

Positive Affect and College Success

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Abstract This study investigated the relation between positive affect and a variety of variables related to college success for undergraduate students matriculating at 21 academically selective 4-year colleges and universities in the United States. Positive affect—cheerfulness—is generally positively related to students’ self-rated academic abilities, self-predicted likelihoods of various college outcomes, self-stated major and academic-degree intentions, and self-reported subjective college outcomes, but negatively related to most objective college-success variables (e.g., cumulative college grade-point average) recorded by the institution of matriculation, and not related to objective college outcomes reported by the student. Positive affect is thus associated with “positive illusions” about college-success variables.

Keywords Academic performance · College outcomes · College success · Grade-point average · Happiness · Intellectual ability · Intelligence · Negative affect · Positive affect · Positive illusions · Subjective well-being

1 Introduction

Most subjective well-being research has assumed that happiness is caused by the attainment of desirable life outcomes. Recently, Lyubomirsky et al. (2005) reviewed evidence from a large number of cross-sectional (concurrent), longitudinal, and experimental studies

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for the intriguing possibility that happiness, or more generally, frequent positive affect, might instead cause desirable life outcomes. These life outcomes included those related to work life, health, social relationships and marriage, positive perceptions of the self and others, and cognitive functioning, among others. Lyubomirsky et al. (2005) found that positive affect is frequently related to, and often precedes, desirable life outcomes and concluded that their review provided strong, albeit non-conclusive, support for the hypothesis that positive affect is a cause, rather than an effect, of desirable life outcomes.

With two exceptions, Lyubomirsky et al. (2005) made no mention of the relation between positive affect and the important life outcome of college success. The two exceptions were a study by Diener and Fujita (1995), classified with the “likability and co-operation” outcomes (Lyubomirsky et al. 2005, p. 811), and a study by Frisch et al. (2005), classified with the “work life” outcomes (Lyubomirsky et al. 2005, p. 807). Diener and Fujita’s (1995) concurrent study found that the intelligence of college students, as rated by their families and friends, had correlations of .27, .11, $-.19$, and .30 with composite measures of life satisfaction, pleasant affect, unpleasant affect, and global subjective well-being, respectively. In Frisch et al.’s (2005) longitudinal study, a quality-of-life inventory predicted the academic retention of college counseling-center clients assessed 12 to 36 months later; academic retention was defined as either continued enrollment in, or graduation from, college. Frisch et al. (2005) commented that the results of their study “extend the predictive validity of life satisfaction ... to an entirely new domain ... academic retention” (p. 74).

In fact, there exist many studies of the relation between happiness, positive affect, subjective well-being, life satisfaction, and similar constructs, and various indicators of college success, but these studies are scattered over many different literatures in education and psychology. We first review previous research that has related positive affect, happiness, or subjective well-being to college-success variables¹ and then present the results of our analyses of the relations between a measure of positive affect and a variety of variables related to college success for undergraduate students matriculating at 21 academically selective 4-year colleges and universities in the United States.

1.1 Affect as a Predictor of Intellectual Ability and Grades

In studies that have examined the relation between positive affect and college-success variables, the two most commonly assessed college-success variables are (a) intellectual ability or intelligence and (b) grades, including examination scores, knowledge or achievement test scores, course grades, and semester or cumulative grade-point averages (GPAs). The findings of studies of the relation between positive affect and intellectual ability for college students are somewhat mixed. Most studies have found a positive, although small and not necessarily significant, relation between positive affect and intellectual ability for college students (e.g., Diener and Fujita 1995; Fox and Spector 2000;

¹ The sample sizes of the referenced studies differ greatly, and the correlations reported are often quite small. Therefore, instead of using the p values reported in the studies to classify correlations between positive or negative affect and college-success variables as positive, negative, or unrelated, we used the cut-off values $r = \pm .05$.

All of the works cited in this study have college-student samples except (a) an article using as respondents senior high school students from Great Britain (Cheng and Furnham 2002), (b) an article using as respondents senior high school students from Hong Kong (Kashdan and Yuen 2007), and (c) three articles reporting the results of meta-analyses that did not take into account educational level (Ackerman and Heggestad 1997; DeNeve and Cooper 1998; Wolf and Ackerman 2005).

Hartmann 1934; Jasper 1930; Kashdan and Yuen 2007; Washburne 1941; Webb 1915, for men; Wessman and Ricks 1966, p. 123, for men). For example, Fox and Spector (2000) computed a correlation of .14 between positive affect and intellectual ability for undergraduates with a variety of academic majors. Other studies have found a negative relation between positive affect and intellectual ability (e.g., Block and Kremen 1996, for women; Fellows 1956; Wolfe and Johnson 1995). For example, Fellows (1956) asked students in freshman social sciences courses how happy they were compared to others of about the same age. The mean score on the American Council of Education (ACE) intelligence test for students who were “much happier”, “somewhat happier”, “about as happy”, and “somewhat less happy” equaled 56.9, 58.9, 61.6, and 81.8, respectively. Still other studies (e.g., Chamorro-Premuzic et al. 2005; Watson 1930) have found no relation.

The findings of studies of the relation between positive affect and grades are also somewhat mixed. As was the case with intellectual ability, most studies have found a positive, although small and not necessarily significant, relation between positive affect and grades (e.g., Borrello 2005; Cheng and Furnham 2002; Chow 2005; De Fruyt and Mervielde 1996, sample 1, for men; Halamandaris and Power 1999; Jasper 1930; Marsh et al. 2006; Oishi et al. 2007; Webb 1915, for men; Wessman and Ricks 1966, p. 123, for men; Wolfe and Johnson 1995). For example, Borrello (2005) reported correlations of .33 and .34 between subjective well-being and happiness measured on the first day of an introductory psychology course, respectively, and final semester grade in that course. A study by Oishi et al. (2007) is unusual in that it tested for a curvilinear relation between positive affect (actually, “affect balance”, the difference between the frequency of positive emotions and the frequency of negative emotions) and GPA; generally, the higher the positive affect, the higher the GPA, with the exception that the highest mean GPA was achieved by students who were “happy” rather than “very happy”. Other studies have found a negative relation between positive affect and grades (e.g., Mellanby et al. 2000, for women; Trockel et al. 2000). For example, Mellanby et al. (2000) reported that happiness measured 2 to 3 months before the final examinations taken to determine the class of the baccalaureate degree at Oxford University had a correlation of $-.16$ with the average final examination grade (controlling for verbal ability) for women students. Still other studies (e.g., Chamorro-Premuzic and Furnham 2003b; De Fruyt and Mervielde 1996, sample 1, for women; Mellanby et al. 2000, for men; Myers 2004/2005) have found no relation.

1.2 Negative Affect as a Predictor of Intellectual Ability and Grades

There is considerable disagreement as to whether positive affect can be considered to be the opposite of negative affect. We do not re-open this issue here (see Russell and Carroll 1999a, b, and Watson and Tellegen 1999, for a review and discussion) but merely note that so many more studies have examined the relation of negative affect (e.g., anxiety, depression, neuroticism) than positive affect to college-success variables that it seems appropriate to mention some of them here. Studies that have examined the relation of negative affect to intellectual ability usually have found that relation to be negative (e.g., Caldwell and Burger 1998, neuroticism; Diener and Fujita 1995, unpleasant affect; Fox and Spector 2000, negative affect; Furnham et al. 2005, study 1, neuroticism; Haines et al. 1996, depression; Moutafi et al. 2006, neuroticism; Perkins and Corr 2005, anxiety; Stagner 1933, neuroticism for women; Webb 1915, anger and depression for men). For example, Haines et al. (1996) reported correlations of $-.15$ and $-.05$ between score on the Beck Depression Inventory and intellectual ability as estimated by the Vocabulary and the Abstraction subtests of the Shipley Institute of Living Scale, respectively, for students

enrolled in an introductory psychology course. Other studies have found a positive relation (e.g., Lynn and Gordon 1961, neuroticism for men; Stagner 1933, neuroticism for men). For example, Lynn and Gordon (1961) computed a correlation of .36 between neuroticism and score on the Mill Hill Vocabulary Scale for men students at a British university. Still other studies have shown no relation (e.g., Bendig 1957, anxiety; Busato et al. 2000, neuroticism; Furnham et al. 2005, study 2, neuroticism; Haines et al. 1996, depression; Lounsbury et al. 2003, neuroticism).

The findings of studies of the relation between negative affect and grades are similarly inconsistent, with most studies reporting a negative relation (e.g., Brackney and Karabeknick 1995, psychopathology; Chamorro-Premuzic and Furnham 2003a, neuroticism; Cheng and Furnham 2002, negative affect; De Fruyt and Mervielde 1996, sample 1, anxiety, depression, and angry hostility for men; Fazio and Palm 1998, depression; Haines et al. 1996, depression; Mellanby et al. 2000, anxiety and depression for men; Trice et al. 2000, depression; Webb 1915, anger and depression for men). For example, De Fruyt and Mervielde (1996, sample 1) reported correlations of $-.18$, $-.16$, and $-.12$ between anxiety, depression, and angry hostility, respectively, and final grade for men students in their last year of study at a Belgian university. Other studies have found a positive relation (e.g., Bolger 1990, neuroticism; Furneaux 1957, neuroticism, referenced in Eysenck and Eysenck 1985, p. 322; Halamandaris and Power 1999, neuroticism; Lynn and Gordon 1961, neuroticism; Mellanby et al. 2000, depression and anxiety for women; Musgrave-Marquart et al. 1997, neuroticism; Myers 2004/2005, negative affect; Svanum and Zody 2001, anxiety disorder; Wolfe and Johnson 1995, anxiety). For example, in Svanum and Zody's (2001) longitudinal study, college students with an anxiety disorder earned a mean semester GPA (2.98 on the standard 0.00 to 4.00 scale), significantly higher than that of students with no psychological disorder (2.83). Still other studies have found no relation (e.g., Busato et al. 2000, neuroticism; Okun and Finch 1998, neuroticism; Rolfthus and Ackerman 1999, neuroticism; Svanum and Zody 2001, depression; Trockel et al. 2000, anxiety and depression; Wolfe and Johnson 1995, neuroticism).

1.3 Positive or Negative Affect as a Predictor of Other College-Success Variables

Fewer studies have examined the relation between positive or negative affect and college-success variables such as adaptation to college life (e.g., Halamandaris and Power 1999, neuroticism and happiness); class absences (e.g., Chamorro-Premuzic and Furnham 2003a, neuroticism; Farsides and Woodfield 2003, neuroticism; Furnham et al. 2003, neuroticism; Furnham and Medhurst 1995, neuroticism; Furnham and Mitchell 1991, neuroticism; King 2000, personality disorders including anxiety and depression; Oishi et al. 2007, positive affect balance; Trice et al. 2000, depression); course load (e.g., Svanum and Zody 2001, anxiety disorders, mood disorders, and substance-abuse disorders); course withdrawal (e.g., Svanum and Zody 2001, anxiety disorders, mood disorders, and substance-abuse disorders); seminar/class performance/behavior (e.g., Chamorro-Premuzic and Furnham 2003a, neuroticism; Furnham et al. 2003, neuroticism; Furnham and Medhurst 1995, neuroticism); dropping out of college (e.g., Frisch et al. 2005, quality of life; Kessler et al. 1995, anxiety disorders, mood disorders, conduct disorder, and substance-abuse disorders; Magnus et al. 1993, neuroticism; Okun and Finch 1998, neuroticism); graduate school acceptance (e.g., Magnus et al. 1993, neuroticism); "special treatment" requests (e.g., Chamorro-Premuzic and Furnham 2002, neuroticism); field of study or course selection (e.g., Corulla and Coghill 1991, neuroticism; Marsh et al. 2006, positive affect, negative affect, and life satisfaction); submission of written work not counted toward the

course grade (e.g., Chamorro-Premuzic and Furnham 2003a, neuroticism; Farsides and Woodfield 2003, neuroticism); internship evaluation (e.g., Furnham and Mitchell 1991, neuroticism); study time and/or efficiency (e.g., Goh and Moore 1978, neuroticism; Webb 1915, cheerfulness, depression, and anger for men); college, course, or other academic satisfaction or dissatisfaction (e.g., Lounsbury et al. 2005, neuroticism; Luo and Hu 2005, neuroticism and happiness; McCown and Johnson 1991, neuroticism); and so on. As can be seen, most of these studies have focused on negative rather than positive affect; neuroticism is the most frequently studied negative affect probably because of the popularity of the “Big 5” personality-trait typology, which includes neuroticism or negative emotionality as one of the five basic components of personality. There are too few studies of any one type of college-success variable to draw definite conclusions, but as was the case for intelligence and grades, findings for these variables seem to be mixed. For example, Okun and Finch (1998) found no relation between negative affect (neuroticism) and “institutional departure”, whereas Kessler et al. (1995) reported that college matriculants with a pre-existing psychiatric disorder were less likely to complete college.

1.4 The Present Study

A possible reason for the mixed findings of studies of the relation between positive or negative affect and variables related to college success lies in the wide variety of measures used to assess both affect and college-success variables. For example, in the study by Furnham and Petrides (2003), the relation between happiness and intelligence for first-year undergraduates at a British university depended on the particular measure of intelligence used; score on the Oxford Happiness Inventory had correlations of .26, .13, .01, and $-.07$ with intelligence assessed with the WAIS Vocabulary Subscale, the AH5 Group Test of High Grade Intelligence—Part I, the Baddeley Reasoning Test, and the Wonderlic Personnel Test, respectively.

In this study, we examine the relation between positive affect and a wide variety of variables related to college success for undergraduate students matriculating at 21 academically selective 4-year colleges and universities in the United States, using the same measures of positive affect and college-success variables across all institutions. Using the same measures across all institutions should eliminate inconsistency in findings due to the use of different measures. Using as respondents college students attending different institutions of a similar intellectual caliber should provide an indication of the degree of variability in findings that can be expected across study replications that use the same measures. An additional unusual feature of this study is that we examine the relation of positive affect to college-success variables reported by the student as he or she enters college and to college-success variables recorded by the institution of matriculation or reported by the student about 20 years later. This enables us to determine not only the relation between positive affect and college-success variables per se but also to investigate whether positive affect is related to the accuracy of student self-assessment at college entry.

2 Method

2.1 Study Sample

The individuals in this study were drawn from the 1976 entering freshman classes of 21 academically selective 4-year institutions, including 4 large public universities, 9 private

universities, and 8 private liberal arts colleges (5 co-educational, 3 women-only). Information about these individuals is available in three databases: (a) the “College and Beyond” survey database (Bowen and Bok 1998), (b) an institutional records database (Bowen and Bok 1998), and (c) “The American Freshman” survey database (Astin et al. 1976). A special identification number allows one to link the information for an individual in one of the databases to information for him or her in the other two databases. This linking mechanism was developed by the research staff of the Andrew W. Mellon Foundation, which provided access to the three databases.

The “College and Beyond” database (Bowen and Bok 1998) was developed by the Mellon Foundation to facilitate study of the long-term consequences of attending academically selective institutions in the United States. The database contains the responses to a survey conducted between 1995 and 1997 to collect information about respondents’ educational histories, employment histories, retrospective views of college, civic activities, satisfaction with various aspects of life, and sociodemographic characteristics.

The survey sample for the “College and Beyond” database consisted of all members of the 1976 entering freshman classes of the 17 private colleges and universities and a sample of about 2,000 members of the 1976 entering freshman classes of the 4 large public universities.² Each public-university sample consisted of all known minority students, all college athletic-letter winners, all students with a combined (verbal plus mathematical) Scholastic Aptitude Test (SAT) score of 1,350 or greater, and a random sample of the other members of its freshman class. The total number of individuals in the “College and Beyond” survey sample for the 21 institutions equals 23,597. These individuals constitute the base sample for this study. The “College and Beyond” survey was completed by 16,632 (70%) individuals in the survey sample.³ The response rate for this survey is very high for a survey of this type.

The institutional records database (Bowen and Bok 1998) contains the admission and transcript records of the individuals asked to complete the “College and Beyond” survey. These records were provided by the 21 institutions of matriculation and assembled into a single database by the Mellon Foundation.

“The American Freshman” database (Astin et al. 1976) was developed by the Higher Education Research Institute at the University of California at Los Angeles, which administers the Cooperative Institutional Research Program. This program surveys entering freshmen at several hundred colleges and universities across the United States each year, collecting information about respondents’ educational and career plans; self-ratings of traits and abilities; aspirations, expectations, and values; opinions on various social and educational issues; and sociodemographic characteristics. Through the linking mechanism, it is possible to identify 17,734 (75%) individuals in the “College and

² The complete “College and Beyond” survey sample included individuals from 34 institutions. Not included in this study are 9 institutions not included in “The American Freshman” survey and 4 historically black institutions. One co-educational liberal arts college (previously men only) for which “The American Freshman” survey data are available only for men is included in this study. The survey sample for 1 women’s college included entering freshmen for both 1976 and 1977; that institution is included in this study even though the “The American Freshman” survey data are available for only the 1976 entering freshmen, because it is not possible to tell with certainty to which entering class a given freshman belongs.

³ The response rate reported for the “College and Beyond” survey was computed by dividing the number of surveys completed by the total number of individuals in the survey sample (23,597). However, some individuals could not be located either by mail or by telephone, and some are known to be deceased. If these individuals are removed from the survey sample, then the response rate for the “College and Beyond” survey is somewhat higher.

Beyond” survey sample as having completed “The American Freshman” survey at college entry,⁴ again, a very high response rate for a survey of this type.

Information from both the “College and Beyond” survey and “The American Freshman” survey is available for 12,894 (55%) of the individuals in the “College and Beyond” survey sample.

Any particular analysis based on the variables in one or more of these three databases may be based on fewer individuals than contained in the database(s) because (a) individuals may have missing values for one or more of the variables in the analysis; (b) information in the institutional records database about a particular college-success variable may be missing, incomplete, or of poor quality for a particular institution; or (c) the analysis is intentionally based on a subset of individuals (e.g., only graduates of the institution of matriculation).

2.2 Variables

2.2.1 *Positive Affect*

Positive affect is represented by the variable “cheerfulness” drawn from “The American Freshman” database. At college entry in 1976, each survey respondent rated his or her cheerfulness “compared with the average student of your own age” on a 5-point scale: 1 = lowest 10%, 2 = below average, 3 = average, 4 = above average, and 5 = highest 10%. Although there might be concerns about the psychometric properties of this single-item measure, evidence exists that cheerfulness is both a reliable and a valid indicator of positive affect. In a longitudinal survey conducted in an advanced undergraduate psychology course, 134 respondents were asked on four occasions over the course of a semester to indicate for a typical day the percent of waking time spent experiencing various feelings, including cheerfulness. The correlation between any two assessments of cheerfulness ranged from .49 to .62 with a median of .56, indicating substantial reliability. Cheerfulness correlated highly with an unweighted composite of five other items indicative of positive affect (i.e., “good”, “happy”, “pleasant”, “joyful”, “positive”) on all four occasions (.89, .82, .73, .78), suggesting that this single-item measure of positive affect has substantial validity as well (Diener 1999, referenced in Diener et al. 2002).

2.2.2 *College-Success Variables*

Several different types of variables related to college success are examined. At college entry in 1976, each respondent (a) rated various abilities related to college success (e.g., academic ability, intellectual self-confidence), (b) assessed the likelihood of various negative and positive college outcomes (e.g., fail one or more courses, make at least a “B” average), (c) indicated his or her probable major and highest academic degree intended, and (d) reported his or her high school GPA. These self-reported college-success variables are contained in “The American Freshman” database.

Information about (e) college-success variables recorded at various times by the institution of matriculation (e.g., SAT scores, cumulative college GPA at graduation, actual major) is available in the institutional records database.

⁴ The true number of individuals completing “The American Freshman” survey is higher, but some respondents could not be linked because of incomplete identifying information.

Finally, between 1995 and 1997, each respondent answered questions about both (f) objective (e.g., receipt of a bachelor's degree at any institution, studied toward an advanced degree) and (g) subjective (e.g., satisfaction with the undergraduate education, likelihood of choosing the same undergraduate school again) college outcomes (all of which are positive outcomes). These outcomes are reported in the "College and Beyond" database.

A detailed description of each college-success variable and its scaling is provided in Appendix 1.

2.3 Analysis

For each of the 43 non-categorical college-success variables, we computed the correlation between cheerfulness and the college-success variable (ignoring institution). Most studies of the relation between positive or negative affect and college-success variables have reported correlations only. But correlations are generally not an optimal way to assess real-world effects. Therefore, we also computed the unstandardized regression coefficient for the ordinary least squares regression of each of the 36 continuous college-success variables on cheerfulness (ignoring institution), and the odds ratio for the logistic regression of each of the 7 dichotomous college-success variables on cheerfulness (ignoring institution). The odds ratio is a simple transformation of the unstandardized regression coefficient.

The unstandardized regression coefficient is a useful estimate of a real-world effect because it expresses the magnitude of that effect in terms of real-world units such as number of people, dollars, IQ points, and so forth (Cohen and Cohen 1983, p. 367). When the effect of a continuous predictor variable on a continuous criterion variable is linear, the magnitude of that effect can be expressed as the unstandardized regression coefficient of the predictor variable multiplied by its range. When the effect of a continuous predictor variable on a dichotomous criterion variable is linear, the magnitude of that effect can be expressed as the odds ratio raised to the power of its range.

For each of the 2 categorical college-success variables (probable major and actual major), we computed the square root of the percentage of variance accounted for in a one-way analysis of variance predicting cheerfulness from the college-success variable.

An additional set of analyses examined the accuracy of the respondents' self-assessments for any college-success variable for which there existed both a self-report in "The American Freshman" database *and* a matching college-success variable recorded in the institutional records database or a self-report in the "College and Beyond" database. Because similar college-success variables drawn from the different databases have different scales, we first standardized each college-success variable in each of the 13 matched pairs of college-success variables and then subtracted the standardized college-success variable recorded by the institution of matriculation or self-reported between 1995 and 1997 from the standardized self-report at college entry in 1976. These difference scores were then correlated with cheerfulness. In these difference-score analyses, a significant positive correlation indicates that cheerfulness is related to overassessment or "positive illusions".

3 Results

We first present the relations between cheerfulness and the college-success variables organized into three tables, one for each of the three databases used in the study. We then

provide the distributions of correlations across institutions for selected college-success variables to demonstrate correlation variability. Finally, we examine the relation between cheerfulness and respondent accuracy.

3.1 Relation of Cheerfulness to College-Success Variables Self-Reported at College Entry in 1976

Table 1 shows the relations between cheerfulness and the college-success variables reported by the respondent at college entry in 1976. The first, second, third, and fourth panels of Table 1 show the relations between cheerfulness and (a) self-rated abilities, (b) self-predicted likelihoods of negative and positive college outcomes, (c) self-stated probable major and academic-degree intentions, and (d) self-reported high school GPA, respectively. The columns of Table 1 present the college-success variable, the number of institutions for which the college-success variable is available, the number of respondents in the analysis (n), the overall correlation between cheerfulness and the college-success variable (r),⁵ the unstandardized coefficient for the regression of the college-success variable on cheerfulness (b),⁶ the range of the correlations between cheerfulness and the college-success variable across institutions, and a specification of the subset of respondents used in the analysis.

Table 1 shows that cheerfulness has a significant positive relation to 10 of the 11 self-rated abilities, a significant negative relation to 7 of the 8 self-predicted likelihoods of negative college outcomes, a significant positive relation to all 5 of the self-predicted likelihoods of positive college outcomes, a significant positive relation to both self-stated academic-degree intentions, but no significant relation to self-reported high school GPA. Cheerfulness also has a significant relation to probable major. Probable majors with the highest mean cheerfulness self-ratings include nursing (3.91), communications (3.90), sociology (3.88), special education (3.88), and therapy (3.87). Probable majors with the lowest mean cheerfulness self-ratings include physics (3.49); electrical, mechanical, and chemical engineering (3.52, 3.53, and 3.55, respectively); and philosophy (3.57).

The range of correlations reported for each college-success variable in Table 1 indicates that there is some variability across institutions in the correlation of cheerfulness with each college-success variable. However, for 25 of the 27 non-categorical college-success variables shown in Table 1, the correlation of cheerfulness with the college-success variable for each institution has the same sign as the overall correlation for a majority of the 21 institutions. The exceptions are for 2 (of the 3) college-success variables that have non-significant overall correlations with cheerfulness.

3.2 Relation of Cheerfulness to College-Success Variables Recorded by the Institution of Matriculation

Table 2 shows the relations between cheerfulness and the college-success variables recorded by the institution of matriculation. The first and second panels of Table 2 show the relations between cheerfulness and (a) abilities as assessed by objective criteria and

⁵ We checked whether the relation between cheerfulness and each non-categorical college-success variable might be curvilinear rather than linear, as suggested by Oishi et al. (2007). None of the 43 non-categorical college-success variables shows the specific curvilinear relation to cheerfulness found by Oishi et al. (2007), although other patterns of curvilinearity are evident for some of the variables.

⁶ Recall that in a 1-predictor regression, the standardized regression coefficient (β) equals the correlation.

Table 1 Relation of cheerfulness to college-success variables self-reported at college entry in 1976

College-success variable	Number of institutions	<i>n</i>	<i>r</i>	<i>p</i>	<i>b</i>	Range of <i>r</i> across institutions	Respondent subset ^a
Self-rated abilities							
Academic ability	21	17,526	.05	<.0001	.046	-.01 to .23	m
Athletic ability	21	17,540	.12	<.0001	.140	.00 to .20	m
Artistic ability	21	17,534	.07	<.0001	.097	-.02 to .13	m
Drive to achieve	21	17,530	.22	<.0001	.209	.14 to .34	m
Leadership ability	21	17,501	.33	<.0001	.348	.21 to .48	m
Mathematical ability	21	17,530	.01	.3463	.009	-.08 to .08	m
Mechanical ability	21	17,504	.03	<.0001	.039	-.05 to .19	m
Originality	21	17,473	.18	<.0001	.183	.06 to .30	m
Public-speaking ability	21	17,362	.23	<.0001	.287	.12 to .40	m
Intellectual self-confidence	21	17,490	.15	<.0001	.153	.06 to .31	m
Writing ability	21	17,459	.06	<.0001	.071	-.06 to .20	m
Self-predicted likelihoods of college outcomes							
Negative college outcomes							
Change major	21	17,264	-.04	<.0001	-.040	-.10 to .06	m
Change career choice	21	17,239	-.05	<.0001	-.053	-.10 to .07	m
Fail course(s)	21	17,294	-.09	<.0001	-.083	-.32 to .01	m
Need extra time	21	17,238	-.05	<.0001	-.046	-.22 to .02	m
Need tutoring	21	17,239	.00	.5295	.005	-.12 to .07	m
Drop out temporarily	21	17,273	-.12	<.0001	-.111	-.21 to .01	m
Drop out permanently	21	17,246	-.12	<.0001	-.083	-.24 to .01	m
Transfer	21	17,242	-.10	<.0001	-.105	-.16 to .00	m
Positive college outcomes							
Graduate with honors	21	17,282	.07	<.0001	.057	-.00 to .12	m
Honor society	21	17,205	.07	<.0001	.066	.02 to .13	m

Table 1 continued

College-success variable	<i>n</i>	<i>r</i>	<i>p</i>	<i>b</i>	Range of <i>r</i> across institutions	Respondent subset ^a
At least a "B" average	21	.08	<.0001	.061	-.03 to .19	m
Bachelor's degree	21	.04	<.0001	.017	-.05 to .11	m
College satisfaction	21	.15	<.0001	.101	.04 to .29	m
Self-stated probable major and degree intentions						
Probable major ^b	21	.13	<.0001	n/a	.20 to .50	m
Highest degree at any institution	21	.04	<.0001	.041	-.07 to .11	m
Highest degree at institution of matriculation	21	.04	<.0001	.035	-.01 to .26	m
Self-reported high school GPA	21	.01	.0778	.020	-.05 to .07	m

Note. A description of each college-success variable is provided in Appendix 1

^a *m* matriculants

^b College success variable is categorical

(b) objective (actual) college outcomes (all of which are positive), respectively. The format of Table 2 is identical to that of Table 1, except that the odds ratio is substituted for the regression coefficient for the 4 dichotomous college outcomes.

Table 2 shows that cheerfulness has a significant negative relation to 3 of the 4 abilities and 4 of the 6 non-categorical college outcomes, and a significant positive relation to the remaining 2 non-categorical college outcomes recorded by the institution of matriculation. Cheerfulness also has a significant relation to actual major. Actual majors with the highest mean cheerfulness self-ratings include nursing (3.88); social sciences other than psychology, political science, sociology, or economics (3.86); education (3.85); sociology (3.85); communications (3.84); and health sciences (3.82). Actual majors with the lowest mean cheerfulness self-ratings include physics (3.43), agriculture (3.57), mathematics (3.57), engineering (3.60), geological sciences (3.61), and computer/information science (3.64).

As was the case in Table 1, the range of correlations reported for each college-success variable in Table 2 indicates that there is some variability across institutions in the correlation of cheerfulness with each college-success variable. However, for all 10 non-categorical college-success variables, the correlation of cheerfulness with the college-success variable for each institution has the same sign as the overall correlation for a majority of the institutions for which the college-success variable is available.

Table 2 Relation of cheerfulness to college-success variables recorded by the institution of matriculation

College-success variable	Number of institutions	<i>n</i>	<i>r</i>	<i>p</i>	<i>b</i> or odds ratio ^a	Range of <i>r</i> across institutions	Respondent subset ^b
Abilities							
SAT—verbal score	21	16,539	-.10	<.0001	-12.251	-.19 to -.01	m
SAT—mathematical score	21	16,539	-.09	<.0001	-11.751	-.16 to -.02	m
SAT—combined score	21	16,539	-.11	<.0001	-24.004	-.19 to -.03	m
High school GPA	5	4,535	-.03	.0780	-.016	-.05 to -.01	m
Objective positive college outcomes							
Actual major ^c	21	15,957	.12	<.0001	n/a	.16 to .40	m
Freshman college GPA	7	5,450	-.04	.0020	-.035	-.13 to -.02	m
Graduated institution of matriculation ^d	21	17,402	.02	.0074	1.068	-.05 to .10	m
Graduated on time ^d	21	13,884	.02	.0061	1.081	-.12 to .10	g
Cumulative college GPA at graduation	19	12,706	-.07	<.0001	-.039	-.17 to .11	g
College graduation honors ^d	20	12,409	-.05	<.0001	.865	-.18 to .07	g
Election to Phi Beta Kappa ^d	18	8,365	-.08	<.0001	.708	-.16 to .04	e

Note. A description of each college-success variable is provided in Appendix 1

^a The unstandardized regression coefficient is reported for continuous college-success variables; the odds ratio is reported for dichotomous college-success variables

^b *m* matriculants, *g* graduates of the institution of matriculation, *e* graduates of the institution of matriculation eligible for election to Phi Beta Kappa

^c College-success variable is categorical

^d College-success variable is dichotomous

3.3 Relation of Cheerfulness to College-Success Variables Self-Reported Between 1995 and 1997

Table 3 shows the relations between cheerfulness and the college-success variables reported by the respondent between 1995 and 1997. The first and second panels of Table 3 show the relations between cheerfulness and (a) objective college outcomes and (b) subjective college outcomes, respectively. (All outcomes are positive.) The format of Table 3 is identical to that of Table 1, except that the odds ratio is substituted for the regression coefficient for the 3 dichotomous college outcomes.

Table 3 shows that cheerfulness has a significant positive relation to all 3 subjective college outcomes, but no significant relation to any of the 3 objective college outcomes, reported by the respondent.

As was the case in Tables 1 and 2, the range of correlations reported for each college-success variable in Table 3 indicates that there is some variability across institutions in the correlation of cheerfulness with each college-success variable. However, for all 3 of the 3 college-success variables having significant overall relations to cheerfulness, the correlation of cheerfulness with the college-success variable for each institution has the same sign as the overall correlation for a majority of the institutions.

3.4 Magnitude of Effect

The correlations between cheerfulness and the college-success variables shown in Tables 1, 2, and 3 are small, exceeding .20 in only 3 cases. These correlations might seem

Table 3 Relation of cheerfulness to college-success variables self-reported between 1995 and 1997

College-success variable	Number of institutions	<i>n</i>	<i>r</i>	<i>p</i>	<i>b</i> or odds ratio ^a	Range of <i>r</i> across institutions	Respondent subset ^b
Objective positive college outcomes							
Earned bachelor's degree at any institution ^c	21	12,767	.00	.7017	1.023	-.12 to .11	m
Studied toward advanced degree ^c	21	12,252	-.01	.2312	.969	-.14 to .05	d
Earned advanced degree ^c	21	12,252	-.01	.3741	.979	-.17 to .03	d
Subjective positive college outcomes							
Satisfaction with undergraduate education	21	12,728	.06	<.0001	.068	-.08 to .17	m
Choose same undergraduate school again	21	12,720	.05	<.0001	.052	-.04 to .19	m
Choose same major again	21	12,402	.02	.0085	.024	-.10 to .10	m

Note. A description of each college-success variable is provided in Appendix 1

^a The unstandardized regression coefficient is reported for continuous college-success variables; the odds ratio is reported for dichotomous college-success variables

^b *m* matriculants, *d* respondents who earned a bachelor's degree at any institution

^c College-success variable is dichotomous

to suggest that the relations between positive affect and the college-success variables are negligible. But examination of the unstandardized regression coefficients (or odds ratios for the dichotomous college-success variables) presented in the tables tells a different story. For example, the correlation between cheerfulness and the SAT—combined score equals $-.11$. But the unstandardized regression coefficient equals -24 points; this translates into a SAT—combined score decrease of nearly 100 points between respondents with the lowest self-rating of cheerfulness and respondents with the highest, a not insubstantial difference. The correlation between cheerfulness and election to Phi Beta Kappa equals $-.08$. But the odds ratio equals $.708$, indicating that respondents with the lowest self-rating of cheerfulness are about 2.5 times more likely than those with the highest to be elected to Phi Beta Kappa, again, a not insubstantial difference.

3.5 Distributions of Correlations for Selected College-Success Variables

Table 4 presents the distribution across institutions of correlations between cheerfulness and each of 8 selected college-success variables (originality, likelihood of making a “B” average, and likelihood of being satisfied with your college, all self-reported at college entry; SAT—combined score, cumulative college GPA at graduation, college graduation honors, and election to Phi Beta Kappa, all recorded by the institution of matriculation; and satisfaction with the undergraduate education, self-reported between 1995 and 1997) to illustrate the variability in correlations across institutions.

3.6 Cheerfulness and Respondent Accuracy

As described above, the relation of cheerfulness to most (positive) college-success variables self-reported at college entry is positive, whereas the relation of cheerfulness to most (positive) college-success variables recorded by the institution of matriculation or self-reported between 1995 and 1997 is zero or negative, raising the question of respondent accuracy. Are respondents prone to positive illusions about variables related to college success, as suggested by other studies (e.g., Cann 2005; Prohaska 1994; see Boud and Falchikov 1989 for a review, and Falchikov and Boud 1989 for a meta-analysis), and if so, are these illusions related to cheerfulness?

Table 5 presents the correlations from the difference-score analysis for each of the 13 matched pairs of college-success variables. A significant positive correlation indicates a trend toward overassessment and the holding of positive illusions. As can be seen, the correlations for 11 of the 13 matched pairs are positive and significant, albeit small, confirming the existence of positive illusions.⁷

4 Discussion

In summary, cheerfulness is generally positively correlated with respondents’ self-assessments, be they self-ratings of abilities related to college success, self-predicted

⁷ We also performed a residual-score analysis for each of the 13 matched-pairs of college-success variables in which we regressed (a) the college-success variable reported at college entry in 1976 on (b) the college-success variable recorded by the institution of matriculation or self-reported between 1995 and 1997 and (c) cheerfulness, computing the standardized regression coefficient (β) for cheerfulness. The results of these analyses are very similar to those of the difference-score analyses, except that the effect for cheerfulness is significant for all 13 analyses.

Table 4 Distributions across institutions of correlations between cheerfulness and selected college-success variables

	Self-rated originality ^a	Self-predicted "B" average ^a	Self-predicted college satisfaction ^a	SAT—combined score ^a	Cumulative college GPA at graduation ^b	College graduation honors ^b	Phi Beta Kappa ^c	1995-1997 satisfaction with undergraduate education ^a
Overall correlation	.18	.08	.15	-.11	-.07	-.05	-.08	.06
Distribution	.06	-.03	.04	-.19	-.17	-.18	-.16	-.08
	.12	.03	.05	-.18	-.15	-.16	-.16	-.02
	.12	.04	.10	-.17	-.14	-.11	-.15	-.01
	.14	.05	.10	-.16	-.13	-.10	-.15	.03
	.15	.05	.11	-.16	-.11	-.09	-.12	.03
	.17	.05	.12	-.16	-.11	-.09	-.12	.03
	.17	.07	.12	-.16	-.11	-.08	-.11	.04
	.17	.07	.13	-.15	-.09	-.07	-.10	.05
	.17	.08	.14	-.15	-.07	-.05	-.10	.05
	.18	.08	.15	-.14	-.07	-.05	-.08	.06
	.18	.09	.15	-.13	-.06	-.05	-.08	.06
	.19	.10	.15	-.11	-.05	-.05	-.07	.06
	.19	.10	.17	-.11	-.05	-.04	-.05	.06
	.19	.11	.17	-.10	-.04	-.04	-.04	.08
	.20	.12	.18	-.10	-.04	-.02	-.03	.08
	.20	.12	.19	-.10	-.03	-.00	-.02	.09
	.20	.13	.19	-.09	-.03	.00	-.01	.10
	.21	.14	.20	-.07	.02	.00	.04	.11
	.22	.14	.20	-.07	.11	.02	.02	.12
	.23	.16	.21	-.07	.07	.07	.07	.15
	.30	.19	.29	-.03	.03	.07	.17	.17

Note. A description of each college-success variable is provided in Appendix 1

^a Respondent subset is matriculants

^b Respondent subset is graduates of the institution of matriculation

^c Respondent subset is graduates of the institution of matriculation eligible for election to Phi Beta Kappa

Table 5 Relation of cheerfulness to the accuracy of college-success variables self-reported in 1976

College-success variable	<i>n</i>	<i>r</i>	<i>p</i>	Respondent subset ^a
Academic ability	16,506	.16	<.0001	m
Mathematical ability	16,505	.11	<.0001	m
Verbal ability	16,437	.15	<.0001	m
High school GPA	4,507	.07	<.0001	m
At least a “B” average for freshman year	5,379	.09	<.0001	m
Earned bachelor’s degree at institution of matriculation	17,101	.01	.0817	m
Graduated on time	13,625	.02	.0417	g
At least a “B” average at graduation	12,504	.11	<.0001	g
Graduation honors	13,676	.08	<.0001	g
Honor society	8,216	.11	<.0001	e
Earned bachelor’s degree at any institution	17,165	.01	.0547	m
Earned advanced degree	11,038	.04	<.0001	d
College satisfaction	12,487	.07	<.0001	m

Note. A description of each of the 13 matched pairs of college-success variables is provided in Appendix 2
^a *m* matriculants, *g* graduates of the institution of matriculation, *e* graduates of the institution of matriculation eligible for election to Phi Beta Kappa, *d* respondents who earned a bachelor’s degree at any institution

likelihoods of (positive) college outcomes, self-stated major and academic-degree intentions, or self-reported subjective (positive) college outcomes. This finding is not surprising, given the usually positive relation between positive affect (or happiness) and positive self-views (see Myers 1992, and Taylor and Brown 1988, for reviews, and Lyubomirsky et al. 2005 for a meta-analysis). Interestingly, though, cheerfulness is not significantly correlated with the objective college outcomes reported by the respondent and is nearly always negatively correlated with the college-success variables recorded by the institution of matriculation. (The exceptions are graduation from the institution of matriculation and graduated on time from the institution of matriculation, which have positive but very small correlations with cheerfulness; high school GPA, which has a negative correlation with cheerfulness that is not significant because of the small sample size for its analysis; and actual major, which has a positive correlation with cheerfulness because it is a categorical college outcome.) Thus, unlike Lyubomirsky et al. (2005), who concluded from their review of a large number of cross-sectional, longitudinal, and experimental studies that positive affect seems to lead to desirable life outcomes, we must conclude that, although positive affect is positively associated with college-success variables self-reported at college entry, these self-assessments seem for the most part to be positive illusions; positive affect is generally associated with a lesser—not a greater—degree of high school and college achievement.

Interestingly, the correlations of cheerfulness with self-rated drive to achieve, leadership ability, originality, and public-speaking ability are higher than those of cheerfulness with the other self-rated traits and the self-predicted likelihoods of college outcomes in Table 1, suggesting that positive illusions may be stronger for traits and likelihoods that are less subject to verification or corrective feedback within the academic environment.

4.1 Why the Negative Relation Between Cheerfulness and the College-Success Variables Recorded by the Institution of Matriculation?

Why might cheerfulness be negatively related to the college-success variables recorded by the institution of matriculation?

4.1.1 Perhaps Cheerful Individuals Are Less Able?

The first and most straightforward possibility is that individuals high in dispositional positive affect may simply be less able students, at least by the time they enter college. This might be the case if personality traits play a role in the processes of skills acquisition by influencing choices to “invest” in particular life domains, with individuals high in positive affect preferring to invest in social activities and relationships with others rather than in intellectual activities. Alternatively, more intellectually able individuals may develop different aspects of their personalities than do less intellectually able individuals. That is, individuals who are less intellectually able may be drawn to social (or artistic or athletic, etc.) activities and so develop the personal traits fostered by these activities, whereas individuals who are more intellectually able may be drawn to intellectual pursuits and develop the personal traits fostered by these pursuits. Even more likely, personality and intellectual ability may be reciprocally influential (Ackerman 1996; Cattell 1971, 1987; Rolfthus and Ackerman 1999). Unfortunately, the linked databases used for the analyses in this study do not contain any information that would allow us to explore this possibility.

4.1.2 Perhaps Cheerful Individuals Are Less Motivated?

A second possibility is that individuals high in positive affect may be less motivated than those low in positive affect (Lyubomirsky et al. 2005, p. 844). However, this would suggest that the correlations of cheerfulness with college-success variables likely to be strongly influenced by motivation (e.g., cumulative college GPA at graduation) should be positive, whereas in fact these correlations are negative. Moreover, the correlation between cheerfulness and self-rated drive to achieve in this study is positive (.22), not negative. Of course, it is possible that cheerful individuals overestimate their drive to achieve.

4.1.3 Perhaps Cheerful Individuals Are Less Sensitive to Situation Cues?

A third possibility is that individuals high in positive affect may be less sensitive to, or pay less attention to, situational cues indicating the need for increased planning and regulation of behavior (Schwarz and Bohner 1996), such as the need to devote more time to studying. Moreover, very intelligent individuals, such as the respondents in this study, may have the ability to use these cues to their advantage. The linked databases used in the analyses in this study do not contain any information that would allow us to test this hypothesis, but a study by Perkins and Corr (2005) is suggestive. In their study of managers in a global securities company, Perkins and Corr (2005) found that trait anxiety was negatively related to job performance for individuals of low cognitive ability but positively related to job performance for individuals of high cognitive ability, suggesting that anxious but very intelligent individuals are able to respond to these cues to their benefit, whereas anxious but less intelligent individuals are not. Lack of positive affect may operate in a manner similar to that of negative affect.

4.1.4 Perhaps Cheerful Individuals Are Too Sociable?

A fourth possibility recognizes that individuals high in positive affect tend to be high in sociability also (e.g., Costa and McCrae 1980; Emmons and Diener 1986; Lyubomirsky et al. 2005) and so may spend more time in social activities than in academic activities, to the detriment of their academic performances. Sociability has been found to be negatively related to college grades (e.g., Holland 1959). Moreover, sociability is part of extraversion (Costa and McCrae 1980; Rocklin and Revelle 1981), which is also positively correlated with positive affect and happiness (e.g., Argyle and Lu 1990; Brebner 1998; Chamorro-Premuzic et al. 2007; Cheng and Furnham 2003; Costa and McCrae 1980; Emmons and Diener 1985, 1986; Francis 1999; Furnham and Brewin 1990; Hayes and Joseph 2003; Smith 1961, p. 23; Spangler and Palrecha 2004; Watson and Clark 1992; see also DeNeve and Cooper 1998 for a meta-analysis). Some studies have shown that extraversion is negatively related to intellectual ability and/or college outcomes (e.g., Bendig 1960, for men; Busato et al. 2000; Entwistle and Entwistle 1970; Furnham and Chamorro-Premuzic 2004; Furnham et al. 2003; Furnham and Medhurst 1995; Goff and Ackerman 1992; Lynn and Gordon 1961; Rolfthus and Ackerman 1999; Wolfe and Johnson 1995), although other studies have found no relation (e.g., Caldwell and Burger 1998; Farsides and Woodfield 2003; McKenzie 1989) or even a positive relation (e.g., Broder 2003/2004; De Fruyt and Mervielde 1996, sample 1; Dollinger and Orf 1991; Halamandaris and Power 1999; see also Ackerman and Heggstad 1997, and Wolf and Ackerman 2005, for meta-analyses.) Moreover, positive affect and extraversion are both positively correlated with the degree of college students' involvement in extracurricular activities (Burger and Caldwell 2000).⁸

The linked databases used in our study do not include a measure of sociability per se but do include three self-ratings and one self-predicted likelihood that might be considered proxies for sociability: popularity; popularity with the opposite sex; social self-confidence; and likelihood of joining a fraternity, sorority, or social club during the college years. All four sociability proxies have positive correlations with cheerfulness (.43, .34, .39, and .11, respectively). All of the 28 correlations between the 4 sociability proxies and the 7 college-success variables that have significant negative correlations with cheerfulness—SAT—verbal score, SAT—mathematical score, SAT—combined score, freshman college GPA, cumulative college GPA at graduation, college graduation honors, and election to Phi Beta Kappa—are also negative; all but 1 of these 28 are statistically significant. This pattern of results suggests that the relation of cheerfulness to the college-success variables may be mediated by sociability.

To explore this possibility, we examined the relation of cheerfulness to each of these 7 college-success variables, controlling each of the 4 sociability proxies in turn. For example, we compared the results of the regression of the SAT—combined score on cheerfulness controlling for social self-confidence with the result of the regression of the SAT—combined score on cheerfulness alone. With social self-confidence controlled, the unstandardized regression coefficient for cheerfulness equals -17 points ($p < .0001$) compared to the unstandardized regression coefficient of -24 points ($p < .0001$) for cheerfulness as the sole predictor. Cheerfulness continues to have a significant negative relation to the 7 college-success variables listed above in all but 2 of the 28 2-predictor regressions. We

⁸ Recall, though, that correlations between variables are not transitive. That variable A is positively correlated with variable B, and variable B is positively correlated with variable C, does not imply that variable A must be positively correlated with variable C, although empirically this is usually so.

also examined the relation of cheerfulness to each of these 7 college-success variables, controlling all 4 sociability proxies simultaneously. Cheerfulness continues to have a significant negative relation to 6 of the 7 college-success variables listed above in these 5-predictor regressions. These findings indicate that, although cheerfulness does seem to operate through sociability to some degree (an indirect effect), it also contributes uniquely to the prediction of the college-success variables (a direct effect).⁹ It is of course possible that the direct effect of cheerfulness might disappear completely were a better measure of sociability available.

4.1.5 *Perhaps Cheerful Individuals Are More Likely to Be Admitted to College?*

A final possibility is related to college admissions policies. It may be that college applicants with outstanding intellectual credentials are accepted outright at institutions of the caliber of those in this study, whereas college applicants whose intellectual credentials are a bit weaker are more likely to be accepted if they have a strong record of extracurricular activities, wonderful letters of recommendation, or impressive interviews; cheerful applicants may be more likely to possess these compensating strengths (cf. Burger and Caldwell 2000, and Caldwell and Burger 1998). Such differential admissions would probably result in the more cheerful students having lower SAT scores on college entry and lower GPAs subsequently. The linked databases used for the analyses in this study do not contain any information that would allow us to explore this possibility. However, supplemental analyses indicate that the negative relations of cheerfulness to cumulative college GPA at graduation, graduation honors, and election to Phi Beta Kappa are reduced (GPA: $\beta - .07$ to $-.02$; honors: $\beta - .05$ to $-.02$; Phi Beta Kappa: $\beta - .08$ to $-.03$), although still statistically significant, if the SAT—combined score is controlled, a pattern that is consistent with the possibility of differential admissions.¹⁰

In short, cheerfulness is negatively correlated with most of the college-success variables recorded by the institution of matriculation, but just why this is so is not clear from the information available in the linked databases used for the analyses in this study.

Several other issues deserve mention.

4.2 Attenuation

The correlations, regression coefficients, and odds ratios reported in this study may be attenuated because of negatively skewed distributions and/or range restrictions. For example, the mean of cheerfulness equals 3.73, with 96% of the respondents providing self-ratings of 3, 4, or 5 on the 5-point scale. The mean SAT—verbal scores for the 21 academically selective colleges and universities in this study all hover around a mean of 566 on a scale ranging from 200 to 800. This is a more elite group of individuals that it might appear; students taking the SAT in 1975–1976 were a very highly selected sample of

⁹ Similarly, Burger and Caldwell (2000) found that “trait positive affect” predicted success in college students’ job interviews beyond that predicted by extraversion.

¹⁰ With the SAT—combined score controlled, the negative relation of cheerfulness to freshman GPA is reduced to non-significance; the positive relations of cheerfulness to graduation from the institution of matriculation and graduation on time are increased slightly (graduation: $\beta .02$ to $.03$; graduation on time: $\beta .02$ to $.04$) because of reciprocal suppression (Conger 1974; Nickerson 2008; Tzelgov and Stern 1978).

all high school seniors. The Educational Testing Service (1975–1976, pp. 6–7) estimated that if all high school seniors had taken the SAT, only about 3% would have earned an SAT—verbal score exceeding 600. It is not widely realized that most colleges and universities in the United States are not academically selective but admit any student who is qualified, usually defined as having a high school degree or the equivalent. The correlations, regression coefficients, and odds ratios for the relations between cheerfulness and the college outcomes might very well be higher for most institutions, that is, for institutions with more heterogeneous student bodies than those of the academically selective colleges and universities in this study.

4.3 Implication for Studying Possible Behavioral Consequences of Affect

Many studies of the relation between positive or negative affect and college-success variables have relied on respondents' self-reports of those variables (particularly grades and class absences) rather than on institutional records (e.g., Bolger 1990; Cheng and Furnham 2002; Goh and Moore 1978; Kashdan and Yuen 2007; King 2000; Trice et al. 2000). Although it can be difficult to gain access to institutional records, the results of this study suggest that using respondents' self-reports as a proxy may be ill-advised, even when self-report measures and objective measures are highly correlated, because the two kinds of measures can give quite different results. For example, self-rated academic ability would seem to be a reasonably good proxy for the SAT—combined score, because the correlation of these two measures is quite high (.53), but cheerfulness has a positive correlation with self-rated academic ability (.05) and a negative correlation with the SAT—combined score (−.11). Thus, using self-rated academic ability as a proxy for the SAT—combined score, or more generally, for intellectual ability, would yield misleading results.

4.4 Causal Direction

As noted earlier, Lyubomirsky et al. (2005) suggested that the causal direction might be, at least in part, from happiness (or positive affect) to desirable life outcomes instead of, as is usually assumed, from desirable life outcomes to happiness. Although Lyubomirsky et al. (2005) presented the results of cross-sectional as well as longitudinal and experimental studies as evidence for their hypothesis, the determination of causal direction requires that positive affect exist prior to the occurrence of the outcomes of interest. In this study, some of the college-success variables occurred and were assessed prior to the assessment of cheerfulness (e.g., the three SAT scores, high school GPA recorded by the institution of matriculation), and some were assessed at the same time (e.g., the self-ratings of abilities related to college success), but those of the most interest to educational researchers occurred and were assessed much later (e.g., cumulative college GPA at graduation, satisfaction with the undergraduate education) than was cheerfulness. Thus, cheerfulness (or lack of it) could not have been caused by, say, cumulative college GPA at graduation, which occurred for most respondents about 4 years after cheerfulness was assessed. So, the evidence in this study for the causal direction of positive affect is stronger than in the many studies that have assessed positive affect and life outcomes (including college outcomes) at the same time. Of course, because of the ever-present possibility of “the third variable”, it cannot be determined from a non-experimental field study whether positive affect is itself the cause of a life outcome or a college outcome.

4.5 Mixed Results

As noted in the introduction, the findings of other studies relating positive affect to college-success variables have been mixed, with some studies finding a positive relation and others finding a negative relation. Possible reasons for these mixed findings include the use of (a) different measures of positive affect, (b) different college-success variables or different measures of the same college-success variable, (c) respondents of different ages or attending different kinds of institutions or drawn from different fields of study, (d) different time frames (retrospective, concurrent, or longitudinal; if longitudinal, varying time lapses between the assessment of positive affect and the assessment of the college-success variable), and (e) small sample sizes, among others (cf. Farsides and Woodfield 2003). For nearly all of the college-success variables in this study, the sign of the correlation between cheerfulness and the college-success variable is the same across most or all of the institutions, probably because most of the factors listed above cannot have operated. The same measures of positive affect and college-success variables are used across all institutions; the respondent sample is the entire entering freshman class (or a slightly modified random sample of the entering freshman class for the 4 large public universities); the institutions are of a similar intellectual caliber; sample sizes are reasonably large, even for analyses conducted separately for each institution; and the time frame for each college-success variable is approximately the same for all respondents. It is possible that the institutions have different grading standards and different criteria for graduation honors and election to Phi Beta Kappa, but these differences are probably small. There is some variability in the sizes of the correlations, regression coefficients, and odds ratios across the various institutions; these may reflect random variability or may be due to some unrecognized factor(s). If the separate analyses for each institution are considered replications of the same study, then the range in the sizes of the correlations, regression coefficients, and odds ratios across the institutions provide some guidelines as to how much random variability one might expect in the results of studies of the relation between positive affect and college-success variables.

5 Conclusion

Positive affect—cheerfulness—is generally positively related to undergraduate students' self-rated academic abilities and self-predicted likelihoods of college success, but negatively related to most college-success variables (e.g., cumulative college grade-point average) recorded by the institution of matriculation. Positive affect is thus associated with overassessments or positive illusions about college-success variables.

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Appendix 1

Description and Scaling of College-Success Variables

- I. "The College Freshman" survey database (Astin et al. 1976)

A. Self-rated abilities

Rate yourself on each of the following traits as you really think you are when compared with the average student of your own age.

- Academic ability
- Athletic ability
- Artistic ability
- Drive to achieve
- Leadership ability
- Mathematical ability
- Mechanical ability
- Originality
- Public-speaking ability
- Intellectual self-confidence
- Writing ability

Scale: 1 = lowest 10%, 2 = below average, 3 = average, 4 = above average, 5 = highest 10%

B. Self-predicted likelihoods of college outcomes

What is your best guess as to the chances that you will:

- Change major field?
- Change career choice?
- Fail one or more courses?
- Need extra time to complete your degree requirements?
- Need tutoring in some courses?
- Drop out of this college temporarily (exclude transferring)?
- Drop out permanently (exclude transferring)?
- Transfer to another college before graduating?
- Graduate with honors?
- Be elected to an academic honor society?
- Make at least a “B” average?
- Get a bachelor’s degree (B.A., B.S., etc.)?
- Be satisfied with your college?

Scale: 1 = no chance, 2 = very little chance, 3 = some chance, 4 = very good chance

C. Self-stated probable major and academic-degree intentions

- Below is a list of different undergraduate major fields Indicate your probable field of study.

Scale: Respondents selected 1 major from the 77 (including “undecided”) listed.

What is the highest academic degree that you intend to obtain?

- Highest planned
- Highest planned at this college

Scale: 1 = bachelor's degree, 2 = master's degree, 3 = professional degree (M.D., J.D.) or doctorate

D. Self-reported high school grade-point average

- What was your average grade in high school?

Scale: 1 = D, 2 = C, 3 = C+, 4 = B-, 5 = B, 6 = B+, 7 = A-, 8 = A or A+

II. The institutional records database (Bowen and Bok 1998)

A. Abilities

Scholastic Aptitude Test

- SAT—verbal score
- SAT—mathematical score
- SAT—combined score

SAT—combined score is the sum of SAT—verbal score and SAT—mathematical score.

Scale: SAT—verbal score and SAT—mathematical score: 200 to 800 by 5;
SAT—combined score: 400 to 1,600 by 10

- High school grade-point average

Scale: 0.00 to 4.00 (or 4.00+)

B. College outcomes

- Actual major

Scale: The institutional records database listed 55 different majors across the 21 institutions of matriculation.

- Freshman college grade-point average

Scale: 0.00 to 4.00 (or 4.00+)

- Graduation from the institution of matriculation

Scale: 0 = no, 1 = yes

- Graduated on time from the institution of matriculation

This variable was constructed by the authors from the date of graduation recorded by the institution of matriculation. The cut-off date selected was 30 June 1980.

Scale: 0 = no, 1 = yes

- Cumulative college grade-point average at graduation

Scale: 0.00 to 4.00 (or 4.00+)

- College graduation honors (Summa cum Laude, Magna cum Laude, cum Laude)

Scale: 0 = no, 1 = yes

- Election to Phi Beta Kappa

Election to Phi Beta Kappa was analyzed for only those respondents who (a) graduated from the institution of matriculation and (b) stated a first or a second major in a field of study usually considered to be among the liberal arts and sciences (Phi Beta Kappa Society 1991).

Scale: 0 = no, 1 = yes

III. The “College and Beyond” survey database (Bowen and Bok 1998)

A. Objective college outcomes

- Do you have a bachelor’s degree or higher?
- Studied toward an advanced degree
- Earned an advanced degree

The variables “studied toward an advanced degree” and “earned an advanced degree” were constructed by the authors from a set of variables in the “College and Beyond” database that indicated whether a respondent who had earned a bachelor’s degree from any institution had studied toward or earned a master’s degree, professional degree, or doctorate in a variety of different fields of study. Study toward or completion of a second bachelor’s degree was not counted as studying toward or earning an advanced degree.

Scale: 0 = no, 1 = yes

B. Subjective college outcomes

- Satisfaction with the undergraduate education

The “College and Beyond” survey had two slightly different wordings for this variable:

- Overall, how satisfied have you been with your undergraduate education?
- Overall, how satisfied have you been with the undergraduate education you received at the school at which you first enrolled?

This difference in wordings was ignored in the analysis.

Scale: 1 = very satisfied, 2 = somewhat satisfied, 3 = neither satisfied nor dissatisfied, 4 = somewhat dissatisfied, 5 = dissatisfied

This scale was reversed for use in the analysis.

Imagine that you had your life to live over again and were graduating from high school. Knowing what you do now, how likely is it that you would:

- Choose the same undergraduate school?
- Major in the same field of study?

Scale: 1 = very likely, 2 = somewhat likely, 3 = not at all likely

This scale was reversed for use in the analyses.

Note: The scales for some college-success variables were altered from those in the linked databases for use in the analyses. The details of these rescalings are available from the authors.

Appendix 2

Matched Pairs of College-Success Variables

If possible, a college-success variable self-reported by the respondent at college entry in 1976 (“The American Freshman” database) was matched to a college-success variable recorded by the institution of matriculation (the institutional records database) or self-reported by the respondent between 1995 and 1997 (the “College and Beyond” database). The 13 matched college-success variables and their sources are listed below.

Academic ability

College entry: self-rated academic ability
Institution: SAT—combined score

Mathematical ability

College entry: self-rated mathematical ability
Institution: SAT—mathematical score

Verbal ability

College entry: self-rated writing ability
Institution: SAT—verbal score

High school grade-point average

College entry: self-reported high school grade-point average
Institution: high school grade-point average

At least a “B” average for freshman year

College entry: self-predicted likelihood of making at least a “B” average

- Institution: freshman college grade-point average (rescaled no: 0 = 0.00 to 2.99; yes: 1 = 3.00 to 4.00 (or 4.00+))
- Earned bachelor's degree at institution of matriculation
- College entry: self-predicted likelihood of getting a bachelor's degree
Institution: graduation from the institution of matriculation
- Graduated on time
- College entry: self-predicted likelihood of needing extra time to complete your degree requirements (scale reversed)
Institution: graduated on time
- At least a "B" average at graduation
- College entry: self-predicted likelihood of making at least a "B" average
Institution: cumulative college grade-point average at graduation (rescaled no: 0 = 0.00 to 2.99; yes: 1 = 3.00 to 4.00 (or 4.00+))
- Graduation honors
- College entry: self-predicted likelihood of graduating with honors
Institution: college graduation honors (Summa cum Laude, Magna cum Laude, cum Laude)
- Honor society
- College entry: self-predicted likelihood of being elected to an academic honor society
Institution: election to Phi Beta Kappa
- Earned bachelor's degree at any institution
- College entry: self-predicted likelihood of getting a bachelor's degree
Institution and 1995–1997: graduation from the institution of matriculation, or self-reported earned a bachelor's degree at any institution
- Earned advanced degree
- College entry: self-reported highest academic degree intended (rescaled no: 0 = bachelor's degree; yes: 1 = master's degree, professional degree, or doctorate)
1995–1997: self-reported earned advanced degree
- College satisfaction
- College entry: self-predicted likelihood of being satisfied with your college
1995–1997: self-reported satisfaction with the undergraduate education

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