Does It Pay to Be Smart, Attractive, or Confident (or All Three)? Relationships Among General Mental Ability, Physical Attractiveness, Core Self-Evaluations, and Income

Timothy A. Judge, Charlice Hurst, and Lauren S. Simon
University of Florida

The authors investigated core self-evaluations and educational attainment as mediating mechanisms for the influence of appearance (physical attractiveness) and intelligence (general mental ability) on income and financial strain. The direct effects of core self-evaluations on financial strain, as well as the indirect effects through income, were also considered. Longitudinal data were obtained as part of a national study, the Harvard Study of Health and Life Quality, and proposed models were evaluated with structural equation modeling. Results supported a partially mediated model, such that general mental ability and physical attractiveness exhibited both direct and indirect effects on income, as mediated by educational attainment and core self-evaluations. Finally, income negatively predicted financial strain, whereas core self-evaluations had both a direct and an indirect (through income) negative effect on financial strain. Overall, the results suggest that looks (physical attractiveness), brains (intelligence), and personality (core self-evaluations) are all important to income and financial strain.

Keywords: core self-evaluations, attractiveness, income, intelligence, general mental ability

Few personal characteristics are more associated with success in life than brains and beauty. Although the raw materials of neither seem particularly manipulable (both are heritable and relatively stable across the lifespan), the benefits of being beautiful—and the penalties for homeliness—seem particularly unfair. Countless parents have assured their children that it is "the inside that counts," with the "inside" presumably including one's intelligence and personality. Indeed, these characteristics do influence career success (Ng, Eby, Sorensen, & Feldman, 2005). Yet, although the inside clearly counts, a plethora of empirical research has demonstrated that when it comes to income, attractiveness makes a difference too (Biddle & Hamermesh, 1998; Hamermesh & Biddle, 1994; Harper, 2000; Langlois et al., 2000; Mobius & Rosenblat, 2006).

Although mechanisms for the effect of intelligence on income seem nearly self-evident, there is considerably more ground to cover with regard to the influence of looks. Little is known about why there are income discrepancies among attractive, average-looking, and unattractive people. The primary mediators that have been examined to date are employer and customer discrimination (Biddle & Hamermesh, 1998; Hamermesh & Biddle, 1994; Harper, 2000; Hosoda, Stone-Romero, & Coats, 2003; Mobius & Rosenblat, 2006), occupational sorting (Biddle & Hamermesh, 1998; Hamermesh & Biddle, 1994; Harper, 2000), and differential outcomes in the marriage market (Hamermesh & Biddle, 1994;

Harper, 2000). No prior research has considered the possible role of individual differences in the appearance–income relationship; however, attractiveness is related to a number of personal characteristics that, it is often argued, are developed through a process of expectancy confirmation (Langlois, 1986; Langlois et al., 2000). In this process, stereotypes regarding attractiveness elicit expectations that lead to consistently differential judgment and treatment. These outcomes are then internalized and cause development of differential behavior, traits, and self-views (see also Darley & Fazio, 1980).

In this study, we argue that educational attainment and core self-evaluations—or general self-concept—are influenced by attractiveness and should mediate the effects of attractiveness on income. One of the strengths of our approach is the use of longitudinal data. Although many arguments for a causal effect of appearance on individual differences have been made, few have provided evidence for such claims. Furthermore, although previous studies examining the influence of attractiveness on income have controlled for the effects of education, few have considered the influence of cognitive ability. A model including both attractiveness and intelligence should, therefore, explain more variance in income and shed light on the relative importance of each.

A final purpose of this study is to consider how self-concept affects financial strain, which influences productivity (Joo & Grable, 2004; Kim, Sorhaindo, & Carman, 2006) and is implicated in overall well-being (Diener & Biswas-Diener, 2002; van Praag, Frijters, & Ferrer-i-Carbonell, 2003). Income alone does not explain why some are vexed with financial worries and others are unbothered. Because of this, researchers have also considered financial knowledge, attitudes, goals, and behaviors (Joo & Grable, 2004; Vera-Toscano, Ateca-Amestoy, & Serrano-Del-Rosal, 2006; Webley & Nyhus, 2001). Self-concept has been

Timothy A. Judge, Charlice Hurst, and Lauren S. Simon, Department of Management, University of Florida.

Correspondence concerning this article should be addressed to Timothy A. Judge, Warrington College of Business Administration, University of Florida, PO Box 117165, Gainesville, FL 32611-7165. E-mail: timothy.judge@cba.ufl.edu

largely absent from the literature. We suggest that unlike attractiveness and intelligence, core self-evaluations influence financial strain not only indirectly via their influence on income but also directly. Here we argue that self-concept is a key antecedent of financial well-being because of its effects on subjective appraisals of one's financial situation.

Figure 1 displays the hypothesized model. It links attractiveness and general mental ability to income through educational attainment and core self-evaluations. Finally, income and core self-evaluations are expected to directly affect financial strain. In the following sections, we explain the theoretical basis for the model and provide support for the hypothesized linkages embedded within, focusing on the central role of individual differences in financial well-being.

Theory and Hypotheses

Direct Effects of Attractiveness on Income, Education, and Core Self-Evaluations

That attractiveness positively affects income has been well established in prior research. Langlois et al.'s (2000) meta-analysis revealed that 68% of attractive adults were above the mean on occupational success—which included income—versus 32% of unattractive adults. Subsequent research has established further support for the relationship between attractiveness and earnings (Harper, 2000). Thus, consistent with past findings,

> *Hypothesis 1a:* Physical attractiveness is positively associated with income.

It seems unlikely that one's educational prospects would also be influenced by attractiveness. Yet, a positive link between attractiveness and educational attainment has been demonstrated in one large-sample study, albeit cross-sectional (Umberson & Hughes, 1987). From an early age, attractive people receive more encouragement in academic endeavors than unattractive people. Their intellectual and academic competence are judged more positively

(Jackson, Hunter, & Hodge, 1995; Langlois et al., 2000), even by people who know them well (Langlois et al., 2000). They receive more attention and are subject to more positive interactions with others (e.g., instructional assistance from teachers, positive reactions from adults and children) and fewer negative ones (e.g., punishment by teachers, aggression, negative feedback; Langlois et al., 2000). For example, in one study, school psychologists were less likely to refer an attractive, poorly achieving third grader to remedial classes than a less attractive student (Elovitz & Salvia, 1982).

Being treated better in academic settings may translate into substantial advantages for attractive people. Social support increases academic achievement and motivation (Perry & Weinstein, 1998; Robbins et al., 2004; Wentzel, 1998), both of which are positively associated with educational attainment (Erikson, Goldthorpe, Jackson, Yaish, & Cox, 2005; Mullen, Goyette, & Soares, 2003; Robbins et al., 2004). Indeed, attractive children actually do earn higher grades and standardized test scores; Langlois et al. (2000) found a corrected correlation of $\rho = .20$ for the relationship between attractiveness and measures of academic performance among children. This performance differential might ultimately result in higher levels of education among attractive adults, consistent with Umberson and Hughes's (1987) findings. Grades and test scores from elementary through high school positively predict the likelihood of obtaining a high school diploma and completing postsecondary education (Erikson et al., 2005; Guay, Larose, & Boivin, 2004; Powell & Steelman, 1993; Reynolds, Ou, & Topitzes, 2004; Reynolds, Temple, Robertson, & Mann, 2001). For example, Guay et al. (2004) found that teacher-rated math and verbal achievement of students in Grades 3–5 was positively associated with the level of education they had reached 10 years later. In another study (Reynolds et al., 2004), literacy scores in kindergarten were positively associated with high school completion by age 20, whereas low reading and math achievement through age 15 negatively affected high school completion.
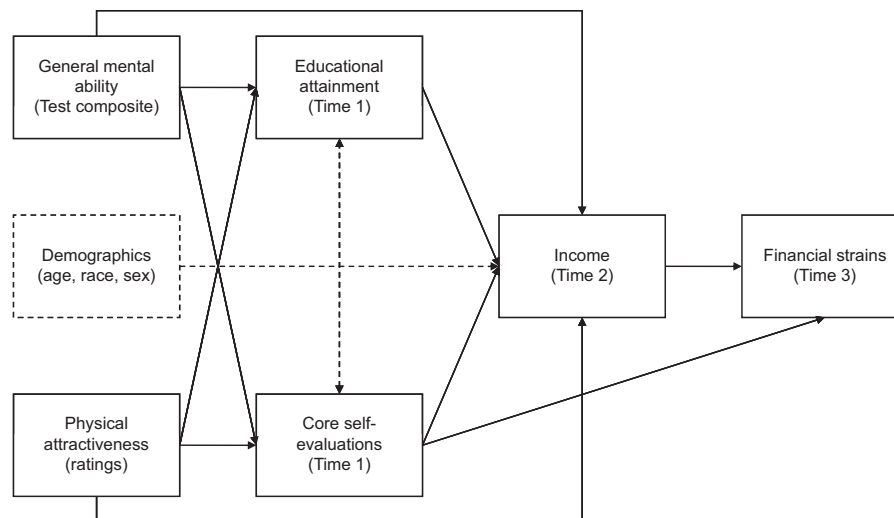

Figure 1. Hypothesized model.

In sum, attractive children are the beneficiaries of more re-
sources supportive of academic achievement, which makes them
more likely to finish high school and go to college.

Hypothesis 1b: Physical attractiveness is positively associated
with educational attainment.

Core self-evaluations are individuals' basic evaluations of them-
selves and their success in and control of their life (Judge, Locke,
& Durham, 1997). It is a latent construct indicated by four lower
order traits: self-esteem, generalized self-efficacy, emotional sta-
bility (neuroticism), and locus of control. Though frequently stud-
ied alone, these traits share a considerable amount of variance that
can be characterized as a general evaluation of one's sense of
competence, deservingness, and control over success in life
(Judge, Erez, Bono, & Thoresen, 2002, 2003).

No study to date has examined the possible role of self-concept
as a mediator of the effects of attractiveness. Though core self-
evaluations are a trait, traits have situational properties that make
them subject to prediction and variation over time (Roberts, Wal-
ton, & Viechtbauer, 2006). Attractiveness should influence global
self-concept in three ways. First, global self-worth is strongly
influenced by the warmth and approval of others (Harter, 2006);
such feedback is (often unwittingly) given to attractive people as
early as the first few days of life (Langlois, Ritter, Casey, & Sawin,
1995). Global self-concept is also predicated on perceived com-
petence in areas of personal importance (Harter, 1993; W. James,
1892), which likely include appearance, given its salience and its
pervasive emphasis in multiple domains in our society. Finally,
Andreoletti, Zebrowitz, and Lachman (2001) have argued that the
stigma of being unattractive, often accompanied by negative judg-
ment and treatment, may lead to the perception of a high level of
external constraint, one aspect of general locus of control.

Harter (1993) characterized the correlations between appearance
and global self-worth throughout life as "staggeringly high" (p.
95), ranging between .70 and .80. Langlois et al. (2000) found a
much more modest relationship, but attractiveness was still posi-
tively related to observed self-confidence/self-esteem in children
($\rho = .12$) and self-reported self-confidence/self-esteem ($\rho = .12$),
competence ($\rho = .13$), and mental health ($\rho = .16$) in adults. In an
experimental study, Mobius and Rosenblat (2006) found that at-
tractiveness was positively related to confidence in one's abilities.
On the basis of longitudinal samples of adolescents and adults,
Zebrowitz, Collins, and Dutta (1998) found that men judged as
attractive in their 30s were more emotionally stable than men
judged as average or unattractive, although they did not find the
same relationships for adult women or for adolescents of either
sex. Finally, Andreoletti et al. (2001) found some support for a
positive influence of attractiveness on control beliefs.

Hypothesis 1c: Physical attractiveness is positively associated
with core self-evaluations.

Direct Effects of General Mental Ability on Income, Education, and Core Self-Evaluations

As with attractiveness, ample research has demonstrated a pos-
itive influence of cognitive ability on income (Heckman, Stixrud,
& Urzua, 2006; Herrnstein & Murray, 1994; Ng et al., 2005;

Scullin, Peters, Williams, & Ceci, 2000). Ng et al.'s (2005) meta-
analysis, for instance, revealed a corrected correlation of $\rho = .27$
between salary and cognitive ability. Likewise, Scullin, Peters,
Williams, and Ceci (2000) found that cognitive ability, measured
in young adulthood, predicted total income and wages 16 years
later.

There is also considerable evidence that intelligence affects
educational attainment (Ceci, 1991; Herrnstein & Murray, 1994;
Neisser et al., 1996). Intelligence positively influences learning
and success at skill acquisition (Carver, 1990; Gottfredson, 1997).
This leads to a positive spiral in which, as Ceci and Williams
(1997) suggested, relatively more intelligent students receive psy-
chosocial and instrumental support as a result of their successes.
As noted earlier, such positive treatment provides the basis for
further achievement and continued schooling.

Hypothesis 2a: General mental ability is positively associated
with income.

Hypothesis 2b: General mental ability is positively associated
with educational attainment.

As with all traits, the main source of core self-evaluations is
genetic, as revealed in the substantial heritability of core indicators
such as self-esteem (Neiss, Sedikides, & Stevenson, 2006); how-
ever, as with attractiveness, we believe that core self-evaluations
will be influenced by intelligence, or general mental ability. Gott-
fredson (1997) argued that intelligence creates "functional compe-
tence," or the achievement of commonly valued social ends. These
ends are not limited to academic pursuits but vary across a broad
array of work and life outcomes (see Gordon, 1997) such as job
performance and occupational success (Judge, Higgins, Thoresen,
& Barrick, 1999; Schmidt & Hunter, 1998), social class (Deary,
Batty, & Gale, 2008), health (Gottfredson & Deary, 2004), and
financial well-being and employment (Herrnstein & Murray,
1994). The success that intelligent individuals find in many areas
of life should carry over to their self-concept.

Hypothesis 2c: General mental ability is positively associated
with core self-evaluations.

Direct Effects of Education and Core Self-Evaluations on Income

Previous scholarship has established that educational attainment
exerts a positive influence on income (Heckman et al., 2006;
Herrnstein & Murray, 1994; Ng et al., 2005; Perna, 2003; Scullin
et al., 2000). Education should improve income by providing
stronger credentials to signal one's value in the market and by
strengthening the skills and knowledge needed to obtain the re-
wards associated with effective performance.

Hypothesis 3: Educational attainment is positively associated
with income.

A longitudinal examination by Judge and Hurst (2007) found
that core self-evaluations measured in young adulthood were pos-
itively associated with income 23 years later. Although this is the
only study of the link between direct measures of the broad core
self-evaluations construct and income, research on the income

effects of the specific core traits also suggests that core self-evaluations should positively affect income. Ng et al. (2005) found that both self-esteem and internal locus of control had positive, nonzero associations with income. In a sample of over 5,000 individuals, Waddell (2006) found that low self-esteem measured in adolescence was related negatively to wages earned 14 years later.

Hypothesis 4: Core self-evaluations are positively associated with income.

Mediating Roles of Educational Attainment and Core Self-Evaluations

Educational attainment and core self-evaluations are among the factors that likely link attractiveness and general mental ability with income. We expect partial mediation by education and core self-evaluations in the cases of both attractiveness and intelligence. As mentioned earlier, previous researchers have demonstrated that at least some of the income differences between attractive and unattractive people are due to employer and customer discrimination, marital success, and occupational sorting (Biddle & Hamermesh, 1998; Hamermesh & Biddle, 1994; Harper, 2000; Hosoda et al., 2003; Mobius & Rosenblat, 2006). Yet, attractive people might also earn more partly because, as argued above, they become more educated and view themselves more positively.

Hypothesis 5a: Educational attainment partially mediates the relationship between physical attractiveness and income.

Hypothesis 5b: Core self-evaluations partially mediate the relationship between physical attractiveness and income.

Like attractiveness, intelligence influences a number of other factors that play a role in earnings such as job performance (Schmidt & Hunter, 1998), employment stability (Leventhal, Graber, & Brooks-Gunn, 2001), and job knowledge acquisition (Hunter, 1986; Ree, Carretta, & Teachout, 1995). Nevertheless, recent research (Heckman et al., 2006; Scullin et al., 2000) has provided evidence that educational attainment mediates the relationship between intelligence and income. Furthermore, although the relationship has not been explored previously, we believe that the higher core self-evaluations of intelligent people also contribute to their income advantage.

Hypothesis 6a: Educational attainment partially mediates the relationship between general mental ability and income.

Hypothesis 6b: Core self-evaluations partially mediate the relationship between general mental ability and income.

Income, Core Self-Evaluations, and Financial Strain

It is clear why income would negatively predict financial strain. Ample income leaves one less vulnerable to economic shocks and more able to cover the mundane costs of living. Yet, the experience of one's financial status as stressful may be as much a matter of perception as it is a reaction to an objectively adverse state of affairs. As evidence, Vera-Toscano et al. (2006) found that subjective appraisals based on future expectations and peer comparisons improved prediction of financial satisfaction beyond income alone.

From the perspective of the transactional theory of stress (Lazarus & Folkman, 1984), appraisals of circumstances as threatening or challenging are influenced by individual differences like self-esteem, self-efficacy, and sense of control. On the basis of this notion, Judge et al. (1997) argued that core self-evaluations influence attitudes by coloring interpretations of external circumstances and events. Indeed, a study of full-time health care workers with the same employer revealed that core self-evaluations were negatively associated with perceptions of organizational constraints, leading to lower levels of burnout (Best, Stapleton, & Downey, 2005). Other research has found that general self-efficacy is associated with appraisal of situations as challenges rather than threats (Luszczynska, Gutiérrez-Doña, & Schwarzer, 2005). Moreover, individuals high in neuroticism experience more negative events, but more importantly, they react more strongly to such events and choose less effective coping mechanisms (Bolger & Zuckerman, 1995). Thus, core self-evaluations should affect the psychological aspects of financial strain because those with negative core self-evaluations are more susceptible to strains in general.

The link between core self-evaluations and financial strains may be substantiated on behavioral grounds as well. Crocker and Luhtanen (2003) found that appearance-based self-esteem predicted financial problems among college students, presumably because those with negative self-esteem tended to spend more on clothing and products to enhance their appearance. Thus, individuals with positive core self-evaluations should be less likely to experience financial strains because they earn more, appraise their financial situation more sanguinely, and engage in financial behaviors that minimize the types of problems that can lead to stress.

Hypothesis 7a: Income is negatively associated with financial strain.

Hypothesis 7b: Core self-evaluations are negatively associated with financial strain.

Hypothesis 7c: Income partially mediates the relationship between core self-evaluations and financial strain.

Method

Participants and Procedure

The data were obtained as part of a national study, the Harvard Study of Health and Life Quality, which was initiated in 1995. The national study—called the Midlife Development in the United States study (Brim et al., 2003)—was based on a national probability sample of noninstitutionalized, English-speaking adults, ages 25–75 years ($M = 47.8$, $SD = 13.1$). During the national study, the Boston area was oversampled to create a subset to be used for the present study, the Boston In-Depth Study of Management Processes in Midlife (Lachman, 2004). The Boston study began six months after the national study and consisted of three interviews over three periods spaced 6 months apart, as well as tests (cognitive ability, cortisol) and photograph taking. A total of 429 potential participants were contacted.

Contact persons were informed that the survey was being carried out through the Harvard Medical School and that it was

designed to study health and well-being during the middle years of life. After the purpose of the study was explained, the contact person was asked to generate a listing of all household members ages 25–74 years, from which a random participant was selected. Once the phone call to the contact person was completed, participants were mailed a survey, which included a boxed pen and a check for $20. A reminder postcard was mailed to all participants 3 days after the initial questionnaire. A second questionnaire with a cover letter urging participants to return the questionnaire was mailed 2 weeks later to all participants who had not returned the questionnaire by that time. Reminder telephone calls were made 2 weeks later to all participants who had still not returned the questionnaire.

Of the 429 individuals who were selected to participate, 38 subsequently were unreachable, and a total of 302 participants responded at Time 1, for a 77.2% response rate. Just under two thirds (62.6%) of these participants were married, 58.9% were men, and the majority (93.3%) were Caucasian. Less than a third (28.6%) had either less than or equivalent to a high school diploma, 24.9% had some college education, and almost half (46.5%) had a bachelor's degree or more. Of the 302 individuals who participated at Time 1, 288 (95.3%) participated at Time 2, and 289 (95.7%) participated at Time 3. The sample size was further reduced by missing data such as unavailability of test scores or photographs. All things considered, after listwise deletion, complete data were available for 191 participants. Demographic results for the final sample remained similar to those of the full sample, with 62.8% of the final sample listed as married, 64.3% listed as men, and 95.9% listed as Caucasian. Further, as in the original sample, 28.6% had either less than or equal to a high school diploma, 23.4% had some college education, and 48% had at least a bachelor's degree.

Measures

Financial strains. Financial strains were measured with a four-item scale, asked during the Time 3 interview. The four items were as follows: (a) "Please tell me whether you have experienced financial problems (e.g., low income, or heavy debts) since we last spoke (Time 2)"; (b) "How often have you had money/financial problems": 1 (*never*), 2 (*several times a year*), 3 (*once a month*), 4 (*several times a month*), 5 (*once a week*), 6 (*several times a week*), or 7 (*almost every day*)? (c) "How often has money/finances gone well": 1 (*never*), 2 (*several times a year*), 3 (*once a month*), 4 (*several times a month*), 5 (*once a week*), 6 (*several times a week*), or 7 (*almost every day*)? (d) "How much stress do you get from money/finances": 1 (*none*), 2 (*a little*), 3 (*some*), or 4 (*a lot*)? Because the items were measured with different response scales, they were standardized prior to averaging, and the third item was reverse scored. The coefficient alpha reliability estimate of this scale was .86.

Income. At Time 2, participants' income was measured with the interview question "Please tell me which letter indicates your total yearly household income from all sources, before taxes." Participants were then shown a card that divided income into 36 groups (each designated with a letter), ranging from $0 (A, scored 1) to $35,000–$39,999 (BB, scored 18), to $1,000,000 or more (LL, scored 36).

Core self-evaluations. Core self-evaluations were measured with a 15-item scale. Because the items were evaluated on two response scales (some items on a 1–5 scale, others on a 1–7 scale), the items were standardized prior to computing the total score. Sample items included "I often feel helpless in dealing with the problems of life" (reverse scored), "When I look at the story of my life, I am pleased with how things have turned out so far," and "In many ways I feel disappointed about my achievements in life" (reverse scored). The coefficient alpha reliability estimate of this scale was .85.

Because this study was initiated before Judge et al.'s (2003) core self-evaluations scale (CSES) was developed, we sought to validate the measure we used by determining whether it converges with the CSES. To do so, we concurrently administered the present 15-item scale, along with the 12-item CSES and three Big Five measures, to 795 undergraduates enrolled in an introductory management course at a large southeastern university. The correlation between the 15-item scale ($\alpha = .91$ in this sample) and the 12-item CSES ($\alpha = .88$ in this sample) was $r = .72$ ($r_c = .80$). Moreover, when compared with various measures of the Big Five traits, both core self-evaluations scales (the CSES and the 15-item measure used in this study) exhibited similar patterns of relationships. Specifically, in correlating both measures with an average of three Big Five measures—the minimarkers (Saucier, 1994), the Big Five Inventory (John & Srivastava, 1999), and the International Personality Item Pool (Goldberg, 1996)—we devised the correlations shown in Table 1. Thus, it appears that the core self-evaluations measure used in this study was reliable and displayed a high level of convergent validity with the CSES.

Educational attainment. At Time 1, educational attainment was measured on a 12-point scale: 1 (*some grade school*), 2 (*junior high/eighth grade*), 3 (*some high school*), 4 (*general equivalency diploma*), 5 (*graduated from high school*), 6 (*1 to 2 years of college, no degree*), 7 (*3 years of college, no degree*), 8 (*2-year college degree*), 9 (*4-year college degree*), 10 (*some graduate school*), 11 (*master's degree*), and 12 (*doctoral-level degree*).

Physical attractiveness. Attractiveness was measured with ratings of photographs. In the Midlife Development in the United States study, front and profile photographs were taken of each participant in a carefully controlled manner (i.e., photos were taken from the same distance with the same background, individuals' clothing was obscured with a cloak, participants were instructed to pose with a neutral facial expression, front and profile photographs were taken). All photographs were rated on a scale from 1 (*unattractive*) to 7 (*attractive*). Because attractiveness ratings can vary by age and sex, raters were instructed to evaluate each participant's

Table 1
Correlations Among Big Five and Core Self-Evaluations Measures

Big Five	12-item Core Self-Evaluations Scale	15-item current measure
Emotional stability	.43	.34
Extraversion	.36	.28
Openness	.15	.14
Agreeableness	.20	.26
Conscientiousness	.29	.28

attractiveness relative to individuals in the participant's same age and gender group.

Six ratings were used to compute an overall assessment of physical attractiveness. Four of these ratings were from Andreoletti et al. (2001), who had male and female undergraduate students rate the front and profile photographs of study participants. The student ratings in the Andreoletti et al. study were supplemented by ratings from older adults (men and women). Thus, each study participant had six ratings: (a) undergraduate male ratings of his or her front photograph, (b) undergraduate male ratings of his or her profile photograph, (c) undergraduate female ratings of his or her front photograph, (d) undergraduate female ratings of his or her profile photograph, (e) older adult male ratings of his or her front photograph, and (f) older adult female ratings of his or her front photograph. Thus, we calculated an overall physical attractiveness score by computing an average score for each participant across these six sets of ratings. The coefficient alpha reliability estimate of this scale was .95.

General mental ability. The cognitive testing consisted of nine measures of cognitive ability completed in the following order: (a) Wechsler Adult Intelligence Scale (WAIS; Wechsler, 1955) Forward Digit Span, (b) WAIS Backward Digit Span, (c) WAIS Vocabulary, (d) counting backwards test, (e) letter comparison test, (f) dual-task test involving the counting backwards and letter comparison tests, (g) WAIS Digit Symbol test, (h) Schaie-Thurstone Letter Series test (Schaie, 1985), and (i) Raven's Advanced Progressive Matrices test (Raven, Raven, & Court, 1991). We formed an overall general mental ability factor by first standardizing the measures, and then computing a unit-weighted composite of the scores on the nine tests. The reliability of the general mental ability composite was $r_{xx} = .83$ and was calculated with the formula for the reliability of a composite (Nunnally & Bernstein, 1994).

Age, race, and sex. Age, race, and sex were measured at Time 1. Because of the small number of non-White participants in our sample, we collapsed minority groups into a single category. Race was coded 1 (*White*) and 2 (*non-White*). Sex was coded 1 (*male*) and 2 (*female*).

Results

Control Variables

As shown in Figure 1, we controlled for several relationships that should be taken into account when considering income attainment. Age, race, and sex tend to be related to income such that older individuals, Whites, and men earn more on average (Ng et al., 2005). Also, on the basis of recent research on specific core traits (Heckman et al., 2006; Waddell, 2006), we expected core self-evaluations to be positively related to educational attainment.

Covariance Structure Analysis

Table 2 contains the descriptive statistics and correlations among the study variables. The correlations and standard deviations served as input to LISREL (Version 8.3; Jöreskog & Sörbom, 1993). Covariance structure models have several advantages relevant to this study, including the fact that they correct latent variables for measurement error; allow estimation of direct, indirect, and total effects; and facilitate comparisons of hypothesized

models with alternative models. In estimating the hypothesized and alternative models, we treated the variables as manifest estimated with measurement error. We corrected for measurement error by constraining the error term as $\theta_\varepsilon = \sigma_y^2 \times (1 - \alpha_y)$, where θ_ε is the error variance for endogenous variables, θ_δ is the error term for exogenous (*x*) variables, σ_y^2 is the variance of variable *y*, and α_y is the reliability of variable *y*.

With covariance structure models, it is essential first to examine the overall fit of the model. If the model does not fit the data acceptably, the overall hypothesis that the model is an accurate representation of the data is rejected. In such cases, the coefficients estimated in the model can be biased owing to relevant omitted causes and thus are meaningless (L. R. James, Mulaik, & Brett, 1982). The most widely used measure of model fit is the chi-square statistic. Hu and Bentler (1995) further suggested a combination of standardized root-mean-square residual (RMSR) and the comparative fit index (CFI; Bentler, 1990). We also report the root-mean-square error of approximation (RMSEA; MacCallum, Browne, & Cai, 2006) and the nonnormed fit index (NNFI; MacCallum, Roznowski, Mar, & Reith, 1994). Finally, we report the Akaike Information Criterion (AIC; Akaike, 1987) because it is useful for model comparisons (Tanaka, 1993) and because it adjusts for the parsimony of a model. As Mulaik, James, and van Alstine (1989) noted, the AIC "penalizes a model for losses in degrees of freedom resulting from estimating more parameters, when comparing models according to their lack of fit to the data" (pp. 436–437).

Tests of Direct Effects

Figure 2 shows that, supporting Hypotheses 1a, 1b, and 1c, physical attractiveness significantly influenced income ($\gamma = .13$, $p < .05$), educational attainment ($\gamma = .21$, $p < .01$), and core self-evaluations ($\gamma = .23$, $p < .01$). Consistent with Hypotheses 2a, 2b, and 2c, general mental ability also had a positive, significant influence on income ($\gamma = .41$, $p < .01$), educational attainment ($\gamma = .51$, $p < .01$), and core self-evaluations ($\gamma = .19$, $p < .01$).[1] In support of Hypotheses 3 and 4, educational attainment ($\beta = .18$, $p < .01$) and core self-evaluations ($\beta = .23$, $p < .01$) had

---

[1] The model is predicated on the assumption that a single general mental ability (GMA) factor is an appropriate means of conceptualizing and measuring cognitive ability. To corroborate this assumption, we performed two analyses. First, we specified a confirmatory factor analysis model in which a single GMA factor was posited to explain the covariance among the individual cognitive ability measures. The confirmatory factor analysis results revealed that the single-factor model fit the data well. The fit statistics of the model were $\chi^2(27, N = 191) = 49.26$, RMSR = .057, RMSEA = .065, NNFI = .94, CFI = .95. Each of the nine factor loadings was significant ($\bar{t} = 8.17$); the average factor loading was $\bar{\lambda}_x = .56$. Second, consistent with Ree, Earles, and Teachout (1994), we examined the degree to which the specific abilities predicted the criterion, controlling for the overall GMA measure. In conducting such a usefulness analysis (adding the GMA measure after first controlling for the ability measure and then reversing this procedure), the GMA measure always predicted income (nine out of nine times). However, only one of the facets (Letter Series task) explained additional variance beyond that explained by GMA, and its standardized coefficient was smaller ($\beta = .21$, $p < .05$) than GMA ($\beta = .28$, $p < .01$) even in that case. Across the nine regressions, the average standardized regression weight of GMA was $\beta = .40$, compared with $\beta = .05$ for the specific ability measures.

Table 2
Means, Standard Deviations, and Intercorrelations Among Study Variables

Variable	M	SD	1	2	3	4	5	6	7	8	9
1. Financial strains	0.00	0.84	(.86)								
2. Income	26.58	5.94	−.30**	—							
3. Core self-evaluations	0.00	0.35	−.29**	.33**	(.85)						
4. Educational attainment	7.68	2.62	−.17*	.46**	.22**	—					
5. Physical attractiveness	3.30	0.63	−.05	.24**	.20**	.24**	(.95)				
6. Race[a]	1.07	0.25	.20**	−.14*	−.06	−.12	.00	—			
7. Sex[b]	1.41	0.49	.06	−.09	−.08	−.01	.12	−.02	—		
8. General mental ability	0.00	0.68	−.06	.50**	.18*	.49**	.16*	−.22**	−.04	(.83)	
9. Age	47.89	13.75	−.32**	−.16*	−.06	−.07	−.05	−.13	−.15*	−.27**	—

Note. Where appropriate, coefficient alpha or composite reliability estimates are listed on the diagonal. Listwise $N = 191$.
[a] 1 = White, 2 = non-White. [b] 1 = male, 2 = female.
* $p < .05$. ** $p < .01$.

significant effects on income. Consistent with Hypotheses 7a and 7b, income ($\beta = -.31$, $p < .01$) and core self-evaluations ($\beta = -.26$, $p < .01$) negatively influenced financial strain.

Tests of Partial Mediation

To test the partial mediation hypotheses (Hypotheses 5a, 5b, 6a, 6b, and 7c), we estimated the direct, indirect, and total effects of physical attractiveness and general mental ability on income and financial strains. These results are shown in Table 3. Physical attractiveness had significant direct and indirect effects on income, and this indirect effect is via education (Hypothesis 5a) and core self-evaluations (Hypothesis 5b).[2] Similarly, general mental ability had significant direct and indirect effects on income, and this indirect effect appeared to be explained by education (Hypothesis 6a) and core self-evaluations (Hypothesis 6b), as each of these variables had direct effects on income. Finally, as shown in Table 3, Hypothesis 7c was supported in that core self-evaluations had significant direct and indirect effects on financial strains, and the indirect effect is via the effect of income on financial strains. Overall, the mediation effects were significant, and the results clearly supported partial rather than full mediation. Of the total effects of physical attractiveness and general mental ability on income, 38.1% and 21.2%, respectively, were indirect. For the relationship between core self-evaluations and financial strains, 21.2% of the total effect was mediated by income.

Model Fit and Tests of Alternative Models

The fit statistics for the hypothesized model are displayed in Table 4. As is shown in the table, by conventions used to judge fit statistics, the hypothesized model appeared to fit the data acceptably in that the chi-square statistic was nonsignificant and the ratio of chi-square to degrees of freedom was below 3 (Kline, 1998; but see MacCallum, 1998, for a cautionary note), the standardized RMSR was less than .08 (Hu & Bentler, 1995), the RMSEA was below .05 (Browne & Cudeck, 1993), and the CFI and NNFI statistics were greater than .95 (Hu & Bentler, 1995). The squared multiple correlations for each structural equation were as follows: educational attainment, $R^2 = .25$; core self-evaluations, $R^2 = .10$; income, $R^2 = .47$; financial strain, $R^2 = .27$.

To further depict how well the model predicted levels of income, we estimated a multinomial logistic regression predicting the income categories in which race and sex were treated as categorical predictors and core self-evaluations, education, physical attractiveness, general mental ability, and age were covariates. The model's pseudo-squared correlation is .60, and the classification analysis revealed that 32.3% of the observed categories were correctly predicted with the explanatory variables (because there are 35 income categories, 2.86% would be correctly predicted by chance alone). Because the number of income categories was quite large (ranging from 2 to 36), we also calculated the percentage of observed income categories that were correctly predicted with minimal error (±1 variance between the predicted and actual category). In that case, the classification rate was 51.0%. Overall, the results suggest that the variables predicted the income categories with a reasonable (albeit imperfect) degree of accuracy.

In evaluating a hypothesized model, it is important to compare its fit to competing models (MacCallum, Wegener, Uchino, & Fabrigar, 1993). As MacCallum (1998) noted, "It is quite difficult to evaluate a single model in isolation without a reference point" (p. 22). We estimated the following alternative models: (a) a *distal effects only* model (referred to as Number 1), whereby only general mental ability and physical attractiveness, and not educational attainment and core self-evaluations, predicted income (i.e., the links of educational attainment and core self-evaluations with income were constrained to zero); (b) an *entirely mediated* model (referred to as Number 2), whereby only educational attainment and core self-evaluations, and not general mental ability and physical attractiveness, directly predicted income (i.e., the direct links of general mental ability and physical attractiveness with income were constrained to zero); and (c) an *independent effects* model (referred to as Number 3), whereby the four variables (general mental ability, physical attractiveness, educational attainment, core

---

[2] Because the indirect effect of attractiveness on income encompasses two mediated pathways—one through educational attainment (Hypothesis 5a) and the other through core self-evaluations (Hypothesis 5b)—we conducted separate mediation tests using the Sobel (1982) test. Results indicated that both mediation effects were significant for core self-evaluations ($Z = 2.02$, $p < .05$) and educational attainment ($Z = 2.58$, $p < .01$).
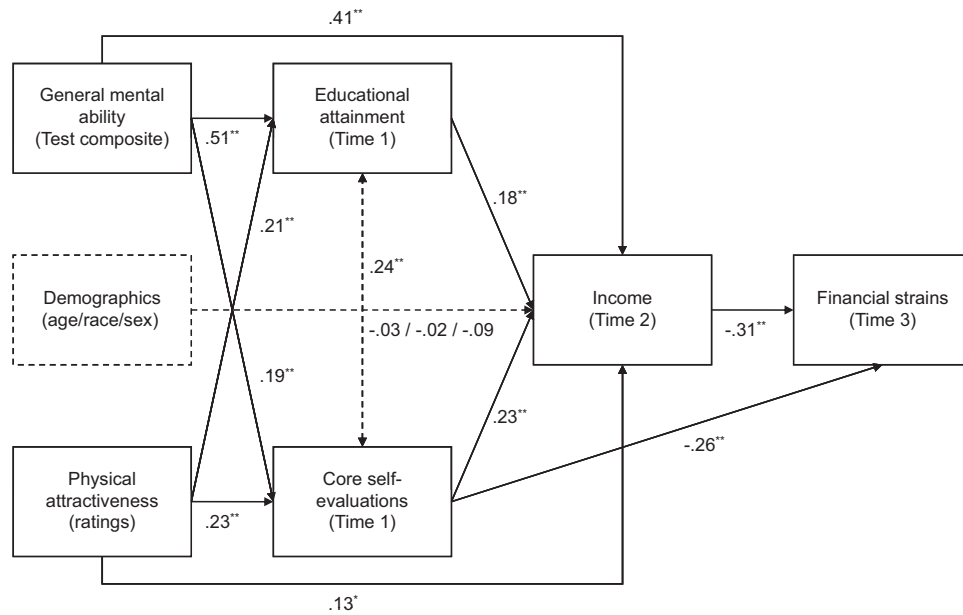
Figure 2.   LISREL results for hypothesized model. * $p < .05$. ** $p < .01$.

self-evaluations) contribute to income independently (i.e., the links of general mental ability and physical attractiveness with educational attainment, and of physical attractiveness with core self-evaluations, were constrained to zero).

The difference in chi-square between the hypothesized model and each alternative model was significant (Number 1: $\Delta\chi^2_2 = 14.73$, $p < .01$; Number 2: $\Delta\chi^2_2 = 21.00$, $p < .01$; Number 3: $\Delta\chi^2_3 = 75.54$, $p < .01$), indicating that the alternative models provided a significantly poorer fit to the data than did the hypothesized model. Moreover, the difference between the AIC of the hypothesized model and the alternative models was also substantial and greater than the differences among the alternative models (Number 1: ΔAIC = 10.73, $p < .01$; Number 2: ΔAIC = 17.00, $p < .01$; Number 3: ΔAIC = 59.54, $p < .01$). The AIC is particularly useful in comparing nested models because it "clearly represents the penalty logic and encourages investigators to select the simplest from a range of alternative models" (Tanaka, 1993, p. 22). The other fit statistics for the alternative models also were poorer than the hypothesized model, although the degree of difference varied by statistic (e.g., the difference for the RMSR was much smaller than for the CFI or NNFI).[3]

Discussion

This study finds that, even accounting for intelligence, one's income prospects are enhanced by being good-looking. Education and core self-evaluations are key factors linking attractiveness and intelligence to income. Although few would doubt that more intelligent people receive more education, the idea that more attractive people are better educated is hardly intuitive. Likewise, it seems reasonable for those who are intelligent to have greater confidence in their capabilities, whereas basing one's self-worth on looks seems ill-founded. Yet, people who are attractive do think

more highly of their worth and capabilities. This too results in higher earnings and less financial stress.

We can be somewhat heartened by the fact that the effects of general mental ability on income were stronger than those of facial attractiveness. It turns out that the brainy are not necessarily at a disadvantage to the beautiful, and if one possesses both intelligence and good looks, then all the better. Moreover, the effects of self-concept are particularly noteworthy. Its effects on income are stronger than those of attractiveness and nearly as strong as those of intelligence. The influence of core self-evaluations on both income and financial strain underlines the critical role it can play in both objective and subjective life success.

This study makes several contributions. It is one of only a few that longitudinally links attractiveness to individual differences, and it is the only one of which we are aware to demonstrate that individual differences mediate the relationship between attractive-

---

[3] Although gender was used as a control variable in the model, that does not address whether the structural equations operate differentially by gender. Accordingly, we performed a Chow (1960) test on each endogenous variable to determine whether the antecedent variables differentially predicted the endogenous variables for men and women. In conducting the Chow tests, we estimated three (one for men, one for women, and one pooled) regressions for each of the endogenous variables in the model (income, financial strains, core self-evaluations, and education) using as independent variables those posited in the model (e.g., with income, six independent variables were used: race, age, general mental ability, education, core self-evaluations, and physical attractiveness). Although several Chow test statistics approached significance, none were statistically significant: income, $F(6, 184) = 1.61$, $p = .15$; financial strain, $F(2, 234) = 2.18$, $p = .12$; core self-evaluations, $F(2, 208) = 1.52$, $p = .22$; and education, $F(2, 228) = 0.64$, $p = .53$. These results suggest that the structural equations do not predict the endogenous variables differentially for men and women.

Table 3
Direct, Indirect, and Total Effects of Variables on Income and Financial Strains

Variable	Income			Financial strains		
	Direct	Indirect	Total	Direct	Indirect	Total
Core self-evaluations	.23**		.23**	−.26**	−.07*	−.33**
Educational attainment	.18**		.18**		−.05	−.05
Physical attractiveness	.13*	.08**	.21**		−.13**	−.13**
General mental ability	.41**	.11**	.52**		−.22**	−.22**

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

ness and income. Second, it casts light on the relative influence of attractiveness and intelligence on income attainment. Finally, it enhances our understanding of both the foundations of global self-concept and its consequences. Overall, this study enhances the complexity of our understanding with regard to what factors differentiate one's level of success from that of another.

Future Research

Considering that only 43% of the effects of attractiveness were explained by core self-evaluations and educational attainment, other possible mechanisms should be explored. In particular, although there has been broad examination of the types of bias faced by unattractive people in employment contexts (Hosoda et al., 2003; Langlois et al., 2000), there is still room for exploration of characteristics that could serve as sources of the income difference. For instance, attractive people tend to be higher in extraversion (Langlois et al., 2000), which is positively associated with transformational leadership behaviors (Bono & Judge, 2004). It would be interesting to examine whether actual trait and behavioral differences interact with biased perceptions of the leadership capabilities of attractive people to result in greater opportunities for advancement and higher earnings.

Implicit leadership theory (Lord, Foti, & Phillips, 1982) argues that people develop schemas of characteristics that indicate an effective leader. Individuals are categorized and evaluated as leaders to the extent that they are prototypical of others' schemas. In addition to being more extraverted, attractive people tend to be seen as higher in intelligence (Jackson, Hunter, & Hodge, 1995;

Langlois et al., 2000), although the actual correlation between attractiveness and intelligence is negligible (ρ = .03; Langlois et al., 2000). Perceptual measures of intelligence are more positively related to leader emergence than paper-and-pencil measures (Judge, Colbert, & Ilies, 2004), indicating that those who are seen as intelligent are more likely to become leaders. Attractive people are also viewed as less self-serving when engaging in efforts to wield influence over others (Reinhard, Messner, & Sporer, 2006), which suggests that people would be more receptive to their attempts to attain leadership positions.

Attractive people may also develop greater social capital, which is tied to career success (Seibert, Kraimer, & Liden, 2001). They tend to be more popular (Langlois et al., 2000), and Dollinger (2002) found that attractive people depicted themselves as more socially connected than less attractive people. Also, Mulford, Orbell, Shatto, and Stockard (1998) found that others are more likely to cooperate with attractive people, partly because the latter are expected to be more cooperative. Future research might link attractiveness to the characteristics of individuals' personal and professional networks. It would also be interesting to examine whether attractive individuals have higher quality dyadic relationships with coworkers and, particularly, supervisors. It is possible that affective reactions to attractive individuals are more positive, even to the extent of mitigating the effects of an individual's weaknesses.

Attractiveness might also have some less than beneficial effects on personality and behavior. For instance, given the level of attention they receive, attractive people could be more narcissistic,

Table 4
Fit Statistics for Hypothesized and Alternative Models

Model	χ^2	df	χ^2/df	RMSR	RMSEA	CFI	NNFI	AIC
Hypothesized model	38.58	30	1.29	.07	.04	.96	.96	68.58
Alternative 1 (distal effects only)								
Dropping links of educational attainment and CSE with income	53.31	32	1.67	.08	.06	.91	.90	79.31
Alternative 2 (entirely mediated)								
Dropping direct links of GMA and physical attractiveness with income	59.58	32	1.86	.08	.07	.89	.87	85.58
Alternative 3 (independent effects)								
Dropping links of physical attractiveness with educational attainment and CSE and of GMA with educational attainment	114.12	33	3.46	.16	.11	.66	.63	128.12

Note. RMSR = standardized root-mean-square residual; RMSEA = root-mean-square error of approximation; CFI = comparative fit index; NNFI = nonnormed fit index; AIC = Akaike Information Criterion; CSE = core self-evaluations; GMA = general mental ability.

which is negatively related to leadership effectiveness, task performance, and organizational citizenship behaviors (Judge, LePine, & Rich, 2006). Also, because of the benefits beauty has bestowed on them, attractive people might be more psychically invested in their looks. There is evidence that some people base more of their self-worth than others on their appearance, and as noted earlier, those who do tend to have more financial problems (Crocker & Luhtanen, 2003). If attractiveness also promotes characteristics that are negatively associated with job performance and income, then there might be little net effect of appearance on income via traits and behaviors. The income advantage of attractive people could be entirely due to bias. Only further research can reveal to what extent individual differences are responsible for the income advantages that accrue to good-looking people relative to stereotyping in the labor market.

The astute reader will notice that our treatment of core self-evaluations as a dependent variable is unusual. Nearly all core self-evaluations research considers them an independent variable and generally labels core self-evaluations a trait (Judge, 2009). Indeed, at first blush, our own reference to core self-evaluations as a trait would appear to belie our treatment of them as an endogenous variable (influenced by attractiveness and general mental ability). We believe this consideration of core self-evaluations as both a trait and an endogenous variable is not the contradiction it might seem, for both a general reason and a more specific one.

First, all traits—the Big Five included—can be considered to have state (within person, situational) and trait (between individuals, temperamental) properties (Fleeson, 2004). Though the trait properties of the Big Five traits are well accepted in both applied and personality psychology, less recognized in applied psychology is that measures of the traits show evidence of change over time (Roberts et al., 2006). Roberts and Mroczek (2008) noted, "Research now shows that personality traits continue to change in adulthood and often into old age, and that these changes may be quite substantial and consequential" (p. 31). More is being learned about why traits change, with work experiences figuring prominently in the equation (Roberts, Caspi, & Moffitt, 2003). As Roberts, Caspi, and Moffitt (2003) commented, "The perspective that traits do not change in response to life experiences is developmentally incomplete" (p. 591).

Second, in specific reference to core self-evaluations, although their statelike qualities have not been sufficiently explored in past research, there is a voluminous body of research with respect to the specific trait with which the broad core self-evaluations factor correlates most highly—self-esteem (Judge et al., 2003). In personality and social psychology, one finds genetic studies on self-esteem (Raevuori et al., 2007), and one also finds studies in which changes in self-esteem are produced from experimental manipulations (Leary, Haupt, Strausser, & Chokel, 1998). As recently noted by Denissen, Penke, Schmitt, and van Aken (2008), these trait and state aspects of self-esteem coexist between and within individuals.

As the foregoing discussion indicates, all traits, including core self-evaluations, can productively be considered for their statelike, conditional characteristics. Nevertheless, future research should investigate the dynamic nature of core self-evaluations, including their viability as both a dependent and an independent variable and their possible within-individual variation. Moreover, more research is needed on the temperamental nature (i.e., the possible genetic basis) of core self-evaluations. As with research on the Big Five traits, we do not see these lines of research as incompatible.

Practical Implications

Some might take the results presented in this article to mean that stereotypes favoring attractive people in employment contexts are well founded. It is true that there seem to be differences among people at varying levels of attractiveness in characteristics that influence career success. All the same, these relationships are not strong enough to justify using attractiveness as a proxy for less tangible attributes, particularly given that educational attainment is easy enough to verify and reliable measures are available for traits like core self-evaluations (Judge et al., 2003). Furthermore, there is ample evidence that decision makers will privilege attractiveness, regardless of the amount of other job-relevant information they have about the people subject to their decisions (Hosoda et al., 2003). Thus, in the interests of fairness and effectiveness, it is still worthwhile for employers to make an effort to reduce the effects of bias toward attractive people in the workplace. Nevertheless, the elimination of stereotyping among employers would not entirely overcome the beauty premium. Assuming that the differences in education and core self-evaluations found here are the result of treatment early in life, bias would have to be rooted out long before people reach the labor market. After all, preferential treatment based on attractiveness begins with the behaviors of mothers (Langlois et al., 1995) and other caregivers (Casey & Ritter, 1996; Ritter, Casey, & Langlois, 1991) toward infants.

If the growth of the beauty and cosmetic surgery industries is any indication, the lengths to which people will go to enhance their appearance are heightening. In the United States, cosmetic procedures tripled from 1997 to 2003, and globally the beauty industry is growing at a faster rate than the growth domestic product of most developed countries ("Pots of Promise," 2003). In China, it is becoming more common for people to undergo loan-financed cosmetic surgery explicitly to enhance their income prospects ("Saving Face," 2004). Yet, our results suggest that people could achieve, at less cost, some of the financial benefits found among people who are highly attractive by striving to develop certain personal characteristics that influence labor market success. As mentioned, the higher levels of education attained by attractive people are not due to meaningful underlying intelligence differences (Jackson et al., 1995; Langlois et al., 2000), nor is their greater self-confidence due to any difference in intrinsic value. Of course, given the rising costs of college, beauty treatments and cosmetic surgery could seem less expensive (albeit more risky); however, in our findings, education exerted a stronger direct effect on earnings than attractiveness, indicating that working to increase the former has greater payoffs.

The value of trying to increase one's self-worth is more difficult to assess. Some scholars argue that the pursuit of self-worth is dangerous because failure in areas on which self-esteem is contingent is so emotionally damaging (Baumeister, Campbell, Krueger, & Vohs, 2003; Crocker & Park, 2004). Others counter that self-worth can be pursued adaptively (DuBois & Flay, 2004), although further research is needed to understand specific change mechanisms (Swann, Chang-Schneider, & Larsen-McClarty, 2007).

Limitations

One weakness of this study is the fact that attractiveness was measured in adulthood, although we argued that the mediating processes are due to expectancy effects that start in childhood and adolescence, as many other researchers have argued. This is a limitation of the archival data set we used. However, facial attractiveness in childhood is positively correlated with attractiveness through adulthood. Although absolute levels of attractiveness do tend to decline, relative rankings remain fairly stable (Zebrowitz, Olson, & Hoffman, 1993). Therefore, it is probable that the attractiveness ratings of participants in our sample resemble those that could have been obtained during childhood.

Second, we could not demonstrate that the effects of attractiveness on education and core self-evaluations were actually due to discriminatory treatment on the basis of appearance. It seems likely, given strong evidence that attractive people are treated differently (Langlois et al., 2000). However, further longitudinal research that links attractiveness to treatment and treatment to individual differences would provide stronger support for arguments that appearance exerts effects through expectancy confirmation processes.

Another limitation is that our measure of income, like most income measures used in the literature, was self-reported. Although measures of self-reported income are often more prone to measurement error than are archival measures, past research on the issue has found these differences to be small and that similar results are obtained with self- and archival reports of salary (Bollinger, 1998; Graham, Hotchkiss, & Gerhart, 2000). Moreover, evidence indicates that self-reported and archival measures of income are substantially correlated (Judge, Cable, Boudreau, & Bretz, 1995).

Finally, one of the strengths of our study is that our sample allows for generalization beyond a specific company or profession. However, we recognize that because the sample was racially homogeneous, how well these results generalize to more diverse populations is unknown. For instance, the small percentage of minorities in our study is well below the national average of 24.9% (U.S. Census Bureau, 2000). Additionally, compared with national averages, larger percentages of our sample were married and were more highly educated. Given that prior research assessing the potential moderating effects of demographic variables on the relationships between physical attractiveness and personality and job outcomes is mixed (see, e.g., Frieze, Olson, & Russell, 1991; Hamermesh & Biddle, 1994; Hosoda et al., 2003; Lerner & Karabenick, 1974; Parks & Kennedy, 2007), the relationships between variables in our study should be investigated among more demographically heterogeneous samples before results are confidently extended to such populations.

Conclusion

We live in a world as captivated by beauty as it is uncomfortable with the advantages beauty confers. Even as we remind one another that it is only skin deep, we pursue beauty with a formidable devotion. The results of this study further attest to the importance of physical attractiveness, by showing that it influences self-concept (core self-evaluations), income, and financial well-being (financial strain). As economic inequality grows (Fessenden, 2007), scholars are turning their attention to the skills that produce inequality in our society. Cunha and Heckman (2007) noted, "It is well documented that people have diverse abilities, [and] these abilities account for a substantial portion of the variation across people in socioeconomic success" (p. 31). Our study suggests that although skill (in the form of cognitive ability) clearly matters to financial success, attractiveness matters too. The advantages conferred by beauty may have originated from early human evolution (Todd, Penke, Fasolo, & Lenton, 2007). As society continues to advance and evolve, it is interesting, and somewhat troubling, to observe that such primitive instincts still play an important role in life outcomes.

References

Akaike, H. (1987). Factor analysis and the AIC. *Psychometrika, 52,* 317–332.

Andreoletti, C., Zebrowitz, L. A., & Lachman, M. E. (2001). Physical appearance and control beliefs in young, middle-aged, and older adults. *Personality and Social Psychology Bulletin, 27,* 969–981.

Baumeister, R. F., Campbell, J. D., Krueger, J. I., & Vohs, K. D. (2003). Does high self-esteem cause better performance, interpersonal success, happiness, or healthier lifestyles? *Psychological Science in the Public Interest, 4,* 1–44.

Bentler, P. M. (1990). Comparative fit indexes in structural models. *Psychological Bulletin, 107,* 238–246.

Best, R. G., Stapleton, L. M., & Downey, R. G. (2005). Core self-evaluations and job burnout: The test of alternative models. *Journal of Occupational Health Psychology, 10,* 441–451.

Biddle, J. E., & Hamermesh, D. S. (1998). Beauty, productivity, and discrimination: Lawyers' looks and lucre. *Journal of Labor Economics, 16,* 172–201.

Bolger, N., & Zuckerman, A. (1995). A framework for studying personality in the stress process. *Journal of Personality and Social Psychology, 69,* 890–902.

Bollinger, C. (1998). Measurement error in the current population survey: A nonparametric look. *Journal of Labor Economics, 16,* 576–594.

Bono, J. E., & Judge, T. A. (2004). Personality and transformational and transactional leadership: A meta-analysis. *Journal of Applied Psychology, 89,* 901–910.

Brim, O. G., Baltes, P. B., Bumpass, L. L., Cleary, P. D., Featherman, D. L., Hazzard, W. R., et al. (2003). *National Survey of Midlife Development in the United States (MIDUS), 1995–1996* (ICPSR Study No. 2760, Version 2) [Data file]. Ann Arbor, MI: Inter-University Consortium for Political and Social Research.

Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In K. A. Bollen & J. S. Long (Eds.), *Testing structural equation models* (pp. 136–162). London: Sage.

Carver, R. P. (1990). Intelligence and reading ability in Grades 2–12. *Intelligence, 14,* 449–455.

Casey, R. J., & Ritter, J. M. (1996). How infant appearance informs: Child care providers' responses to babies varying in appearance of age and attractiveness. *Journal of Applied Developmental Psychology, 17,* 495–518.

Ceci, S. J. (1991). How much does schooling influence general intelligence and its cognitive components? A reassessment of the evidence. *Developmental Psychology, 27,* 703–722.

Ceci, S. J., & Williams, W. M. (1997). Schooling, intelligence, and income. *American Psychologist, 52,* 1051–1058.

Chow, G. C. (1960). Tests of equality between sets of coefficients in two linear regressions. *Econometrica, 28,* 591–605.

Crocker, J., & Luhtanen, R. K. (2003). Level of self-esteem and contingencies of self-worth: Unique effects on academic, social, and financial

problems among college students. *Personality and Social Psychology Bulletin, 29,* 701–712.

Crocker, J., & Park, L. (2004). The costly pursuit of self-esteem. *Psychological Bulletin, 130,* 392–414.

Cunha, F., & Heckman, J. J. (2007). The technology of skill formation. *American Economic Review, 97,* 31–47.

Darley, J. M., & Fazio, R. H. (1980). Expectancy confirmation processes arising in the social interaction sequence. *American Psychologist, 35,* 867–881.

Deary, I. J., Batty, G. D., & Gale, C. R. (2008). Bright children become enlightened adults. *Psychological Science, 19,* 1–6.

Denissen, J. J. A., Penke, L., Schmitt, D. P., & van Aken, M. A. G. (2008). Self-esteem reactions to social interactions: Evidence for sociometer mechanisms across days, people, and nations. *Journal of Personality and Social Psychology, 95,* 181–196.

Diener, E., & Biswas-Diener, R. (2002). Will money increase subjective well-being? *Social Indicators Research, 57,* 119–169.

Dollinger, S. J. (2002). Physical attractiveness, social connectedness, and individuality: An autophotographic study. *Journal of Social Psychology, 142,* 25–32.

DuBois, D. L., & Flay, B. R. (2004). The healthy pursuit of self-esteem: Comment on and alternative to the Crocker and Park (2004) formulation. *Psychological Bulletin, 130,* 415–420.

Elovitz, G. P., & Salvia, J. (1982). Attractiveness as a biasing factor in the judgments of school psychologists. *Journal of School Psychology, 20,* 339–345.

Erikson, R., Goldthorpe, J. H., Jackson, M., Yaish, M., & Cox, D. R. (2005). On class differentials in educational attainment. *Proceedings of the National Academy of Sciences, USA, 102,* 9730–9733.

Fessenden, F. (2007, September 2). Rich get richer while poor hold their own. *New York Times.* Retrieved September 7, 2007, from http://www.nytimes.com

Fleeson, W. (2004). Moving personality beyond the person–situation debate. *Current Directions in Psychological Science, 13,* 83–87.

Frieze, I., Olson, J., & Russell, J. (1991). Attractiveness and income for men and women in management. *Journal of Applied Social Psychology, 21,* 1039–1057.

Goldberg, L. R. (1996). A broad-bandwidth, public-domain, personality inventory measuring the lower-level facets of several five-factor models. In I. Mervielde, I. Deary, F. D. Fruyt, & F. Ostendorf (Eds.), *Personality psychology in Europe* (Vol. 7, pp. 7–28). Tilburg, the Netherlands: Tilburg University Press.

Gordon, R. A. (1997). Everyday life as an intelligence test: Effects of intelligence and intelligence context. *Intelligence, 24,* 203–320.

Gottfredson, L. S. (1997). Why g matters: The complexity of everyday life. *Intelligence, 24,* 79–132.

Gottfredson, L. S., & Deary, I. J. (2004). Intelligence predicts health and longevity, but why? *Current Directions in Psychological Science, 13,* 1–4.

Graham, M. E., Hotchkiss, H. L., & Gerhart, B. (2000). Discrimination by parts: A fixed-effects analysis of starting pay differences across gender. *Eastern Economic Journal, 26,* 9–27.

Guay, F., Larose, S., & Boivin, M. (2004). Academic self-concept and educational attainment level: A ten-year longitudinal study. *Self and Identity, 3,* 53–68.

Hamermesh, D. S., & Biddle, J. E. (1994). Beauty and the labor market. *American Economic Review, 84,* 1174–1194.

Harper, B. (2000). Beauty, stature and the labour market: A British cohort study. *Oxford Bulletin of Economics and Statistics, 62,* 771–800.

Harter, S. (1993). The causes and consequences of low self-esteem in children and adolescents. In R. F. Baumeister (Ed.), *Self-esteem: The puzzle of low self-regard* (pp. 87–116). New York: Plenum Press.

Harter, S. (2006). The development of self-esteem. In M. Kernis (Ed.), *Self-esteem issues and answers: A sourcebook of current perspectives* (pp. 144–150). New York: Psychology Press.

Heckman, J. J., Stixrud, J., & Urzua, S. (2006). The effects of cognitive and non-cognitive abilities on labor market outcomes and social behavior. *Journal of Labor Economics, 24,* 411–482.

Herrnstein, R. J., & Murray, C. (1994). *The bell curve: Intelligence and class structure in American life.* New York: Simon & Schuster.

Hosoda, M., Stone-Romero, E. F., & Coats, G. (2003). The effects of physical attractiveness on job-related outcomes: A meta-analysis of experimental studies. *Personnel Psychology, 56,* 431–462.

Hu, L. T., & Bentler, P. (1995). Evaluating model fit. In R. H. Hoyle (Ed.), *Structural equation modeling: Concepts, issues, and applications* (pp. 76–99). London: Sage.

Hunter, J. E. (1986). Cognitive ability, cognitive aptitude, job knowledge, and job performance. *Journal of Vocational Behavior, 29,* 340–362.

Jackson, L. A., Hunter, J. E., & Hodge, C. N. (1995). Physical attractiveness and intellectual competence: A meta-analytic review. *Social Psychology Quarterly, 58,* 108–122.

James, L. R., Mulaik, S. A., & Brett, J. M. (1982). *Causal analysis.* Beverly Hills, CA: Sage.

James, W. (1892). *Psychology: The briefer course.* New York: Henry Holt.

John, O., & Srivastava, S. (1999). The Big Five Trait taxonomy: History, measurement, and theoretical perspectives. In L. A. Pervin & O. P. John (Eds.), *Handbook of personality: Theory and research* (2nd ed., pp. 102–138). New York: Guilford Press.

Joo, S., & Grable, J. E. (2004). An exploratory framework of the determinants of financial satisfaction. *Journal of Family and Economic Issues, 25,* 25–50.

Jöreskog, K. G., & Sörbom, D. (1993). *LISREL 8 user's reference guide.* Chicago: Scientific Software International.

Judge, T. A. (2009). Core self-evaluations and work success. *Current Directions in Psychological Science, 18,* 58–62.

Judge, T. A., Cable, D. M., Boudreau, J. W., & Bretz, R. D. (1995). An empirical investigation of the predictors of executive career success. *Personnel Psychology, 48,* 485–519.

Judge, T. A., Colbert, A. E., & Ilies, R. (2004). Intelligence and leadership: A quantitative review and test of theoretical propositions. *Journal of Applied Psychology, 89,* 542–552.

Judge, T. A., Erez, A., Bono, J. E., & Thoresen, C. J. (2002). Are measures of self-esteem, neuroticism, locus of control, and generalized self-efficacy indicators of a common core construct? *Journal of Personality and Social Psychology, 83,* 693–710.

Judge, T. A., Erez, A., Bono, J. E., & Thoresen, C. J. (2003). The Core Self-Evaluations Scale (CSES): Development of a measure. *Personnel Psychology, 56,* 303–331.

Judge, T. A., Higgins, C., Thoresen, C. J., & Barrick, M. R. (1999). The Big Five personality traits, general mental ability, and career success across the life span. *Personnel Psychology, 52,* 621–652.

Judge, T. A., & Hurst, C. (2007). Capitalizing on one's advantages: Role of core self-evaluations. *Journal of Applied Psychology, 92,* 1212–1227.

Judge, T. A., LePine, J. A., & Rich, B. L. (2006). Loving yourself abundantly: Relationship of the narcissistic personality to self and other perceptions of workplace deviance, leadership, and task and contextual performance. *Journal of Applied Psychology, 91,* 762–776.

Judge, T. A., Locke, E. A., & Durham, C. C. (1997). The dispositional causes of job satisfaction: A core evaluations approach. *Research in Organizational Behavior, 19,* 151–188.

Kim, J., Sorhaindo, B., & Carman, E. T. (2006). Relationship between financial stress and workplace absenteeism of credit counseling clients. *Journal of Family and Economic Issues, 27,* 458–478.

Kline, R. B. (1998). *Principles and practice of structural equation modeling.* New York: Guilford Press.

Lachman, M. E. (2004). *Midlife Development in the United States (MIDUS): Boston Study of Management Processes, 1995–1997* (ICPSR

Study No. 3596, Version 1) [Data file]. Ann Arbor, MI: Inter-University Consortium for Political and Social Research.

Langlois, J. H. (1986). From the eye of the beholder to behavioral reality: Development of social behaviors and social relations as a function of physical attractiveness. In C. P. Herman, M. P. Zanna, & E. T. Higgins (Eds.), *Physical appearance, stigma, and social behavior: The Ontario Symposium* (Vol. 3, pp. 23–51). Hillsdale, NJ: Erlbaum.

Langlois, J. H., Kalakanis, L., Rubenstein, A. J., Larson, A., Hallam, M., & Smoot, M. (2000). Maxims or myths of beauty? A meta-analytic and theoretical review. *Psychological Bulletin, 126,* 390–423.

Langlois, J. H., Ritter, J. M., Casey, R. J., & Sawin, D. B. (1995). Infant attractiveness predicts maternal behaviors and attitudes. *Developmental Psychology, 31,* 464–472.

Lazarus, R., & Folkman, S. (1984). *Stress, appraisal, and coping.* New York: Springer.

Leary, M. R., Haupt, A. L., Strausser, K. S., & Chokel, J. T. (1998). Calibrating the sociometer: The relationship between interpersonal appraisals and the state self-esteem. *Journal of Personality and Social Psychology, 74,* 1290–1299.

Lerner, R. M., & Karabenick, S. A. (1974). Physical attractiveness, body attitudes, and self-concept in late adolescents. *Journal of Youth and Adolescence, 3,* 307–316.

Leventhal, T., Graber, J. A., & Brooks-Gunn, J. (2001). Adolescent transitions to young adulthood: Antecedents, correlates, and consequences of adolescent employment. *Journal of Research on Adolescence, 11,* 297–323.

Lord, R. G., Foti, R. J., & Phillips, J. S. (1982). A theory of leadership categorization. In J. G. Hunt, U. Sekaran, & C. Schriesheim (Eds.), *Leadership: Beyond establishment views* (pp. 104–121). Carbondale: Southern Illinois University Press.

Luszczynska, A., Gutiérrez-Doña, B., & Schwarzer, R. (2005). General self-efficacy in various domains of human functioning: Evidence from five countries. *International Journal of Psychology, 40,* 80–89.

MacCallum, R. C. (1998). Commentary on quantitative methods in I-O research. *The Industrial-Organizational Psychologist, 35,* 18–30.

MacCallum, R. C., Browne, M. W., & Cai, L. (2006). Testing differences between nested covariance structure models: Power analysis and null hypotheses. *Psychological Methods, 11,* 19–35.

MacCallum, R. C., Roznowski, M., Mar, C. M., & Reith, J. V. (1994). Alternative strategies for cross-validation of covariance structure models. *Multivariate Behavioral Research, 29,* 1–32.

MacCallum, R. C., Wegener, D. R., Uchino, B. N., & Fabrigar, L. R. (1993). The problem of equivalent models in covariance structure analysis. *Psychological Bulletin, 114,* 185–199.

Mobius, M. M., & Rosenblat, T. S. (2006). Why beauty matters. *American Economic Review, 96,* 222–235.

Mulaik, S. A., James, L. R., & van Alstine, J. (1989). Evaluation of goodness-of-fit indices for structural equation models. *Psychological Bulletin, 105,* 430–445.

Mulford, M., Orbell, J., Shatto, C., & Stockard, J. (1998). Physical attractiveness, opportunity, and success in everyday exchange. *American Journal of Sociology, 103,* 1565–1592.

Mullen, A. L., Goyette, K. A., & Soares, J. A. (2003). Who goes to graduate school? Social and academic correlates of educational continuation after college. *Sociology of Education, 76,* 143–169.

Neiss, M. B., Sedikides, C., & Stevenson, J. (2006). Genetic influences on level and stability of self-esteem. *Self and Identity, 5,* 247–266.

Neisser, U., Boodoo, G., Bouchard, T. J., Boykin, A. W., Brody, N., Ceci, S. J., et al. (1996). Intelligence: Knowns and unknowns. *American Psychologist, 51,* 77–102.

Ng, T. W. H., Eby, L. T., Sorensen, K. L., & Feldman, D. C. (2005). Predictors of objective and subjective career success: A meta-analysis. *Personnel Psychology, 58,* 367–408.

Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory* (3rd ed.). New York: McGraw-Hill.

Parks, F. R., & Kennedy, J. H. (2007). The impact of race, physical attractiveness, and gender on education majors' and teachers' perceptions of student competence. *Journal of Black Studies, 37,* 936–943.

Perna, L. W. (2003). The private benefits of higher education: An examination of the earnings premium. *Research in Higher Education, 44,* 451–472.

Perry, K. E., & Weinstein, R. S. (1998). The social context of early schooling and children's school adjustment. *Educational Psychologist, 33,* 177–194.

Pots of promise: The beauty business. (2003, May 24). *The Economist, 367,* 69–71.

Powell, B., & Steelman, L. (1993). The educational benefits of being spaced out: Sibship density and educational progress. *American Sociological Review, 58,* 367–381.

Raevuori, A., Dick, D. M., Keski-Rahkonen, A., Pulkkinen, L., Rose, R. J., Rissanen, A., et al. (2007). Genetic and environmental factors affecting self-esteem from age 14 to 17: A longitudinal study of Finnish twins. *Psychological Medicine, 37,* 1625–1633.

Raven, J., Raven, J. C., & Court, J. H. (1991). *Manual for Raven's progressive matrices and vocabulary scales: Section 1.* Oxford, England: Oxford Psychologists Press.

Ree, M. J., Carretta, T. R., & Teachout, M. S. (1995). Role of ability and prior job knowledge in complex training performance. *Journal of Applied Psychology, 80,* 721–730.

Ree, M. J., Earles, J. A., & Teachout, M. S. (1994). Predicting job performance: Not much more than g. *Journal of Applied Psychology, 79,* 518–524.

Reinhard, M., Messner, M., & Sporer, S. L. (2006). Explicit persuasive intent and its impact on success at persuasion: The determining roles of attractiveness and likeableness. *Journal of Consumer Psychology, 16,* 249–259.

Reynolds, A., Ou, S., & Topitzes, J. (2004). Paths of effects of early childhood intervention on educational attainment and delinquency: A confirmatory analysis of the Chicago Child-Parent Centers. *Child Development, 75,* 1299–1328.

Reynolds, A., Temple, J., Robertson, D., & Mann, E. (2001, May 9). Long-term effects of an early childhood intervention on educational achievement and juvenile arrest: A 15-year follow-up of low-income children in public schools. *Journal of the American Medical Association, 285,* 2339–2346.

Ritter, J. M., Casey, R. J., & Langlois, J. H. (1991). Adults' responses to infants varying in appearance of age and attractiveness. *Child Development, 62,* 68–82.

Robbins, S. B., Lauver, K., Le, H., Davis, D., Langley, R., & Carlstrom, A. (2004). Do psychosocial and study skill factors predict college outcomes: A meta-analysis. *Psychological Bulletin, 130,* 261–288.

Roberts, B. W., Caspi, A., & Moffitt, T. (2003). Work experiences and personality development in young adulthood. *Journal of Personality and Social Psychology, 84,* 582–593.

Roberts, B. W., & Mroczek, D. (2008). Personality trait change in adulthood. *Current Directions in Psychological Science, 17,* 31–35.

Roberts, B. W., Walton, K. E., & Viechtbauer, W. (2006). Patterns of mean-level change in personality traits across the life course: A meta-analysis of longitudinal studies. *Psychological Bulletin, 132,* 1–25.

Saucier, G. (1994). Mini-Markers: A brief version of Goldberg's unipolar Big-Five markers. *Journal of Personality Assessment, 63,* 506–516.

Saving face. (2004, July 10). *The Economist, 372,* 55.

Schaie, K. W. (1985). *Manual for the Schaie-Thurstone Adult Mental Abilities Test (STAMAT).* Palo Alto, CA: Consulting Psychologists Press.

Schmidt, F. L., & Hunter, J. E. (1998). The validity and utility of selection

methods in personnel psychology: Practical and theoretical. *Psychological Bulletin, 124,* 262–274.

Scullin, M. H., Peters, E., Williams, W. W., & Ceci, S. J. (2000). The role of IQ and education in predicting later labor market outcomes. *Psychology, Public Policy, and Law, 6,* 63–89.

Seibert, S. E., Kraimer, M. L., & Liden, R. C. (2001). A social capital theory of success. *Academy of Management Journal, 44,* 219–237.

Sobel, M. E. (1982). Asymptotic intervals for indirect effects in structural equations models. In S. Leinhart (Ed.), *Sociological methodology 1982* (pp. 290–312). San Francisco: Jossey-Bass.

Swann, W. B., Jr., Chang-Schneider, C., & Larsen-McClarty, K. (2007). Do people's self-views matter? Self-concept and self-esteem in everyday life. *American Psychologist, 62,* 84–94.

Tanaka, J. S. (1993). Multifaceted conceptions of fit in structural equation models. In K. A. Bollen & J. S. Long (Eds.), *Testing structural equation models* (pp. 10–40). London, England: Sage.

Todd, P. M., Penke, L., Fasolo, B., & Lenton, A. P. (2007). Different cognitive processes underlie human mate choices and mate preferences. *Proceedings of the National Academy of Sciences, USA, 104,* 15011–15016.

Umberson, D., & Hughes, M. (1987). The impact of physical attractiveness on achievement and psychological well-being. *Social Psychology Quarterly, 50,* 227–236.

U.S. Census Bureau. (2000). *Profiles of general demographic characteristics: 2000 census of population and housing: United States.* Retrieved February 25, 2009, from http://www.census.gov/prod/cen2000/dp1/2kh00.pdf

van Praag, B. M. S., Frijters, P., & Ferrer-i-Carbonell, A. (2003). The anatomy of subjective well-being. *Journal of Economic Behavior & Organization, 51,* 29–49.

Vera-Toscano, E., Ateca-Amestoy, V., & Serrano-Del-Rosal, R. (2006). Building financial satisfaction. *Social Indicators Research, 77,* 211–243.

Waddell, G. R. (2006). Labor-market consequences of poor attitude and low self-esteem in youth. *Economic Inquiry, 44,* 69–97.

Webley, P., & Nyhus, E. (2001). Life-cycle and dispositional routes into problem debt. *British Journal of Psychology, 92,* 423–446.

Wechsler, D. (1955). *Manual for the Wechsler Adult Intelligence Scale.* New York: Psychological Corporation.

Wentzel, K. R. (1998). Social relationships and motivation in middle school: The role of parents, teachers, and peers. *Journal of Educational Psychology, 90,* 202–209.

Zebrowitz, L. A., Collins, M. A., & Dutta, R. (1998). The relationship between appearance and personality across the life span. *Personality and Social Psychology Bulletin, 24,* 736–749.

Zebrowitz, L. A., Olson, K., & Hoffman, K. (1993). Stability of babyfaceness and attractiveness across the life span. *Journal of Personality and Social Psychology, 64,* 453–466.