.40 ^b	.012
Academic achievement	.58	-.18	-5.11 ^c	.027
Self and other groups	.61	-.08	-2.35 ^a	.006
Rich educational experience	.53	.00	1.40	
Sports groups	.53	.30	10.56 ^c	.107

Note: $N = 936$ (Males = 326, Females = 610). Negative t values indicate higher mean scores for females.

^a $p < .05$. ^b $p < .01$. ^c $p < .001$.

Among the factors in the self-care area, there were two scales labeled “Attention to Appearance” (one each for males and females). The items with the highest loadings on the factor for males included aftershave, shaving cream, and lip balm, whereas for females the top items included facial makeup, eye makeup, and lipstick. There were three scales concerning college students’ ownership of illegal drug possessions, including a “Hard Drugs” scale (e.g., owns cocaine, designer drugs). Six factors revealed college students’ varied sports interests, hobbies, and general leisure pursuits. For example, there was the predominantly male-oriented “Popular Masculine Sports” scale (e.g., owns footballs, basketballs, and posters of sports professionals). A number of scales revealed people’s varied musical and reading interests. For example, there was a “Nonconforming Music” scale (e.g., owns blues, jazz, folk music) and a “Self-Help Books” scale (e.g., owns relationship, self-help, and mind/body books). Eight scales showed the wide range of college students’ room furnishings. For example, there was a “New Age” possessions scale (e.g., owns occult objects, pagan writings, and crystals), a “Sentimental Objects” scale (e.g., owns photographs of friends, photo albums, photographs of family) and an “Artistic Objects” scale (e.g., owns old journals, drawing or sketches, paintings). Finally, eight scales represented the individual nature of students’ clothing and accessories. For example, there were two scales labeled “Sophisticated Wear,” one each for females and males. The items that had high loadings on this factor for females included gold rings, high-heeled shoes, and lingerie, whereas for males the top items were blazers, suits, and dress shoes.

In this domain significant gender differences were found on 18 scales. As might be expected, the two largest differences were found on the Sentimental Objects scale, with females significantly higher than males, and on the Hunting Equipment scale (e.g., hunting knives, hand guns) with males significantly higher than females.

Interactive domain—Thirteen separate factor analyses were performed on the 480 items in this domain. Factor analyses were performed on the items from within eight areas (and subcategories) that were described in the methods section. The analyses resulted in 45 meaningful scales, which had between 5 and 15 items and reliabilities from α s = .48 to .89 (see Table 2C). Again, due to the large number of scales, only a few are described here.

Two scales pertained to the personal care activities of college students. For example, there was a “Physical Appearance” scale (e.g., time spent looking in mirror, wearing jewelry, time spent choosing clothes). Four scales represented college students’ recreational drug use behavior, including an “Alcohol Abuse” scale (e.g., greatest amount of alcohol consumed in one day, loss of memory while drinking). Four factors revealed aberrant behavior that is practiced by college students. For instance, there was a “Physical Aggression” scale (e.g., number of fights in the last two years, times threw something in a fight), and a “Verbal Aggression” scale (e.g., made fun of someone’s looks, made fun of gay person).

Three factors demonstrated students' varied academic behavior. For example, there was a "Studious Lifestyle" scale (e.g., studied alone for 3 hours, e-mailed or met with a professor). Seven factors demonstrated the diverse leisure activities that college-aged individuals engage in. For example, there was a "Music Achievement" scale (e.g., composed music, wrote a song) and a "Sports Events" scale (e.g., sports with friends, sports events attended). Six scales described individuals spending time pursuing sedentary activities. For example, there was a "Television Consumer" scale (e.g., number of different must-watch television shows, hours of television watched per day) and an "Internet Enthusiast" scale (e.g., time spent online, times checked e-mail). Eight scales illustrated the social versus solitary activities of college students. For example, there was a "Promiscuous Lifestyle" scale (e.g., number of different sexual partners, number of one-night stands) and a "Solitary Lifestyle" scale (e.g., spent a day entirely alone, had dinner alone). Finally, there were 10 scales that pertained to our participants' interactions with parents, friends, and romantic partners. There was a "Positive Relations with Mother" scale (e.g., discuss personal issues, said "I love you"), a "Relationship Conflict with Partner" scale (e.g., verbal arguments, talked badly about), and a "Social Activity with Best Friend" scale (e.g., went to party, drank alcohol).

Significant gender differences were found on 35 of the 45 scales. The largest gender differences were on the Masturbation factor (e.g., times masturbated in the last week, pornography magazines), with males significantly higher than females, and on the Appearance Maintenance factor, with females significantly higher than males.

Incorporative domain—Three factor analyses were performed on the 129 items in this domain. The analyses took place within two broad areas: Family Demographics and Academic Setting and Group Memberships. Nine meaningful scales were extracted, which had between 7 and 12 items and reliabilities from $\alpha = .53$ to $.71$ (see Table 2D). Below are brief descriptions of a few scales.

Two scales described the participants' family demographic and health characteristics, including a "Parent Psychopathology" scale (e.g., mother diagnosed with depression, father diagnosed with anxiety disorder) and a "Family Wealth" scale (e.g., family income, mother's education). A larger number of scales described students' academic group memberships. For example, there was a "Political Action" scale (e.g., membership in political action group, student government) and an "Academic Achievement" scale (e.g., receives academic scholarship, member of national honor society).

Significant gender differences were found on 6 of the 9 scales. The two largest gender differences were on the Sports Groups scale (e.g., sports awards, intercollegiate sports), with males significantly higher than females, and on the Academic Achievement scale, with females significantly higher than males.

Hierarchical Factor Analysis and the Development of Global Dimensions

The goal of this part of the study was to move to a more abstract level of analysis and synthesize the findings from the biological, situational elements, interactive, and incorporative domains of the Life Space. In previous analyses observations were limited to data that measured restricted aspects of the Life Space such as physical strength (biological domain) or positive relationship qualities (interactive domain) because factor analyses were conducted within each domain. A second-order analysis would reveal which first-order scales were intercorrelated and formed global dimensions; it would also help to reduce the first-order scales into a more manageable set of criterion measures.

Prior research successfully employed hierarchical factor analyses on the Life Space (Brackett, 2001; Mayer et al., 1998). Recall, most recently, Brackett reduced the first-order Life Space scales to six global dimensions: Caring Environment, Sedentary Media Consumer Introspective Lifestyle, Music Achievement Environment Sports Environment, and Drug-Culture Environment. The Music Achievement Environment, for instance, was comprised of interrelated scales from the situational elements domain (e.g., owns musical instruments), interactive domain (e.g., practices with instrument), and the incorporative domain (e.g., belongs to a band).

Hierarchical Factor Analyses—Eighty-two of the 95 first-order scales were placed into a single second-order factor analysis. Thirteen scales were excluded because data were not available for the full sample. These were scales that pertained to romantic partnerships (data were only available for half the sample) or scales for which information was only available for females or males. A primary objective of this part of the study was to replicate and expand upon the global dimensions developed first by Mayer et al. (1998) and then by Brackett (2001).

A single principal components factor analysis with oblique rotation was used, and the final number of higher-order factors was extracted using the same joint scree/meaningfulness criterion as with the first-order analyses. The eigenvalues for the first 10 factors were 7.61, 5.82, 4.40, 3.74, 2.74, 2.28, 2.01, 1.71, 1.63, and 1.54. Based on the extraction criteria, eight global dimensions were retained, which collectively accounted for 37% of the variance in the initial solution of first-order factors. The eighth factor, which contained the fewest scales and was less reliable than the other dimensions, was dropped from subsequent analyses.

The seven remaining global dimensions were labeled: Positive and Social Orientation, Sports Orientation, Drug Culture Environment, Music & Arts Achievement, Media Consumer, Negative and Unhealthy Lifestyle, and Intellectual Pursuits. All dimensions were comprised of at least seven first-order scales, and most brought together aspects of biological, situational elements, interactive, and incorporative domains. The seven dimensions were reliable ($\alpha = .65$ to $.79$)

and content valid. Table 3 displays the first-order scales with acceptable loadings on the global dimensions.

Significant gender differences were found on six of the seven dimensions (see Table 4). Consistent with previous work, the largest gender differences were on the Positive and Social Orientation factor, with females significantly higher than males, and on the Sports Orientation factor, with males significantly higher than females. The pattern of correlations among the dimensions was similar for both males and females.

The "Positive and Social Orientation" dimension accounted for the most amount of variance and was comprised of eight first-order scales from the interactive domain. The three scales with the highest loadings were: Positive Relations with Mother (e.g., discusses personal issues, says, "I love you," converses with often), Positive Relations with Father (e.g., converses with, laughs with, seeks advice from), and Social Activity with Parents (e.g., went to concert or cultural event with mother and or father). The dimension also was comprised of scales pertaining to other social behaviors: Telephone Enthusiast (e.g., different people talked to each day, time of longest phone conversation), Social and Party Orientation (e.g., number of good friends, number of parties has gone to), and Appearance Maintenance scales (e.g., time spent looking in mirror, time spent choosing clothes to wear). Four scales (Positive Relations with Partner, Social Activity with Partner, and Attention to Appearance, for both males and females) that were not included in the hierarchical analyses correlated in expected directions with this dimension ($r_s = .17$ to $.42$).

The second dimension "Sports Environment," consisted of eight primary scales, and combined scales from all four domains. The scales with the highest loadings were: Physical Fitness (e.g., pounds able to bench press, times exercised), Sports Groups (e.g., sports awards, participates in intercollegiate sports), and Sports Consumption (e.g., plays sports with friends, sports events attended). Finally, to a lesser degree, this dimension was comprised of both Hunting Activity (e.g., hunting, gun shooting) and Hunting Equipment (e.g., hunting knives, hand guns, fishing rod) scales.

The third global dimension, "Drug Culture Environment," was comprised of nine scales from both the interactive and situational elements domains. The three scales with the highest loadings were: Illicit Drug Abuse (e.g., times smoked marijuana, has sold illegal drugs), Smoking Possessions (e.g., owns bong or pipe, cigarette lighter, marijuana joints), and Smoking Addiction (e.g., packs of cigarettes owns, smokes before breakfast). In addition, Promiscuous Lifestyle (e.g., different sexual partners, cheated on current partner) and Delinquent Student (e.g., arrived to class late, intentionally skipped class) were part of this dimension.

The fourth global dimension, "Music and Arts Achievement," was comprised of seven scales from the situational, interactive, and incorporative domains. The three scales with the highest loadings were: Music Ability and Achievement (e.g., composed music, wrote a song, played in band), Musical Instrument Ownership

Table 3. (Cont'd.)

First-order scale		Principal components with oblique rotation							
		I	II	III	IV	V	VI	VII	VIII
Religious possessions	S								
Nervous behavior	B						.585		
Somatic complaints	B						.561		
Relationship conflict with parents	ID						.503		
Verbal aggression	ID						.485		
Physical aggression	ID						.413		
Unhealthy lifestyle	B						.400		
Internet enthusiast	ID						.387		
Stealing	ID						.383		
Relationship conflict with best friend	ID						.338		
Allergy, sinus and cold	B						.323		
Unconventional piercings	S								
Parent poor health	G								
Book consumer	ID							.548	
Self-help books	S							.532	
Reading orientation	S					.375		.472	
Political action	G							.441	
Conversationalist	ID							.432	
Solitary lifestyle	ID							.392	
Studious lifestyle	ID							.381	
Psychopathology	B							.373	
Artistic objects	S							.360	
Liberal political endorsements	S							.358	
Work ethic	ID							.336	
New age possessions	S								
Parent psychopathology	G								
Academic achievement	G								
Self and other help groups	G								
Masturbation	ID								-.514
Sentimental objects	S	.435							.494
Conventional earrings	S								.489
News consumer	ID								-.482
Gambling	ID								-.469
Healthy diet	B								.378
Game playing	ID								
Movie consumer	ID								

Note: Factor loadings below $\pm.35$ are suppressed unless included on a global dimension. B = Biological Domain, S = Situational Elements Domain, ID = Interactive Domain, G = Incorporative Domain. I. Positive & Social Orientation, II. Sports Orientation, III. Drug Culture Environment, IV. Music & Arts Achievement, V. Media Consumer, VI. Negative & Unhealthy Lifestyle, VII. Intellectual Pursuits.

Table 4. Global Life Space Dimensions: Factor-Based Scales and Preliminary Analyses

	α	Mean z score difference (gender)	t	η^2
Positive and social orientation	.77	-.27	-16.12 ^c	.217
Sports orientation	.79	.37	14.74 ^c	.188
Drug culture environment	.76	.08	3.00 ^b	.010
Music and arts achievement	.70	.01	.40	
Media consumer	.71	.08	3.16 ^b	.010
Negative and unhealthy lifestyle	.65	-.06	-3.00 ^b	.010
Intellectual pursuits	.70	-.13	-6.09 ^c	.037

Note: $N = 936$ (Males = 326, Females = 610). Negative t values indicate higher mean scores for females.

^a $p < .05$. ^b $p < .01$. ^c $p < .001$.

(e.g., owns bass guitar, acoustic guitar), and Artistic Expression and Appreciation (e.g., has gone to plays, acted on stage, gone to see local band gig).

The fifth global dimension, "Media Consumer," consisted of eight scales, all from the situational elements domain. Together these scales depicted a person who surrounds him or herself with media-related materials. The three scales with the highest loadings were: General Media (e.g., owns television, stereo), Challenging Games (e.g., owns board games, chess set), and Video Game Possessions (e.g., has video cartridges, video game machine). This dimension also was comprised of scales pertaining to larger music collections, including: Popular Music (e.g., R&B, pop, hip hop recordings) and Alternative Rock Music (e.g., hardcore, hard rock, and punk music).

The sixth global dimension, "Negative and Unhealthy Behavior," consisted of nine scales from the interactive and biological domains. The three scales with the highest loadings were: Nervous Behavior (e.g., feelings of restlessness, chews on pen, taps feet), Somatic Complaints (e.g., has had stomachache, felt dizzy, had headache), and Relationship Conflict with Parents (e.g., dad screamed at, did not speak to father). This dimension also was comprised of scales such as: Verbal Aggression (e.g., made fun of someone's appearance, hurt someone's feelings) and Physical Aggression (e.g., number of fights in the last 2 years, has been knocked unconscious in a fight), and Unhealthy Lifestyle (e.g., sleeps less than 5 hours, skips meals). Finally, the Relationship Conflict with Partner scale that was not included in the hierarchical analysis significantly correlated in the expected direction with this dimension ($r = .42$).

The seventh and final global dimension, “Intellectual Pursuits” brought together 11 first-order scales from all four domains. The three scales with the highest loadings were: Book Consumer (e.g., reads for pleasure, number of novels read), Conversationalist (e.g., has had conversations about politics, books, philosophy), and Reading Orientation (e.g., owns large numbers of science-fiction, comic/joke, philosophy books, etc.). Also on this dimension were the Studious Lifestyle (e.g., studied for 3 hours, read over class notes) and Liberal Political Endorsements (e.g., owns emblems of environmental issues, world peace) scales. Finally, Artistic Objects (e.g., has old diaries, drawings and sketches, posters of art) and Psychopathology (e.g., depression diagnosis, time spent in therapy) had relatively high loadings on this dimension.

*Relation between Social Desirability
and the Life Space*

Prior research has shown that people who report on concrete, verifiable acts (as opposed to self-reported preferences) are less tempted to dissimulate (Becker & Colquit, 1992; Mael & Hirsch, 1993). Although participants in this study were guaranteed complete anonymity there was still a concern that participants would respond to certain questions in ways to make themselves “look good.” We therefore correlated all 96 first-order scales and the seven dimensions with two scales of social desirability: Self-deception Enhancement (SDE) and Impression Management (IM).

Given the large sample size, very small correlations ($r = .08$) were statistically significant. Because correlations of that magnitude have little practical implications for the present work, here we report only those that exceeded $r = .20$. In regard to SDE, none of the correlations were statistically significant at above $r = .20$. Just 12 of the 96 scales were significantly correlated with IM (see Table 5), and all were in the range of $r = [.20 \text{ to } .35]$. The two highest associations were with scales pertaining to Stealing and Verbal Aggression ($r_s = -.32, -.35$, respectively). None of the global dimensions correlated with SDE and just two dimensions (Drug Culture Environment and Negative and Unhealthy Lifestyle) were significantly correlated with IM ($r = .28$ and $.36$, respectively).

General Discussion

Guided by a systems framework (Mayer, 1998) the biological, situational elements, interactive, and incorporative domains of the Life Space were examined in a college student population. Each domain was conceptually subdivided and 96 factor-based scales were developed that described college students’ external surroundings and everyday behavior. Seven scales were developed in the biological domain, 35 scales in the situational elements domain, 45 scales in the interactive domain, and 9 scales in the incorporative domain. Each scale was

Table 5. Correlations between Impression Management and Life Space Scales

First-order scales	Total	Male	Female
Stealing	-.32 ^c	-.29 ^c	-.32 ^c
Verbal aggression	-.31 ^c	-.24 ^c	-.35 ^c
Illicit drug use lifestyle	-.26 ^c	-.26 ^c	-.23 ^c
Alcohol abuse	-.23 ^c	-.20 ^c	-.24 ^c
Physical aggression	-.22 ^c	-.23 ^c	-.17 ^c
Delinquent student	-.22 ^c	-.19 ^b	-.21 ^c
Smoking possessions	-.20 ^c	-.21 ^c	-.19 ^c
Promiscuous lifestyle	-.20 ^c	-.19 ^c	-.22 ^c
Masturbation	-.20 ^c	-.19 ^c	-.15 ^c
Nervous behavior	-.18 ^c	-.27 ^c	-.20 ^c
Social and party orientation	-.18 ^c	-.11 ^a	-.20 ^c
Relationship conflict with parents	-.18 ^c	-.11 ^a	-.24 ^c

Note: Only correlations above |.20| for the total sample or male or female only group are listed. $N = 936$ (Males = 326, Females = 610).

^a $p < .05$. ^b $p < .01$. ^c $p < .001$.

defined by a minimum of three items and most scales had fairly high reliability. A second-order factor analysis reduced the primary scales to a more manageable set of seven global dimensions each of which was reliable and comprised of at least seven first-order scales representing scales from multiple domains.

Improvements in the First-Order Scales

This study broadened the scope of the college student's Life Space. Considerably more primary factors ($N = 96$ scales) were developed in this study compared to the 75 scales developed by Brackett (2001) and the 26 scales first developed by Mayer et al. (1998). More factors with higher reliabilities were found in each domain. Due to the large number of primary factors, only a few highlights from each domain will be discussed here.

In the biological domain, two new meaningful scales were extracted: Somatic Complaints (e.g., stomachache, nausea, dizziness, and indigestion) and Healthy Diet (e.g., drinking water, eating vegetables and fruit, and not eating fried foods). Other scales were improved replications of earlier scales. The Physical Fitness scale, for instance, was more reliable (e.g., pounds can bench press, number of pushups, outside sports activity per week, and gym exercise).

Most scales in the situational elements domain replicated and expanded upon Brackett's (2001) scales. Some scales became differentiated into two distinct scales. For example, in place of a single measure of religious and spiritual possessions, two factors were extracted: Religious Possessions (owning crucifixes, rosary beads, and a Bible) and New Age possessions (e.g., occult objects, pagan writings, and crystals). This distinction provided a clearer picture of varied religious and spiritual beliefs held by students.

Many of the scales in the interactive domain replicated and extended Brackett's (2001) scales and a number of new scales also emerged. For example, instead of a single social deviance factor, two separate scales were extracted. The first was Verbal Aggression (e.g., making fun of someone's appearance) and the other was Physical Aggression (e.g., physical fights). This distinction was important because there was a restriction of range in scores for females on the previous social deviance scale, which was mostly comprised of physical and aggressive behaviors. Indeed, the initial scale lacked verbal aggressive tactics (e.g., gossiping) that are commonly used by women (White, 2001). Also in this domain, two behavioral measures for school-related study habits were developed. The Studious lifestyle (e.g., times studied alone for 3 hours, times e-mailed or met with a professor) measured good habits, whereas the Delinquent Student (e.g., times arrived late to class, times skipped class) measured negligent behavior. Finally, the Conversationalist (e.g., times talked about news, politics, philosophy) was an altogether new and interesting scale.

A number of scales in the incorporative domain were improved upon in this study. For example, the Political Action (e.g., belongs to political action, campus concerns, student government) and Family Wealth (e.g., parents' income, financial aid received (reversed), mom's and dad's education, size of primary residence) scales both had more items and were more reliable than Brackett's (2001) scales. A new and highly informative Academic Achievement scale (e.g., received academic scholarship, member of National Honor Society) also was developed.

The success of the development of the first-order scales was probably due to a number of improvements over previous studies, including the removal of poor items, the addition of new items from the pilot study, and the superior factor analytic strategy employed in this study. A major innovation relative to previous studies was that factor analyses were organized according to clearly defined areas (and subcategories) within each Life Space domain, which permitted items in each domain to cluster and form distinct sets of meaningful factors.

Improvements in the Global Dimensions

A central finding was the similarity between the seven global dimensions developed in this study and the global dimensions found by Brackett (2001) and originally found by Mayer et al. (1998). For example, across all three studies a Sports Environment and Drug-Culture Environment emerged. Dimensions similar

to the present Positive and Social Orientation also emerged in the earlier studies. Moreover, two of Brackett's global dimensions, Music & Arts Achievement and Media Consumer were almost perfectly replicated in this study.

The global dimensions also became more clearly defined in the present work. For example, the Drug-Culture Environment found in earlier studies was now separated into two distinct dimensions. In earlier studies this dimension was comprised of scales that broadly assessed relationship conflict, alcohol consumption, drug use, and promiscuity. Here, a clearer Drug-Culture Environment was extracted, addressing drug-related possessions and activities, but an altogether new dimension also emerged, the Unhealthy and Negative Lifestyle. This dimension brought together scales pertaining to adverse life conditions, including poor health, nervous behavior, relationship conflict, and aggressive behavior. Finally, the Intellectual Pursuits dimension that emerged in this study resembled Brackett's (2001) scale. But here, Intellectual Pursuits was more clearly defined by first-order scales that reflected liberal politics, philosophical interests, and introspection. Finally, music-related scales were now more clearly and appropriately placed on the Music and Arts Achievement dimension as compared to previous studies.

The substantial overlap between earlier dimensions and the dimensions developed in this study supports the notion that the Life Space brings together central features of college students' lives. The present findings also converge with research pertaining to the typologies of college students (e.g., Astin, 1993; Kuh, Hu, & Vesper, 2001). For example, Kuh et al.'s (2001) typology of college students was comprised of groups, including: "Artist," "Intellectual," "Recreational," and "Socializer." These groups imply something like the existence of the Music and Arts Achievement, Intellectual Pursuits, Sports Orientation, and Positive and Social Orientation global dimensions. One noteworthy difference between Kuh et al.'s (2001) typology and these global dimensions is that the former are comprised of strictly campus-related activities, whereas the Life Space assesses other important aspects of students' lives, including possessions, personal habits, and non-school-related activities such as illegal drug use and sexual behavior.

The global dimensions also describe overarching elements of college students' lives. For example, Positive and Social Orientation is likely a stable dimension in a college student sample; it explained the largest amount of variance in this study and in earlier studies. Together, the scales that comprised this dimension (e.g., positive relationships with their mother, father, and friends, active social life) seem like an environment created by people who are higher than the norm on both extraversion and well-being. The dimension is important to know about given findings, which show that social support, networks and activities performed with others are linked to psychological well-being in college students (Cooper, Okamura, & Gurka, 1992; Monroe & Steiner, 1986; Watson, Clark, McIntyre, & Hamaker, 1992). Because the Appearance Maintenance and Sentimental Objects

scales both reflect self-care and care for others, it is not surprising that they were also part of this dimension.

The Sports Orientation Environment, which is comprised of organized and leisure sports activities, plays a large role in many college students' Life Space. Abundant research shows that interest or involvement in certain sports may constitute a symbol system that communicates something about a person's personality and identity (Franken, Hill, & Kierstead, 1994; Sadalla, Linder, & Jenkins, 1988). Similarly, Owens and Schoenfeldt (1979) extracted a "Conservative Athlete" in their typology of students. The number of sports a student participates in also has been associated with motivational traits for physical exercise and social contact (Reiss, Wiltz, & Sherman, 2001). For females, in particular, participating in sports may promote self-worth by fostering physical competencies, favorable body images, and gender flexibility (Richman & Shaffer, 2000). Finally, participation in sports may be a protective agent against suicidal behavior for both male and female college students (Brown & Blanton, 2002).

The Drug-Culture Environment is yet another vital part of the college student's Life Space. Given the soaring statistics on drug and alcohol use among college students, it is no wonder that this defined its own area of the Life Space (e.g., O'Malley & Johnson, 2002). For example, at the University of New Hampshire, where the data for this research were conducted, a separate study using a representative sample of first-year students revealed that in the month of February 2001, 83% of the students had drunk alcohol, 40% had smoked marijuana, and between 5 and 10% had used amphetamines, sedatives, or other designer drugs such as ecstasy.

Students in this second study also reported having had at least one hangover (69%), argument or fight (32%), or unprotected sexual act (19%), while drinking alcohol or using drugs (University of New Hampshire, 2001). Further investigations in this area may be of considerable use in identifying students who have a propensity toward drug addiction (cf. Bentler & Newcomb, 1986) or students who are susceptible to stress, which may underlie drug abuse (Shedler & Block, 1990). Finally, the links between drugs and other problem behavior support the inclusion of the Delinquent Student and Promiscuous Lifestyle scales on this dimension (Bell, Wechler, & Johnson, 1997).

The Music and Arts Achievement scale represents an additional major dimension of the Life Space for college students. Indeed, in one study over 50% of 2,645 young adults reported they were currently playing an instrument or had regularly played one in the past (North, Hargreaves, & O'Neill, 2000).

The students in that study also listened to music for an average of 2.45 hours per day and reported a preference for listening to music over other indoor activities. This dimension may be central to college students because music plays multiple roles in one's life; it can be recreational, educational, social, emotional, therapeutic, and spiritual (Hays, Bright, & Minichello, 2002). Finally, this dimension is an excellent criterion for personality characteristics such as flow and openness.

Most of the activities that comprise this dimension, including artistic activity, playing in band, and acting on stage have been associated with personality dimensions such as openness to experience and people's reports of flow experiences (Costa & McCrae, 1992; Csikszentmihalyi, 1992).

The Media Consumer (i.e., owned possessions such as electronics equipment, video games, movies, and computers) has theoretical resonance to past and contemporary research in psychology. William James (1890, pp. 291-292, cited in Belk, 1998), for instance, held that: "a man's self is the sum total of all that he can call his, not only his body and his psychic powers, but his clothes and his house . . . his lands, and yacht and bank account. . . ." The possessions that comprise the Media Consumer such as large popular music collections and other collectibles (e.g., posters, beer bottles) may be a major contributor to and reflection of college students' identities (Belk, 1988; Csikszentmihalyi & Rochberg-Halton, 1981; Wallendorf & Arnould, 1988). This dimension also is relevant given that contemporary society is often characterized as a "culture of consumption," which comes with ideologies that suggest to students that they are worthy members of society to the extent that they can afford and own consumer goods (Kasser & Sheldon, 2000).

The Unhealthy and Negative Lifestyle forms an interesting contrast to the Positive and Social Orientation dimension. This dimension was comprised of reports of nervous behaviors such as chewing on pens, somatic complaints, and problematic relationships, as well as aggressive behavior. This dimension may characterize an environment created by people who are higher than the norm on neuroticism and lower than the norm on agreeableness. The Unhealthy and Negative Lifestyle is important to consider given the substantial literature linking Nervous Behavior, highest loading first-order scale on this dimension, to poor academic achievement (see Zeidner, 1998 for a review). The dimension also seems an urgently important aspect of the Life Space to know about based on the concerns about violence as a serious problem plaguing our nation and its schools. For example, in one study of college students ($N = 385$), 63% of the participants were able to describe a physical altercation that they recently had, with almost 10% reporting suffering injuries that required medical attention (Marcus & Reio, 2002).

The seventh and final dimension, Intellectual Pursuits, depicts, more than any other dimension, an aspect of the Life Space characterized by an academic subculture of students who seek to broaden their knowledge and engage in more intellectual activities. The person with high scores on this dimension may be characterized as having a "scholastic motive," or as driven by intellectual stimulation for purely academic reasons (Bogler & Somech, 2002, p. 234). This dimension appears to reflect an outward expression of three facets of openness (Costa & McCrae, 1992): feelings, ideas, and values. This is evidenced from the first-order scales with high loadings on this dimension (e.g., Book Consumer, Self-Help Books, Political Action, and Conversationalist). This dimension is

supported by research, which shows that political efficacy has increased in college student samples, whereas apathetic and cynical attitudes about politics have decreased (Blackhurst, 2002).

Gender Differences

There were a large number of gender differences on the primary and secondary scales, most of which are consistent with relevant literature. For example, the largest differences favoring women were on scales pertaining to the possession of sentimental objects and physical appearance maintenance. In contrast, differences favoring men were on scales pertaining to masturbation behavior, hunting, gambling, and physical aggression. Future research on the validity of the Life Space will need to address these gender differences carefully as there likely will be a restriction of range on scores on many of the scales. It also would be important to examine the factor structure of the Life Space for males and females separately. Clearly, this study could not address all of these issues.

Relations with Social Desirability

None of the Life Space scales correlated with SDE and only 12 of the 96 scales correlated with IM. Thus, for the most part, participants were less tempted to dissimulate when reporting on concrete aspects of the Life Space, as expected. An examination of the 12 scales that did significantly correlate with IM, however, would allow for a better understanding of which self-reported behaviors are more affected by people's desire to make a good impression.

IM was uncorrelated with scales from the biological, situational elements, or incorporative domains. Therefore, under anonymous testing conditions it appears that participants tend to honestly report on health behaviors, possessions, and group memberships. It was not surprising that IM correlated with behaviors that college students might view as unfavorable (e.g., stealing, drug use, delinquency, promiscuous lifestyle). Therefore, the results suggest that students with higher scores on IM may be underreporting the frequency of these behaviors in order to make a favorable impression. Although less than 15% of the Life Space scales correlated with IM, and the correlations were, in general, small ($r_s < .35$), IM may intrude in people's reports of certain self-reported behaviors, especially those deemed undesirable by college students.

CONCLUSION

Until recently, psychologists dedicated little effort to developing taxonomies of the person's external environment (Brackett, 2001; Mayer et al., 1998). This delay may be related to imprecise definitions of the term "situation" (Pettigrew, 1997) and infinite ways to code or categorize a person's external environment and

behavior (e.g., Colett, 1980). After all, a person's Life Space is comprised of a montage of potentially interdependent life settings, activities, and relationships.

In this study, we advanced descriptions of the Life Space by developing scales based on a comprehensive model of college students' external environment and behavior. We examined clusters of health behaviors, personal belongings, daily interactions, and group memberships as a starting point to understand how personality may be expressed in an individual's external surroundings. Specifically, we reduced over 1000 items to 96 scales, which were further reduced to seven global dimensions which replicated and extended prior work on the Life Space: Positive and Social Orientation, Sports Orientation, Drug Culture Environment, Music and Arts Achievement, Media Consumer, Negative and Unhealthy Lifestyle, and Intellectual Pursuits.

Limitations and Future Directions

As described, the Life Space scales developed here were based on people's self-reports of potentially verifiable behaviors and personal belongings. Therefore, one might argue that these data may not match with more objective assessments. Paunonen (2003), however, has recently shown that validity coefficients between self- and peer-ratings on data of this sort, in most instances, are high. For example, the agreement between self- and peer-ratings on smoking behavior and alcohol consumption was remarkably high ($r = .92, .64$, respectively) in his research. High agreement may be attributed to the high visibility of these behaviors and non-threatening nature of certain questions such as music possessions, television watching, or sports team memberships.

Another way of testing the validity of Life Space data is to correlate participants' reports of possessions and activities at one point and then again at a later date. We were able to do this in the present study for two scales using data collected on a subset of participants for a separate study. The two scales we were able to examine were: Book Consumer (e.g., Days read for pleasure, number of books read) and Conversationalist (e.g., Times talked about politics, philosophy, books read). The correlations between participants' scores on these scales (approximately 3 months apart) were statistically significant ($r = .73$ and $.43$, respectively). These results indicate considerable temporal stability in the reports of these behaviors. Moreover, it would be important to compare people's self-reported possessions to actual counts of possessions in their home environments and to compare self-reported behaviors to informant reports from parents and significant others in addition to peers.

Importantly, reports of less observable behaviors (e.g., sexual activity) and illegal behaviors (e.g., drug use) may be somewhat less trustworthy and prone to desirability biases. Even though students were guaranteed complete anonymity in this study, there was a tendency for them to present themselves in a slightly

more positive light when asked to report on less desirable and illegal behaviors. Because these outcomes are important to know about, have serious implications for the lives of college students, and are hard to examine in experimental situations, future research should address alternative strategies for obtaining more accurate assessments of these behaviors, and at minimum use IM as a covariate in studies involving such behaviors.

We also acknowledge that these scales need to be validated against a wide range of criteria, including personality variables and existing measures related to the ones developed here. Currently, we are examining how internal personality characteristics such as the Big Five traits are expressed in the Life Space. Our preliminary results suggest that these scales reveal how traits such as Openness to Experience are expressed in multiple real-world contexts that surround the person (Brackett, 2004).

Finally, we acknowledge that a college student sample and student-specific criteria were employed in this research, which may limit the generalizability of the results to other groups. Our goal, however, was to develop a criterion that would maximize validities and our general understanding of a large and important sample of individuals (college students) in this culture. In the future, we hope to develop Life Space criteria for both older and younger age groups in this and other cultures. Then researchers will not only be able to examine the extent to which personality characteristics remain stable or change throughout the lifespan, but also how internal personality characteristics are expressed in different age groups and how aspects of the Life Space transform throughout the lifespan.

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