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Pathways to life success: A conceptual model of financial well-being for young adults ☆

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ABSTRACT

The purpose of this study is to describe and test a conceptual model of the potential antecedents and consequences of financial well-being in young adulthood. Data ($N = 781$) were collected via an online survey conducted at a large state university in the southwestern United States. Our results suggest that self-actualizing personal values, financial education at home, and formal financial education at school may play important anticipatory socialization roles in the ways that young adults acquire knowledge about financial matters and form attitudes and behavioral intentions based on that knowledge. These financial domains, along with parental normative expectations and young adults' perceived behavioral control, were related to their financial well-being, which was in turn related to academic success and overall life satisfaction, as well as psychological and physical health. Theoretical and applied implications are provided.

1. Introduction

A great majority of young adults today face substantial threats to their financial and economic well-being. The consumer economy entices them to spend money, the Internet offers an easy way to shop, and the credit-card system provides them a readily available and transparent means of borrowing money. Most young adults in college possess and use credit cards frequently to purchase a wide variety of goods and services and even to pay for tuition. Yet, there are clear differences in how – and how well – college students handle personal finances in general and credit cards in particular during their college careers; while some emerge from college with solid credit ratings, successful money management skills, and even a measure of personal wealth, others become mired in credit-card debt, overdue bills, and an inadequate ability to deal with their financial obligations. Several recent studies have in fact found that a growing number of college students are finding themselves financially at risk because they misuse or mismanage credit cards and/or accumulate credit-card debt to pay for college (Lyons, 2008). This trend should send an alarming signal to educators, policy makers, and parents because college students' financial well-being is known to be negatively correlated with academic progress and health (Adams & Moore, 2007; Lyons, 2004; Roberts, Golding, Towell, & Weinreb, 1999). In the long run, the adverse financial circumstances that some college students face may also negatively affect their psychological well-being, their interpersonal and family relationships, and their chances of making a successful transition into adulthood.

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Because most young adults undergo a transition from financial dependence to independence during the period after high school, we contend that learning financial management skills is one of the primary developmental tasks undertaken during this stage of their lives. The financial behaviors they learn and the habits, good or bad, that they form during these years are likely to influence the decisions they make throughout the rest of their lives. Yet the processes by which these skills are learned are not well known, nor are the links between financial management skills, or the lack thereof, and young adults' psychological and physical well-being or their success in college and in their subsequent years. A better understanding of such processes should help educators and parents devise strategies for providing young adults with the knowledge and skills they need in order to manage their finances better.

Because of the potentially far-reaching influence of financial attitudes and behaviors, research questions in this area must be developed from a broad and integrative framework. Unfortunately, such a framework has not yet been developed, and developmental theories have generally neglected the study of financial attitudes and behaviors. Consequently, in order to examine some of the basic assumptions that lead students into various, sequential patterns of development and ultimately to certain financial attitudes and behaviors, we have chosen to incorporate a developmental perspective, along with conceptual approaches to consumer socialization and finance.

1.1. Young adults and consumer finance from the life-span perspective

The theory of life-span development guides our approach because it best provides the perspective from which to observe both the stability of a behavior and the changes in that behavior throughout the course of an individual's life (Baltes, 1987). From this perspective, an individual's development is viewed as a lifelong process, during which different developmental tasks may become primary for a period of time. As the individual progresses into maturity, such tasks, affected by social demands, become increasingly complex and form the bases upon which subsequent habits of behavior are founded. For example, the task of personal financial management involves several domains, such as cash management, credit management, saving, and investing management (see Hilgert, Hogarth, & Beverly, 2003). Clearly, such financial management behaviors become increasingly challenging as one becomes more independent of parents and balances daily demands for managing cash, credit and debt.

Young adults from 18 to 25 years of age are in a life-cycle stage distinct from other periods of development (Arnett, 2000). Furthermore, as is widely acknowledged, college students in particular undergo a transitional phase, distinguished by a host of major life-changing experiences and opportunities for redefining one's self and consolidating one's beliefs and behaviors. The identity exploration that began in adolescence becomes a primary task for young adults during these years, and this search for a personally relevant and meaningful sense of self involves the consideration of multiple facets of identity: beliefs and values, interests, capabilities and ambitions. How one manages this transition is likely to be partly influenced by financial resources as well as financial beliefs, habits and attitudes. Certainly, young adults seem to sense this influence and its importance. When interviewed (Arnett, 2000), they generally cited financial independence as one of three top criteria for becoming an adult.

Notwithstanding the findings of Arnett and others, developmental studies of young adults have largely neglected the financial domain even though it is likely to influence the young adult's sense of being “in-between” — neither an adolescent nor a full adult. It also seems likely that their awareness of this state would be exacerbated by their tendency to rely on parents for at least some material assistance during the college years (Schoeni & Ross, 2005). In light of this, we argue that during college, young adults not only have the opportunity but also a desire to acquire a new set of financial management skills and habits, financial knowledge and economic aspirations, often in combination with the establishment of educational goals and, ultimately, career choices. The connections between these areas are therefore the target of our research.

1.2. The present study

In this article we propose a conceptual model as a way to examine financial well-being in young adulthood, and we examine the efficiency with which this model describes the relationships among three domains: (1) socialization agents and personal values, (2) financial knowledge, attitudes, behaviors and well-being and (3) overall life success (see Fig. 1). At the center of our study is the examination of young people's financial well-being (debt, its relation to financial satisfaction, financial worries and coping). As a primary premise of this framework, we hold that in acquiring financial knowledge and developing attitudes and behaviors, young adults are influenced by antecedents such as personal values, parent socialization, and formal education. Young adults' financial knowledge, attitudes and behavior—along with subjective norms (i.e., parental expectations) and their own perceived behavioral control—are then, we posit, linked to their financial well-being, which in turn is linked to their overall life success.

The proposed conceptual model was developed based on an interdisciplinary approach that integrates four prominent theories: the theory of lifespan development (i.e., Baltes, 1987); the hierarchical model of personal values, attitudes and behavior (i.e., Homer & Kahle, 1988); the consumer socialization theory (i.e., Moschis, 1987); and the theory of planned behavior (i.e., Ajzen, 1991). In our approach to lifespan development, we focus on several key developmental tasks undertaken by young adults, including financial management and the achieving of life success. As appropriate indicators of successful development, we selected the domains of psychological adjustment, physical well-being, overall life satisfaction and academic success. The theory of consumer socialization provides a framework that delineates the financial socialization agents influencing young adults — agents such as parents and education. The outcomes of socialization can be both psychological (e.g., attitudes toward financial

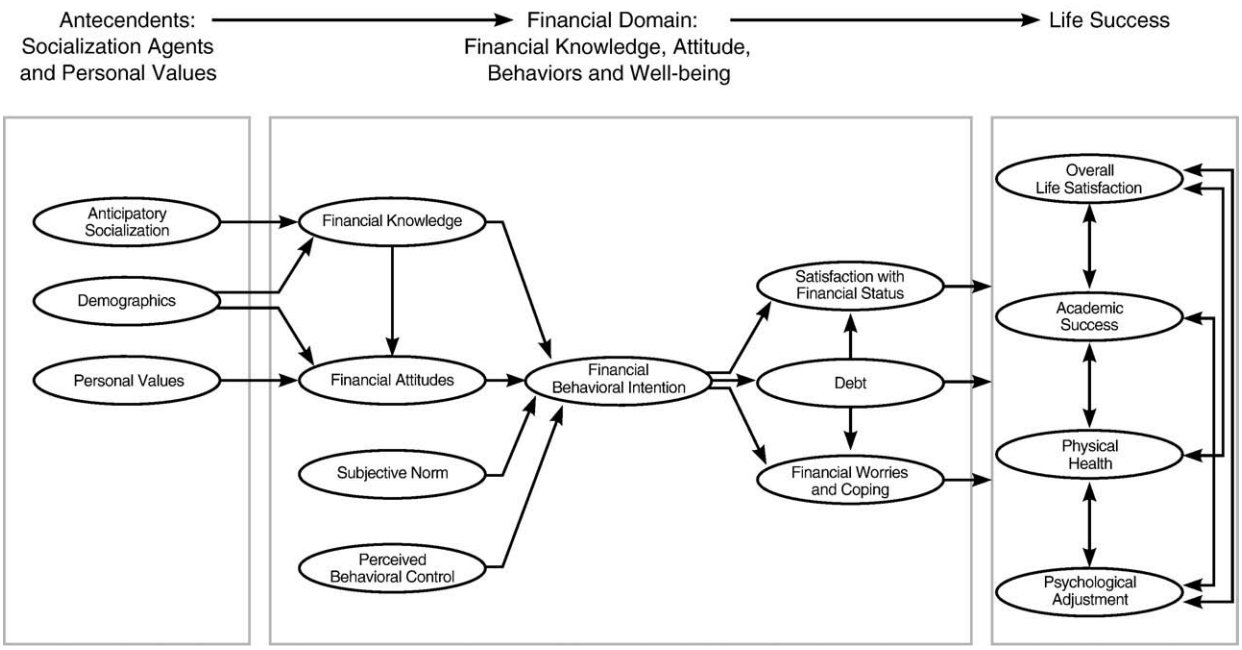

Fig. 1. The student financial well-being model: The proposed conceptual model.

behaviors) or behavioral (e.g., intended or actual financial behaviors) (Moschis, 1987; Ward, 1974). We also consider personal values to be a fundamental source of a young adult's financial attitudes and behaviors (Homer & Kahle, 1988). The theory of planned behavior provides a framework for how financial-behavior intention may result from attitudes, subjective norms (parental expectations) and perceived behavioral control (their own volitional behavior) (Ajzen, 1991).

The conceptual framework illustrated in Fig. 1 suggests the following research questions: (1) What accounts for individual differences in young adults' financial knowledge, attitudes and behavioral intentions? (2) To what extent do financial education at home and formal financial education at school relate to the formation of a young adult's financial knowledge, attitudes and behaviors? (3) To what extent do personal values relate to a young adult's financial attitudes and behavioral intentions? (4) How do attitudes, subjective norms, and perceived behavioral control relate to a young adult's financial behavioral intention? (5) What is the magnitude of the relationship between positive financial behavioral intention and a young adult's financial well-being? (6) How strong is the connection between financial well-being and a young adult's psychological and physical well-being as well as the young adult's overall life satisfaction and academic success? Because we rely on cross-sectional data for this study, we cannot test the causal directions of the connections. Nevertheless, we expect our study to provide a better understanding of the relations among these variables and to suggest likely processes whereby young adults may develop sound financial habits and behaviors and overall life success in general. Such processes (suggested here) may offer useful targets for future causal probes. In the following sections, we briefly consider what has been so far determined or been offered as possible answers to these questions.

1.3. Consumer socialization, financial knowledge and attitudes

The theory of consumer socialization proposes that individuals, particularly children and adolescents, develop consumer skills, knowledge and attitudes by interacting with various socialization agents such as parents, peers, and school (Moschis, 1987; Ward, 1974). Numerous studies have confirmed that parental socialization and formal education, particularly with respect to money, exert a positive influence on a child's efforts to acquire financial knowledge, skills, and attitudes (i.e., Lyons, Scherpf, & Neelakantan, 2007; Lyons, Scherpf, & Roberts, 2006; Moschis, 1987). Because one's body of knowledge is expected to influence one's attitude toward performing a behavior (Hilgert et al., 2003), the financial-management information that parents and educators share with youths is an important construct and has therefore been included in the model.

1.4. Personal values, financial attitudes and behavioral intention

As a guiding principle in one's life, a personal value serves to clarify, validate, and channel behavioral outcomes (Schwartz & Bilsky, 1990; Schwartz & Sagie, 2000). Several consumer behavior researchers have demonstrated that personal values are the most fundamental of the factors that influence attitudes, which in turn influence behaviors (Homer & Kahle, 1988; Lotz, Shim, & Gehrt, 2003; Shim & Eastlick, 1998; Shim & Maggs, 2005). Accordingly, and for two other reasons, we focused specifically on the self-actualizing aspects of personal values as predictors of whether or not individuals form positive financial attitudes. First, self-

actualizing values are related to one's inner self and are utilitarian (e.g., achievement oriented) (Kahle, 1983; Shim & Maggs, 2005) as opposed to external or social-self oriented (e.g., the desire for an exciting life). Second, these values are consistent with life goals (e.g., getting a good education and maintaining good health) that are developmentally primary and appropriate for college student (Maggs, 1997).

1.5. Financial attitudes, subjective norms, perceived behavioral control, and financial well-being

The theory of planned behavior focuses on a person's motivation and ability, both factors that determine an individual's actual behavioral choices. According to this theory, behavioral intentions are influenced by three antecedents: (1) the positive or negative valence of attitudes about the target behavior, (2) subjective norms, and (3) perceived behavioral control (Ajzen, 1991; Ajzen & Fishbein, 1980). For this reason, because college students are still largely influenced by their parents when it comes to financial matters, in our framework we focus on parents as a major source of social norms associated with personal financial matters. Perceived behavioral control refers to the individual's opinion of how difficult it might be to act in accordance with a certain behavioral attitude. This perception is based on past experience as well as on anticipated barriers. Because young adulthood is characterized by the daily need to make many choices without parental influence or assistance, we examined the extent to which young adults may be influenced by their own perceptions of their behavioral control when it comes to personal financial behavior. Applying the theory of planned behavior, we expected to find that young adults' financial behavioral intention would be predicted by their attitudes toward financial practices and by the parental subjective norms and young adults' own perceived behavioral control with respect to positive financial practices.

The indicators of financial well-being used in this study include both an objective measure (amount of debt) and subjective measures (financial satisfaction and coping with financial strain). As we have said, little is known about the links between young adults' financial behavioral intentions and their financial well-being. However, having the intention to manage cash and debt wisely should offer some protection for students when opportunities to spend beyond their means arise, and these intentions should predict a range of indicators that signal financial well-being. Furthermore, because positive financial behaviors are associated with financial satisfaction (Godwin, 1994; Xiao, Sorhaindo, & Garman, 2006), it is likely that one's intention to engage in a positive financial behavior will be related to one's satisfaction with his or her financial status and will also be related to less debt.

If the financial hardships imposed by the economic demands of attending college do in fact reduce a young adult's sense of financial well-being, there should also be a wide range of differences in the ways that each individual experiences such a reduction, in part because of family financial circumstances and level of assistance (Schoeni & Ross, 2005). Nevertheless, given our model, we expected behavioral intentions to offer a partial explanation. Therefore, we included two types of responses to strain or pressure: (1) a more normative "economizing" coping response to financial hardship that includes relatively minor adjustments to daily life (e.g., cutting back on eating out), and (2) an "extreme" measure involving desperate and burdensome financial changes (e.g., relying on payday loans) as required when an individual comes under severe financial constraints or extreme economic pressure (Conger, Wallace, Sun, McLoyd, & Brody, 2002). We expected those who are more likely to engage in positive financial practices to more readily adopt normative, economizing coping strategies. However, we also expected to find that extreme financial difficulty (as a result of debt) leads to the more extreme coping strategies.

1.6. Financial well-being, psychological adjustment and life success

It has been clearly established that economic hardship (including low income, income reduction, unstable employment, or an unfavorable debt-to-asset ratio) can lead to depression, distress, and poor interpersonal relationships (Conger, Rueter, & Conger, 2000; Conger, Rueter, & Elder, 1999; Elder & Russell, 1996; Lempers & Clark-Lempers, 1997). Based on the substantial existing evidence that demonstrates the connection between financial well-being and life success, we expected to find that young adults' financial well-being, or lack thereof, will be related to their psychological adjustment, physical health, academic success, and overall life satisfaction. These four domains of successful adjustment in young adulthood were also expected to be related amongst themselves, as they each are likely to reflect an underlying construct of well-being.

1.7. Gender, class standing, income and ethnicity

Previous studies have shown that individual characteristics such as gender, class standing, income and ethnicity influence an individual's levels of financial knowledge and behavior (i.e., Lyons, Rachlis, & Scherpf, 2007; Peng, Bartholomae, Fox, & Cravener, 2007). Therefore, it seems essential that our proposed model should also include these socio-demographic factors.

2. Methods

2.1. Participants and procedure

During the Fall semester of 2006, we collected, online, survey data from undergraduate and graduate students enrolled at a large state university in the southwestern United States. The data were collected from two randomized samples of students — the first sample taken in November 2006 and the second collected a month later in December 2006 in order to increase the total

Table 1
Descriptive profile of the respondents ($n = 781$).

	Percent		Percent
Class		*Financially independent*	
Freshman	36	Yes	22
Sophomore	20	No	78
Junior	21	*Residential status*	
Senior	23	In-state student	77
Major		Out-state/international student	23
Business	15	*Student income (Average monthly income from work)*	
Non-business	85	$0 (not employed)	40
Transfer student		$1–$249	16
Yes	16	$250–$499	21
No	84	$500–$749	14
Age		$750–$999	4
18	29	$1000–$1999	4
19	20	$2000–$2999	1
20	19	*Parent(s) annual income*	
21	18	Less than $25,000	8
22–24	14	$25,000–$49,999	19
Gender		$50,000–$74,999	18
Male	35	$75,000–$99,999	13
Female	65	$100,000 or more	19
Primary ethnic background		Not sure	23
African American/Black	3	*Parents/guardians own or rent residence*	
Asian	9	Own	83
Hispanic/Latino	18	Rent	11
Native American	2	Other	3
White	64	Don't know	3
Other	4	*Receiving financial aid this academic year*	
Marital status		Yes	71
Single without children	92	No	29
Other	8	*Residence during school year*	
GPA		Residential hall	30
Lower than 2.5	7	Fraternity/sorority	3
2.6–2.9	11	Apartment(rent)	33
3.0–3.5	33	House (rent)	18
3.6–4.0	29	House (own)	3
No GPA available	20	Live at home with parents	13
Registered credit hours			
12 h or fewer	23		
13– 15	49		
16 or more	28		
First generation student			
Yes	20		
No	80		

sample size. Bivariate analyses were conducted on major demographic variables to determine if there were any differences between the two samples. The only difference found was that the first sample contained more graduate students than the second sample. For each sample, students were invited via an email message to participate in the study. A second email message was sent as a reminder. Students who completed the survey became eligible to receive one of 35 scholarships ranging from $100 to $500, awarded by means of a random drawing. In total, 8000 students were contacted (4000 students for each sample). Of these, 1197 students responded to the survey, producing a response rate of 15%[1]. For detailed information about the sampling method and the response rate, see Endnotes 1 and 2. Among the 1197 responses, 976 were valid, after excluding those with too much missing data.

[1] Survey methodology and sampling techniques: we employed an online survey technique for data collection. The survey methodology, sampling technique, and the survey were reviewed and approved by the University Human Subject Committee. No student identity information was gathered on the survey. Those participants who wished to enter into the drawing were asked to provide contact information, and the web program was developed in such a way that contact information was not attached to the survey responses. The first email message was sent to 4000 students who were randomly selected from the entire student population, including graduate students. The email message asked students to visit a website in order to complete the online survey. Because the response rate was low, we sampled another set of 4000 students to increase the total number of participants. The response rate was 15%. This response rate is consistent with other online surveys of college students (e.g., Lyons, 2004). Given the incentives offered (a total of $8000 in scholarships), we expected a higher response rate. We believe that there were two reasons for a lower response rate: first, the survey was relatively long and complex, particularly the first part of the survey (we partnered with the Office of Student Financial Aid, as they were interested in conducting their annual expenditure survey for the purpose of financial aid reporting. The first part of the online survey dealt with a detailed set of questions regarding annual expenditure requiring much mental calculation related to how they spent their money. A monitoring of students' online survey behavior indicated that most of those who abandoned the survey did so during the first part of the questionnaire. The second reason, which we discovered in subsequent interviews, is that students receive many requests for responses to surveys; this causes them to ignore most such requests.

Of the valid responses, 11% were graduate students and 89% were undergraduate students. For the purpose of this study, we focused on undergraduate students ($N = 781$) who ranged in age from 18 to 24 years. Table 1 presents detailed information about the demographic profile of the participants. All academic disciplines were represented (students were asked to indicate the college in which they were enrolled). The distribution of GPA was somewhat skewed toward the high end, while 20% of students reported no GPA, possibly because it was their first semester in college. About one fifth of students were of the first generation in their families to attend college. This respondent profile was similar to that of the general university-student profile, except that our sample contained a slightly higher percentage of female students.

2.2. Measures

2.2.1. Demographics

To describe the demographic profile of our participants, we included gender, race/ethnicity, parent's income, student's income, class standing, living situation, and age. The categories used to measure these constructs, and the percent endorsing each, are detailed in Table 1. Items and Cronbach alphas for each scale are shown in Table 2.

2.2.2. Personal values

Self-actualizing personal values (four items) were adopted from the List of Values (LOV) scale (Kahle, 1983). Those four items included self-fulfillment, being well respected, self-respect, and a sense of accomplishment. Respondents were asked to indicate, on a 5-point scale, how important they thought each value was to them in their daily lives (1 = *not important at all to* 5 = *most important*).

2.2.3. Socialization factors

Parental socialization was measured by asking respondents to indicate whether their parents/guardians included them in discussions, or spoke with them while they were growing up, about the following topics: (1) the importance of savings, (2) the family spending plan, (3) the student's own spending, and (4) the use of credit. The scores ranged from 0 (no discussion in any of the areas) to 4 (discussion in all four areas). Formal financial education was measured according to whether they had taken in high

Table 2
Measurement model results for multiple-item latent variables.

Construct/indicator	Unstandardized (*t*-value ***)	Completely standardized solution	α
Personal value (ξ_4)			.73
Self-fulfillment	.40 (16.76)	.63	
Being well respected	.38 (14.75)	.57	
Self-respect	.43 (19.61)	.73	
A sense of accomplishment	.38 (16.74)	.63	
Subjective norm (ξ_6)			.91
(My parents think I should…;			
I follow advice from my parents to…)			
Spend within my budget each month	4.91 (33.93)	.94	
Pay credit card balances in full each month	4.99 (28.95)	.85	
Save money for future each month	4.91 (29.43)	.86	
Perceived behavior control (ξ_7)			.80
(How easy or difficult is it for you to …)			
Stay within my budget each month	.94 (24.00)	.80	
Pay credit card balance in full each month	.89 (19.82)	.69	
Save money for the future each month	.98 (22.67)	.77	
Financial attitudes (η_2)			.83
Spending within the budget	.64 (21.61)	.72	
Maintaining sufficient balances in your bank account	.64 (27.24)	.87	
Paying bills on time each month	.57 (25.05)	.81	
Financial behavior intention(η_3)			.72
Spending within the budget	.61 (17.47)	.65	
Maintaining sufficient balances in your bank account	.77 (21.89)	.80	
Paying bills on time each month	.50 (15.83)	.59	
Overall life satisfaction (η_8)			.84
In most ways my life is close to my ideal	.72 (23.17)	.75	
The conditions of my life are excellent	.75 (24.34)	.78	
I am satisfied with my life	.71 (25.87)	.81	
So far I have gotten the important things I want in life	.67 (19.88)	.67	
If I would live my life over, I would change almost nothing	.68 (17.30)	.60	
Depressed mood(η_{11})			.74
Depressed	.94 (15.78)	.59	
Unhappy	1.03 (18.59)	.67	
Difficulties	1.22 (20.26)	.72	
Tired	1.01 (16.14)	.60	

Note. ***$p < 0.001$. All other ξ and η variables not indicated in this table are single indicators.

school or college, or were currently taking in college, any courses related to personal finance (i.e., financial education, consumer education, business or economics). The scores ranged from 0 (*no courses at all*) to 2 (*courses in both high school and college*).

2.2.4. Financial knowledge, attitudes, and behavioral intention

To assess financial knowledge, respondents were asked to rate their overall subjective level of knowledge on a Likert-type scale, ranging from 0 (*not financially knowledgeable*) to 4 (*very financially knowledgeable*). To assess positive financial attitudes and behavioral intention, items related to budget, cash, and saving management were developed based on the literature (i.e., Hilgert et al., 2003; Xiao et al., 2006). To assess attitudes, respondents were asked to indicate how desirable they would rate each of three financial behaviors on a five-point Likert-type scale (1 = *highly undesirable*, 5 = *highly desirable*). To assess behavioral intention, they were asked to indicate, on a five-point Likert-type scale (1 = *not likely*, 5 = *very likely*), the likelihood that they would engage in each of the 3 financial behaviors within the following six months (see Table 2 for specific items).

2.2.5. Subjective norm and perceived behavioral control

Subjective norm was determined by two scales concerning parental normative expectations and motivation to comply. Parental normative expectations were measured by asking the respondents to indicate, on a five-point Likert-type scale (1 = *strongly disagree*, 5 = *strongly agree*), the extent to which their parents/guardian thought they should engage positively in each of three activities (spending within budget, paying credit-card balances in full, and saving for the future). For motivation to comply, respondents also were asked to indicate, on a five-point Likert-type scale (1 = *not at all*, 5 = *very strongly*), the extent to which they followed advice given by their parents in those areas. To arrive at a total score for subjective norm, we used an additive formula based on Ajzen's (1991) theory: the sum of multiplications of parental normative expectations and the student's motivation to comply. Perceived behavioral control was measured by asking the respondents to indicate, on a five-point Likert-type scale (1 = *very easy*, 5 = *very difficult*), the extent to which they found it easy or difficult to engage in the same three behaviors.

2.2.6. Financial well-being

Students' level of debt was measured by asking respondents to report a range of debt for each of the three categories (credit card debt, educational-loan debt, and all other personal debt) (where 1 = *none*, 2 = *$1–$4999*, 3 = *$5000–$9999*, 4 = *$10,000 or greater*). To assess the general level of debt, a debt index was created, ranging from 3 to 12 (the higher the score, the higher the level of debt). Satisfaction with financial status was measured by means of a single item asking the respondents to indicate, on a five point Likert-type scale (1 = *very unsatisfied*, 5 = *very satisfied*), how satisfied they were with their current financial status (Xiao et al., 2006).

Two types of coping strategies in response to financial strain were assessed by using a set of items modified from the Michigan Study of Life Transitions (Eccles, Barber, & Jozefowicz, 1998) and adding new items (e.g., a payday loan): economizing and extreme. The economizing pattern refers to moderate financial adjustments made to cope with financial hardship (cutting back on social activities and entertainment expenses, changing food shopping or eating habits to save money). The extreme pattern includes behaviors that may lead to more destructive outcomes (relying on a payday loan or other high-interest loan, using one credit card to pay off another, postponing medical or dental care, and reducing the number of classes in order to work more). These questions asked the respondents whether or not they had engaged in each of the behaviors (1 = *yes*, 0 = *no*), and the number of behaviors was summed for each pattern.

2.2.7. Overall life success

Physical health was measured by asking respondents to report their overall health status on a five-point Likert-type scale (1 = *poor health*, 5 = *excellent health*) (Lyons & Yilmazer, 2005). To measure psychological well-being, the Depressed Mood scale was used from Barber, Eccles, and Stone (2001). Respondents were asked to indicate, on a seven-point Likert-type scale (1 = *never*, 7 = *daily*), the extent to which they experienced each of the four items — for example: "How often do you feel unhappy, sad, or depressed?" The measure of overall life satisfaction was adopted from the subjective well-being scale (Diener, 1984; Diener, Emmons, Larsen, & Griffin, 1985). Respondents were asked to indicate, on a five-point Likert-type scale (1 = *strongly disagree*, 5 = *strongly agree*), the extent to which they agreed with each of the five statements (see Table 2). Finally, academic success was measured by asking students to indicate, within a range, their grade-point average.

3. Results

To conduct structural equation modeling, we employed AMOS 6.0, using a two-stage analysis (Hair, Anderson, Tathan, & Black, 1995). First, the measurement model was developed by conducting a confirmatory factor analysis of the multi-item scales; then the construct's validity was evaluated. Given the rare instances of missing values (<2%) in our data, we employed the stochastic regression imputation method to deal with missing values while conducting structural equation modeling.

3.1. Measurement model

Table 2 presents the results of the measurement model. The confirmatory factor analysis revealed that the overall measurement model fit was acceptable ($\chi^2 = 779.12$, $df = 254$, $p < 0.001$; CFI = .93; IFI = .93; RMSEA = .05). Factor loadings were high and

Table 3
Descriptive statistics and intercorrelations for the constructs.

	ξ_1	ξ_2	ξ_3	ξ_4	ξ_5	ξ_6	ξ_7	ξ_8	ξ_9	η_1	η_2	η_3	η_4	η_5	η_6	η_7	η_8	η_9	η_{10}	η_{11}
ξ_1: Parent socialization	1.00																			
ξ_2: Education socialization	.10**	1.00																		
ξ_3: Gender	.05	− .10**	1.00																	
ξ_4: Personal values	.08*	.01	.14**	1.00																
ξ_5: Class	.00	.11**	.02	.03	1.00															
ξ_6: Student income	− .05	.02	.02	− .01	.35**	1.00														
ξ_7: Parent income	.06	.03	.02	.07*	− .03	− .07*	1.00													
ξ_8: Subjective norm	.05	− .02	.03	.05	− .06	.03	− .01	1.00												
ξ_9: Perceived behavioral control	− .16**	.00	.08*	.06	.22**	.19**	− .13**	− .05	1.00											
η_1: Financial knowledge	.26**	.18**	− .11**	.16**	.07*	.08*	.02	.03	− .16**	1.00										
η_2: Financial attitudes	.11**	.01	.10**	.13**	.16**	.10**	− .08*	.08*	− .07*	.13**	1.00									
η_3: Financial behavior intention	.18**	.02	.02	.03	.04	.05	.02	.01	− .38**	.19**	.31**	1.00								
η_4: Satisfaction with financial status	.12**	.00	− .05	− .05	− .07	− .17**	.15**	.03	− .48**	.09**	.02	.21**	1.00							
η_5: Debt	− .11 **	.03	.04	.11**	.29**	.27**	− .14**	− .01	.37**	.05	− .01	− .18**	− .32**	1.00						
η_6: Extreme	− .13**	.01	.06	.04	.26**	.36**	− .23**	− .04	.43**	.04	− .01	− .20**	− .33**	.40**	1.00					
η_7: Economizing	− .02	.04	.07	.07	.06	.11**	− .09*	− .05	.32**	.04	.06	− .02	− .31**	.12**	.28**	1.00				
η_8: Overall life satisfaction	.18**	.07*	.08*	.09*	.05	− .09*	.05	.07*	− .27**	.12**	.07	.16**	.37**	− .14**	− .19**	− .15**	1.00			
η_9: Academic success	.09*	.07*	.09*	− .05	.05	− .16**	.08*	− .07*	− .17**	− .00	.14**	.18**	.24**	− .29**	− .24**	− .06	.22**	1.00		
η_{10}: Physical health	.12**	.06	− .07*	.08*	− .00	− .06	.08*	.03	− .28**	.13**	.08*	.21**	.24**	− .15**	− .21**	− .10**	.42**	.08*	1.00	
η_{11}: Depressed mood	− .03	− .08	.18	− .06	.02	.10	− .04	− .08	.33	− .11	− .05	− .18**	− .26**	.15**	.26**	.20**	− .45**	− .10**	− .44**	1.00

*Correlation is significant at the 0.05 level (2-tailed).
**Correlation is significant at the 0.01 level (2-tailed).

statistically significant, and the reliabilities of the multiple constructs were also high. Therefore, we concluded that convergent validity was acceptable. A common conservative test for discriminant validity (e.g., comparing models that either free or constrain the phi value to one and testing for a significant decrease in fit) revealed that for all 21 cases the overall fit significantly decreased; consequently, discriminant validity was supported. Based on all of the fit indices, we concluded that the measurement model was reliable and valid. Structural equation analysis was accomplished by allowing independent exogenous variables to correlate (Homer & Kahle, 1988). The results of the analysis are presented below.

3.2. Structural equation model results

Table 3 presents the correlation matrix of all constructs included in the structural equation model. The initial structural model was specified, using the conceptual model, which was developed largely based on theories and previous studies. However, given that the model is conceptual and exploratory in nature, we also examined the correlation matrix. We expected that all four indicators of life success (overall life satisfaction, academic success, physical health and depressed mood) would be correlated, and this was generally confirmed by the data, with an exception of one case between physical health and academic success. We also specified that the two types of financial coping strategies (extreme and economizing) would be correlated, given that we expected them to be driven in part by difficult financial circumstances. Finally, a correlation between parent and student income was specified. Otherwise, all other relations were specified as hypothesized in the conceptual framework (Fig. 1).

Statistical testing of the initially proposed structural model ($\chi^2 = 1453.8$, $df = 493$, $p < 0.001$; CFI = .90; IFI = .90; RMSEA = .05) indicated that the model could be improved. Modification indices suggested that six paths be dropped and four paths be added in order to improve the model fit. The six paths to be dropped were (1) a direct link from financial behavioral intention to satisfaction with financial status, (2) a direct link from financial behavioral intention to extreme coping strategy, (3) a direct link from debt to overall life satisfaction, (4) to physical health, (5) to depression, and (6) to economizing copying strategy. After careful examination of the direct and indirect relationships between financial behavioral intention and three financial well-being measures as well as life success outcomes, it was determined that financial behavioral intention was more likely to be indirectly related to satisfaction with financial status and extreme coping patterns via debt. Debt, in turn, was directly related to academic success but indirectly related to other three life success outcome variables. Furthermore, the correlation between physical health and academic success was nonsignificant and, thus, was eliminated from the model (The correlation matrix also indicated a relative weak correlation between these two variables).

Modification indices also suggested that four paths be added: (1) a direct link from subjective norm to financial attitude, (2) a direct link from perceived control to satisfaction with financial status, (3) a direct link from perceived control to extreme coping

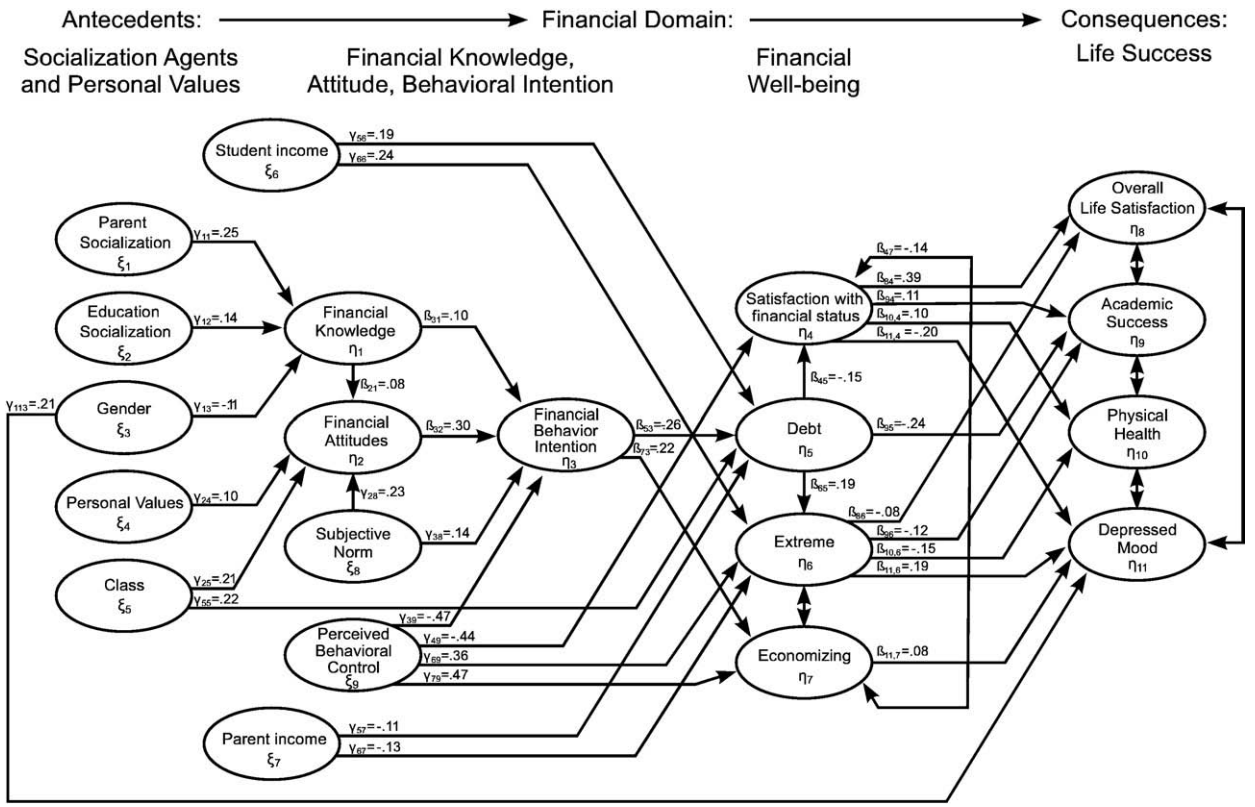

Fig. 2. The student financial well-being model: The final structural equation model.

Table 4
Path tests in the structural model.

	Path	Unstandardized path coefficients (standard error and *t*-value in parentheses)	*p* value	Completely standardized
γ_{11}	Parent socialization → financial knowledge	.16 (.02, 7.22)	$p < .001$	.25
γ_{12}	Education socialization → financial knowledge	.10 (.03, 4.10)	$p < .001$	.14
γ_{13}	Gender → financial knowledge	− .18 (.06, − 3.15)	$p = .002$	− .11
γ_{24}	Personal values → financial attitudes	.13 (.06, 2.12)	$p = .034$	.10
γ_{25}	Class → financial attitudes	.10 (.02, 5.57)	$p < .001$	.21
β_{21}	Financial knowledge → financial attitudes	.06 (.03, 2.09)	$p = .037$	.08
γ_{28}	Subjective norm → financial attitudes	.03 (.01, 5.61)	$p < .001$	.23
β_{32}	Financial attitudes → financial behavior intention	.39 (.05, 7.25)	$p < .001$	.30
β_{39}	Perceived behavioral control → financial behavior intention	− .39 (.04, − 10.30)	$p < .001$	− .47
γ_{38}	Subjective norm → financial behavior intention	.02 (.01, 3.41)	$p < .001$	.14
β_{31}	Financial knowledge → financial behavior Intention	.09 (.03, 2.65)	$p = .008$	.10
β_{45}	Debt → satisfaction with financial status	− .22(.05, − 4.66)	$p < .001$	− .15
β_{47}	Economizing→ satisfaction with financial status	− .42(.10, − 4.11)	$p < .001$	− .14
γ_{49}	Perceived behavioral control → satisfaction with financial status	− .53 (.05, − 10.65)	$p < .001$	− .43
γ_{55}	Class → debt	.14 (.02, 6.27)	$p < .001$	.22
β_{53}	Financial behavior intention → debt	− .26(.04, − 6.66)	$p < .001$	− .26
γ_{56}	Student income → debt	.10 (.02, 5.55)	$p < .001$	.19
γ_{57}	Parent income → debt	− .05 (.02, − 3.39)	$p < .001$	− .11
γ_{69}	Perceived behavioral control → extreme	.07 (.01, 9.72)	$p < .001$	.35
β_{65}	Debt → extreme	.05 (.01, 6.16)	$p < .001$	.19
γ_{66}	Student income → extreme	.03 (.00, 7.56)	$p < .001$	.23
γ_{67}	Parent income → extreme	− .02 (.00, − 4.43)	$p < .001$	− .13
γ_{79}	Perceived behavioral control → economizing	.19 (.02, 9.43)	$p < .001$	.47
β_{73}	Financial behavior intention → economizing	.11 (.03, 4.29)	$p < .001$	.21
$\beta_{11,4}$	Satisfaction with financial status → depressed mood	− .18 (.04, − 4.58)	$p < .001$	− .20
$\beta_{11,6}$	Extreme → depressed mood	.99 (.22, 4.52)	$p < .001$	.19
$\beta_{11,7}$	Economizing → depressed mood	.23(.10, 2.29)	$p < .001$	.08
γ_{113}	Gender → depressed mood	.38 (.07, 5.16)	$p < .001$	.18
β_{84}	Satisfaction with financial status → overall life satisfaction	.23(.03, 9.14)	$p < .001$	.37
β_{86}	Extreme → overall life satisfaction	− .29 (.14, − 2.11)	$p < .001$	− .08
$\beta_{10,4}$	Satisfaction with financial status → physical health	.16 (.03, 5.32)	$p < .001$	.19
$\beta_{10,6}$	Extreme → physical health	− .72 (.18, − 4.09)	$p < .001$	− .15
β_{96}	Extreme → academic success	− .56 (.18, − 3.16)	$p = .002$	− .12
β_{94}	Satisfaction with financial status → academic success	.12 (.03, 3.85)	$p < .001$	.14
β_{95}	Debt → academic success	− .25 (.04, − 5.61)	$p - < .001$	.20

measures, and (4) a direct link from perceived control to economizing. Given that the majority of college students depend on their parents for financial support, it makes sense that parental expectations play a significant role in students' financial attitudes. Perceived behavioral control (one's ability to keep to a financial plan) would be related to one's ability to cope with a broad range of financial worries and concerns. Therefore, these four paths were added to the model.

Making these modifications significantly reduced Chi-square ($\Delta P\chi^2 = 204.80$, $\Delta df = 2$, $p < .001$). The model fit was significantly improved: $\chi^2 = 1248.9$, $df = 495$, $p < .001$; CFI = .92; IFI = .92; RMSEA = .04. After the adjusted model had been identified, demographic variables (gender, class standing, student income and parent income) were then added to the model as control variables. The overall model fit, albeit slightly decreased ($\Delta P\chi^2 = 307.0$, $\Delta df = 125$, $p < .001$), was still acceptable: $\chi^2 = 1555.9$, $df = 620$, $p < .001$; CFI = .91; IFI = .91; RMSEA = .04. Consequently, we accepted this version as the final model with which to assess the proposed relationships (see Fig. 2). Table 4 presents detailed statistics regarding paths: unstandardized path coefficients (standard error and *t*-value) as well as completely standardized coefficients (*t*-values). Tables 5 and 6 present the total variances explained for dependent variables and total effects of each variable in the model, respectively.

3.3. Model testing

As expected, the self-actualizing-values component was positively related to financial attitudes, which in turn was related to financial behavioral intention. Students who rated self-actualizing values as important held more favorable financial attitudes and

Table 5
Total variance explained for η variables.

Financial knowledge, attitudes and behavioral intention	Financial well-being	Life success
η_1 Financial knowledge = .10	η_4 Satisfaction with financial status = .30	η_8 Overall life satisfaction = .16
η_2 Financial attitudes = .12	η_5 Debt = .20	η_9 Academic success = .11
η_3 Financial behavior intention = .40	η_6 Extreme coping strategy = .33	η_{10} Physical well-being = .07
	η_7 Economizing coping strategy = .17	η_{11} Depressed mood = .16

Table 6
Standardized total effects (group number 1 — default model).

	ξ_1 Parent socialization	ξ_2 Education socialization	ξ_3 Gender	ξ_4 Personal values	ξ_5 Class	ξ_6 Student Income	ξ_7 Parent income	ξ_8 Subjective norm	ξ_9 Perceived behavioral control	η_1 Financial knowledge	η_2 Financial attitudes	η_3 Financial behavior intention	η_4 Satisfaction with financial	η_5 Debt	η_6 Extreme	η_7 Economizing
η_1 Financial knowledge	.25	.14	− .11	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
η_2 Financial attitudes	.02	.01	− .01	.10	.21	.00	.00	.23	.00	.08	.00	.00	.00	.00	.00	.00
η_3 Financial behavior intention	.03	.02	− .01	.03	.06	.00	.00	.21	− .47	.12	.30	.00	.00	.00	.00	.00
η_4 Satisfaction with financial	.00	.00	.00	.00	− .03	− .03	.02	.00	− .50	.00	.00	.01	.00	− .15	.00	− .14
η_5 Debt	− .01	− .00	.00	− .01	.20	.19	− .11	− .05	.12	− .03	− .08	− .26	.00	.00	.00	.00
η_6 Extreme	− .00	− .00	.00	− .00	.04	.27	− .15	− .01	.38	− .01	− .02	− .05	.00	.19	.00	.00
η_7 Economizing	.01	.00	− .00	.01	.01	.00	.00	.04	.37	.03	.06	.21	.00	.00	.00	.00
η_8 Overall life satisfaction	.00	.00	.00	.00	− .02	− .03	.02	.00	− .21	.00	.00	.01	.37	− .07	− .08	− .05
η_9 Academic success	.00	.00	− .00	.00	− .05	− .07	.04	.01	− .14	.01	.02	.06	.14	− .25	− .12	− .02
η_{10} Physical health	.00	.00	.00	.00	− .01	− .05	.03	.00	− .15	.00	.00	.01	.19	− .06	− .15	− .03
η_{11} Depressed mood	.00	.00	.18	.00	.02	.06	− .03	.00	.20	.00	.00	.01	− .20	.07	.19	.11

subsequently were more likely to express their intention to follow through on positive financial behavior. It also seems likely that the reverse flow (e.g., positive financial attitudes and behaviors) may lead to higher self-actualizing values. However, our data supports previous findings (assuming the hierarchical nature of values-attitude-behavior) (Homer & Kahle, 1988; Shim & Maggs, 2005).

The parent-socialization component and the educational–socialization component were positively related to financial knowledge. The more strongly the students recalled that their parents had talked about money matters while they were growing up at home, and the more money-related classes they had taken, the more knowledgeable they felt they were about personal finance. Financial knowledge in turn was associated with financial attitudes and financial behavioral intention directly.

Students' financial attitudes, parental normative expectation (subjective norm), and perceived behavioral control were related to financial behavioral intention. Furthermore, parental normative expectations were related to students' financial attitudes. The total variance explained for financial attitude and financial behavioral intention was moderate to large, respectively.

Perceived behavioral control was strongly related to several indicators of financial well-being, including satisfaction with financial status, extreme coping pattern and economizing coping pattern. In fact, as Table 6 suggests, perceived behavioral control apparently has a broad and strong total effect on a number of dependent variables. As predicted, financial behavioral intention was negatively related to debt and positively related to economizing pattern. Debt was inversely related to satisfaction with financial status but positively related to desperate coping pattern. Economizing coping pattern was related negatively to satisfaction with financial status. The total variance explained for the variables in the financial well-being category is presented in Table 5. All four variables in the category of financial well-being were significantly related to indicators of life success. Debt was related only to academic success but not with other variables in the life-success category. Similarly, economizing coping pattern was related only to depressed mood but not to other variables in the life-success category, On the other hand, both satisfaction with financial status and desperate coping pattern were broadly related to all aspects of life success although, as expected, they had opposite relationships with life success in general. As shown in Table 5, the total effects of debt, satisfaction with financial status, and extreme coping pattern on several outcome variables were broad and significant.

We added gender, class, and income into the model, and gender proved a significant predictor of financial knowledge as well as depressed mood. Overall, female students, as compared to male students, were less likely to perceive themselves as financially knowledgeable and were more likely to be depressed. Class standing was positively related to financial attitude as well as to the level of debt. This indicated that the upperclassmen, as compared to the lowerclassmen, were more likely to hold a positive attitude yet also more likely to have incurred debt. Student income (from working) and parent income, both of which were found to be inversely, albeit weakly, correlated in Table 3, turned out to be nonsignificant in the structural equation model, and, therefore, the correlation between the two measures was eliminated. Student income and parent income, respectively, had inverse relationships with the amount of student debt as well as with extreme coping behavior. As shown in Table 4, both variables (student and parent income) have fairly strong total effects on the amount of debt accrued and on students' mental health (depressed mood). More specifically, the higher the parents' income, the less debt a student had incurred and the less likely it was that the student was using the extreme coping strategy. On the other hand, the higher the student's income, the greater the debt the student had incurred and the more likely it was that the student was adopting extreme financial coping strategies.

The race/ethnicity factor, which was coded as “white compared to all others”, had no significant relations to any of the variables in the model. Finally, it should be noted that, as implied by the theory of planned behavior (Ajzen, 1991), no antecedents were hypothesized to be linked to perceived behavioral control nor to subjective norms. And modification indices did not suggest that the link of any of the independent variables in the model (e.g., personal values, financial socialization constructs, demographics) to perceived behavioral control would enhance the model fit.

4. Discussion and implications

We undertook this study in order to develop and test a conceptual model of financial well-being, one that linked the potential antecedents to the consequences of financial well-being in young adults. To our knowledge, our study constitutes the first attempt to link socialization and antecedent variables to financial domains and then connect those to the overall well-being and life outcomes of young adults. The results provide encouraging support for our conceptual model, as we discuss below. However, we also note that longitudinal tests of the model will be required before we can determine the direction of the linkages.

As predicted, differences in socialization were related to subjective financial knowledge, attitudes and behaviors, which were in turn related to financial well-being. Young adults' financial well-being was also related to their overall life satisfaction, health status, psychological well-being, and academic performance. The analyses reported here provide support for the contention that our broad theoretical framework (an integration of psychological theories related to consumer socialization, values-attitude-behavior, theory of planned behavior, and life-span developmental perspectives) offers a reasonable explanation of the connections that financial well-being has to young adults' development. The results further suggest that primary developmental indicators of adjustment, such as academic achievement, health, life satisfaction, and psychological well-being, are linked to financial well-being. More specific discussion and a summary of the implications that the findings may have for parents, college students, educators, and policy makers are presented in the following sections.

4.1. Role of personal values in financial attitudes

Self-actualizing values were found to be related to young adults' financial attitudes. From this, we conclude that it is possible that the importance placed on fulfillment and self-respect, in part, can shape one's views of the desirability of engaging in

financially responsible behaviors. To our knowledge, ours is one of the first studies to have identified personal values as a potential predictor of the extent and quality of an individual's financial attitudes. Our finding, that there are relationships among self-actualizing values, financial attitudes, and financial behavioral intention, supports previous studies that personal values are likely fundamental sources of the most-to-least-abstract hierarchical flow of individuals' cognitive and behavioral processes (Homer & Kahle, 1988; Shim & Maggs, 2005). We also found that they are related to attitude, judgment, choices and behavior, as was reported by Allport (1961).

Given the connection between self-actualizing values and financial attitudes, we suggest that when working with adolescents and young adults in the area of financial matters, educators should emphasize the notion that enhancing financial literacy and achieving financial success can help to achieve fundamental values of self-actualization. By offering explicit alignment to, and support of, self-actualizing personal values, educators may make the subject matter more appealing and relevant to students.

4.2. Importance of parents and of formal education in the gaining of financial literacy

If, as our model suggests, personal values are significantly linked to financial attitudes and practices, the implication for parents seems even more apparent, given their important role in socializing their children's values (Eccles et al., 1998; Rowe, 1994). By placing emphasis on developing strong self-actualizing values, parents may have better success at guiding their children to place a greater value on accomplishment and to adopt a constructive and responsible attitude with regard to money matters.

The potential influence of parents also seems important in two other, more specific, ways. First, anticipatory parental socialization (talking with children regularly about money management as they mature) seems to be a significant factor. Apparently, the more often parents discuss money management with their children, the more likely it is that they will impart important lessons about financial responsibility; furthermore, the resulting financial knowledge will be linked to positive financial attitudes. Second, parents' normative expectations for their children can play a significant role (even when the children are away from home attending college) in predicting young adults' positive financial attitudes and behavioral intention. This finding is consistent with the ideas of Eagly and Chaiken (1993), who suggested that subjective norms reflect anticipated normative outcomes of behavior and have a positive impact on attitude toward behavior. To the extent that students believed that staying within a budget, paying credit-card balances in full each month, and saving money were all important to their parents, they reported holding similar attitudes themselves about finances. These two findings — the dual roles that parents can play (as financial educators and advocates of fiscal responsibility) — suggest that parents should begin discussing sound money-management practices and should also demonstrate those practices while their children are growing up at home. Parents might also consider expressing the expectation that their children will adopt desirable financial attitudes and behaviors as they become financially independent.

Clearly, a formal education in personal finance can also contribute to subjective financial knowledge. Those students participating in the study who had taken personal finance and economics classes during high school and/or college thought they had a better understanding of financial matters. Although the debate continues as to whether financial education is effective in enhancing students' financial literacy, our study suggests that such education is positively related to perception of subjective knowledge, which subsequently predicts financial attitudes and behaviors. Therefore, we conclude that financial education can be important; however, we also note that relying solely on formal education to enhance financial literacy may only have a fractional impact on financial behavior and financial well-being. Choices made about spending and saving money are determined by multiplicity of factors, and not always rationally driven by knowledge. Understanding the roles of some of the psychological aspects involved in decision-making processes, such as risk preferences, efficacy beliefs, and future time discounting, would likely be a useful goal for future research on the links between college students' financial knowledge and behavior. Our research included some of these aspects in the examination of behavioral intentions, and highlighted the fact that parental socialization and personal values, along with other internal factors, are also predictive of young adults' financial knowledge and intentions. What seems clear from these results is that multiple opportunities exist for input into youths' financial development, and as noted in the next section, such an investment by our society has the potential to enhance their well-being.

4.3. Perceived behavioral control in financial behavior and financial well-being

The theory of planned behavior (Ajzen, 1991; Ajzen & Fishbein, 1980) proved an effective means of explaining young adults' intended financial behavior in that all three components – financial attitudes, subjective norm, and perceived behavior control – were significantly related to financial behavioral intention. The more strongly that young adults held favorable attitudes toward financial management, the more willing they were to meet parents' expectations, the more confident they were that they could follow through with their financial plans, and the more likely they were to engage in positive financial behaviors. The fact that financial behavioral intention was, in turn, significantly related to several components of financial well-being suggested that those who intended to engage in positive financial behaviors were more satisfied with their financial status, were less likely to incur debt, and were more likely to adopt an economizing coping pattern when dealing with financial constraints.

Our findings also provided insight into the significance and the magnitude of the relations between perceived behavioral control and financial behavioral intention as well as several components of financial well-being. Those respondents in the study who felt that they were having difficulty keeping to their plans were also less likely to engage in positive financial behavior and also less satisfied with their financial status; they were, furthermore, more likely to adopt an extreme coping pattern when dealing with financial constraints. We acknowledge the possibility that poor financial well-being may also constrain one's perceived behavioral control, and think that future research in this area should examine the temporal relations among these domains.

Nonetheless, our results suggest there may be an important developmental opportunity to build the capacity of young adults in the area of financial behaviors. Faced with increasingly complex and potentially risky choices in our troubled economy and on the threshold of their own financial independence, college students may be at a crucial developmental period for mastering critical life tasks related to financial behaviors. A dual focus on both engaging in positive money management behaviors, and on avoiding risky credit and debt traps, might facilitate more positive financial development, but research into the socialization processes of these positive and negative financial behaviors is lacking.

Given that effective functioning requires both skills and the confidence to use them well (Bandura, 1994), young people needed to be taught both objective financial knowledge and skills, which include budgeting and planning, and confidence in one's ability to stick to a plan. When attempting to manage money, one's ability to establish self-discipline and maintain that discipline is likely to be of particular importance. Yet, at the same time, it may be the most difficult ability to achieve. Investing in helping youth to develop these personal capacities may help them to build more solid foundations or life success. Young adults' financial development can take many forms and a lifespan developmental framework allows for intra-individual plasticity or modifiability. Thus, researchers and educators should work to discover the range of that plasticity and its constraints.

4.4. Financial well-being and life success

Our study indicated that financial well-being — measured objectively (debt) and subjectively (satisfaction, sense of extreme constraints and parsimony) — was significantly related to overall life success. For instance, subjective satisfaction with financial status was related to all aspects of life outcome (overall life satisfaction, academic performance, physical health, and psychological health). Extreme coping behaviors, too, were correlated with all aspects of life outcome but in a negative way. Interpreting from these two results, we can surmise that the more satisfied young adults are with their financial status, the more satisfied they are with their lives in general, the more likely they are to perform better academically and to be healthy, both physically and psychologically. On the other hand, the more students employ extreme coping behaviors in response to their financial difficulties, the less satisfied they are with their lives in general, the less likely they are to perform well academically and less like to be healthy, both physically and psychologically.

Consistent with previous studies, we also found that level of debt, as an objective measure of financial well-being, was directly related to academic performance only (the greater the debt, the worse the performance), whereas the economizing behavioral pattern was directly related to depressed mood only. As previous studies have noted, economic pressure and financial difficulty play key roles in an individual's struggle to maintain well-being (Conger et al., 2000, 1999, 2002; Dew, 2007; Gutman, McLoyd, & Tokoyawa, 2005). However, most previous work on economic pressure has examined the stress placed on families in financial hardship. Our study shows that the same factors are linked to well-being in college students and perhaps, by extension, in young adults in general. Even without some of the major financial obligations that encumber their parents (such as mortgages), some students reported resorting to extreme measures when dealing with their own debts. It should not be a surprise, therefore, that college students face the same pressure, or that they would internalize this pressure and experience greater distress as the economic pressure increases. As they begin to shoulder responsibility for their own spending and saving, many seem to be learning, first-hand, the costly mistakes that can be made when one loses control of one's finances.

As Settersten (2005) has noted, our commitment to young people must be to strengthen the institutions that serve them, as well as help them to build their personal skills and resources, in order to facilitate their healthy transition to adulthood. Because financial well-being is associated with academic success, physical health, mental health and overall life satisfaction, improving the financial well-being of young adults could contribute directly to their overall well-being. Likewise, increasing their financial literacy should help them to establish and maintain financial well-being. Therefore, educators and university administrators should make sure that their financial educational programs not only improve financial literacy and promote positive financial behaviors among young adults, but also establish policies and institutional support structures that would help these students to increase their financial well-being, as these jointly may facilitate a better quality of life.

4.5. Gender, class standing, and income

As mentioned, after accounting for the roles of demographic variables, our model suggested that gender, class standing, and income were directly related to certain outcomes. For instance, gender was related to the level of subjective financial knowledge and the level of depressed mood. Also, female students reported being less knowledgeable about financial matters, a finding that was consistent with the findings of a previous study (Chen & Volpe, 1998). As in much previous research (e.g., Petersen et al., 1993), female students reported more depressed mood than male students. Also, students with higher class standing reported positive money management attitudes, while on the other hand they reported a higher level of debt. It was initially puzzling that, despite their more positive attitude toward managing money, upperclassmen carried more debt than underclassmen. However, the measurement for the debt index included not only personal and credit-card debt but also educational loans, and therefore, we believe that upper classmen have accumulated more debt because they have accrued more educational loans, which is consistent with other research (Nellie Mae, 2005). Although our cross-sectional study cannot confirm that older students become more favorable toward money management, it is also possible that upperclassmen developed more positive attitude toward money management as they become more experienced, and if so, this would be encouraging.

The higher the parents' income, the less debt a student carried and the less the student relied on the extreme coping pattern. The higher the student's income (from working), the more debt the student carried and the more likely the student was to rely on

the extreme coping strategies. Clearly, students earning more from working are at greater risk and need attention for special financial and educational assistance if they are indeed working longer hours to pay for education. Then disadvantaged students might be more likely to complete one of their important life goals: graduating from a university.

4.6. Limitations

Because our study was based on cross-sectional data, we consider it to be exploratory in nature; hence, we cannot confirm the casual relationships among the variables. Furthermore, there may be unobservable factors, not specified in our model, that are accounting for some of the connections; or reversed directional associations may also be true. Given the exploratory nature of the study, we did not conduct tests to determine the significance of mediation effects. Future studies should employ more refined analyses to test for the significance of mediation. Despite these limitations, we believe that the present study provides a basis for any future research that uses a longitudinal study to test such causal relationships.

In this study, we developed virtually all of the measures with an exception of a few psychological measures because there were virtually no previous studies from which to draw measures that were appropriate for our study. Although we made a concerted effort to indicate validity for the measures, we recommend that future researchers further refine these measures. For instance, we assessed financial knowledge by using a subjective measure of the level of one's knowledge. Clearly, an objective measure of one's financial knowledge needs to be developed and added in future studies to assess the relationships between subjective and objective knowledge and their impact on other key financial-attitude and behavioral variables. Objective knowledge tests do exist; however, they were not included in this study due to the already burdensome length of the survey. We were also concerned that more students would drop out prior to finishing the survey if they were faced with more questions. Another measure needing further examination is the "debt" measure. In our study, we created the debt index, combining personal- and credit-card debt with educational loan. Although these indicators are statistically correlated, the effects of educational loan ("not expected to make a monthly payment until graduation") can clearly be different than other personal loan or credit-card debt that are more imminent. The restricted range of some of the measures is a limitation. For instance, we measured whether students took finance-related courses while in high school and in college (measured from 0 = none at all, 1 = either in high school or in college, 2 = both in high school and in college). However, we didn't ask how many courses were taken. Even in the face of the measurement constraints, our results were significant, lending credibility to the measure. Nevertheless, this restricted range could diminish statistical associations among variables.

4.7. Conclusions and future directions

In recent decades, state funding for public colleges and universities has steadily declined, a trend that has undoubtedly created additional burdens on parents, families and students attending for college. Furthermore, given the current economic downturn and record number of home foreclosures in recent years and the pervasiveness of debt and money management issues facing the nation's young people, we wanted to examine this area of young adult development and seek to understand how financial well-being may be related to socialization and personal values. Consequently, to examine the central role of financial well-being in the lives of young adults, we developed an interdisciplinary model by combining psychological, sociological, and consumer behavior perspectives. Given the complexity of the forces driving financial behaviors, we must conclude that only through collaborative approaches across disciplinary boundaries can we begin to account for the interwoven nature of the features of successful financial development during the college years.

Our study suggests that financial knowledge gained through formal education would be likely to enhance financial knowledge and lead to more positive attitudes and intentions. However, achieving positive financial well-being is a complex process involving a particularly important role played by parents. How much and how well a parent educates a child, and how clearly the parent imparts positive expectations and personal values, can contribute significantly to the child's perception of behavioral control. In the absence of this critical component, financial education at school alone is not likely to have the maximum impact on an individuals' achieving financial well-being and ultimately one's overall life success.

Although we were unable to examine causal order among the variables in the model, given the cross-sectional nature of our data, our conceptual model does serve as a useful foundation for a future longitudinal study aimed at identifying the pathways that young adults take as they form positive financial attitudes and behaviors. A causal model would help us to better understand the development of financial behavior as well as its origins and the socialization process, the personal and psychological factors, and the various pathways one takes to adulthood. In the end, if we could know the extent to which positive financial behaviors do matter to an individual's sense of well-being, and also better understand the process by which positive behaviors are formed, we could then provide information that would be useful to parents, educators, public policy makers, and employers who are seeking ways to improve the quality of life for young adults.

References

Adams, T., & Moore, M. (2007). High-risk health and credit behavior among 18- to 25 year-old college students. *Journal of American College Health*, *56*(2), 101–108.
Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, *50*(2), 179–211.
Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behavior.* Englewood Cliffs, NJ: Prentice-Hall.
Allport, G. W. (1961). *Patterns of growth in personality.* New York: Holt, Rhinehart, and Winston.
Arnett, J. J. (2000). Emerging adulthood: A theory of development from the late teens through the twenties. *American Psychologist*, *55*(5), 469–480.

Baltes, P. B. (1987). Theoretical propositions of life-span developmental psychology: On the dynamics between growth and decline. *Developmental Psychology*, *23* (5), 611–626.
Bandura, A. (1994). *Self-efficacy: The exercise of control.* New York: Freeman.
Barber, B. L., Eccles, J. S., & Stone, M. R. (2001). Whatever happened to the jock, the brain, and the princess? Young adult pathways linked to adolescent activity involvement and social identity. *Journal of Adolescent Research*, *16*(5), 429–455.
Chen, H., & Volpe, R. P. (1998). An analysis of personal financial literacy among college students. *Financial Services Review*, *7*(2), 107–128.
Conger, K. J., Rueter, M. A., & Conger, R. D. (2000). The role of economic pressure in the lives of parents and their adolescents: The family stress model. In L. J. Crockett, & R. K. Silbereisen (Eds.), *Negotiating adolescence in times of social change* (pp. 201–223). Cambridge, United Kingdom: Cambridge University Press.
Conger, R. D., Rueter, M. A., & Elder, G. H. (1999). Couple resilience to economic pressure. *Journal of Personality and Social Psychology*, *76*(1), 54–71.
Conger, R. D., Wallace, L. E., Sun, Y., McLoyd, V. C., & Brody, G. H. (2002). Economic pressure in African American families: A replication and extension of the family stress model. *Developmental Psychology*, *38*(2), 179–193.
Dew, J. (2007). Two sides of the same coin: The differing roles of assets and consumer debt in marriage. *Journal of Family and Economic Issues*, *28*(1), 89–104.
Diener, E. (1984). Subjective well-being. *Psychological Bulletin*, *95*(3), 542–575.
Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The satisfaction with life scale. *Journal of Personality Assessment*, *49*(1), 71–75.
Eccles, J. S., Barber, B. L., & Jozefowicz, D. (1998). Linking gender to educational, occupational, and recreational choices: Applying the Eccles et al. model of achievement-related choices. In W. B. Swann, J. H. Langlois, & L. C. Gilbert (Eds.), *Sexism and stereotypes in modern society: The gender science of Janet Taylor Spence* (pp. 153–192). Washington, DC: American Psychological Association.
Elder, G. H., & Russell, S. T. (1996). Academic performance and future aspirations. In R. L. Simons (Ed.), *Understanding differences between divorced and intact families: Stress, interaction, and child outcome* (pp. 176–192). Thousand Oaks, CA: Sage Publications.
Eagly, A., & Chaiken, S. (1993). *The psychology of attitudes.* Orland, FL: Hartcourt Brace & Company.
Godwin, D. D. (1994). Antecedents and consequences of newlyweds' cash flow management. *Financial Counseling and Planning*, *5*, 161–190.
Gutman, L. M., McLoyd, V. C., & Tokoyawa, T. (2005). Financial strain, neighborhood stress, parenting behaviors, and adolescent adjustment in urban African American families. *Journal of Research on Adolescence*, *15*(4), 425–449.
Hair, J. F., Anderson, R. E., Tathan, R. L., & Black, W. C. (1985). *Multivariate data analysis.* Englewood Cliffs, NJ: Prentice-Hall.
Hilgert, M. A., Hogarth, J. M., & Beverly, S. G. (2003, July). Household financial management: The connection between knowledge and behavior. *Federal Reserve Bulletin*, 309–322.
Homer, P. M., & Kahle, L. R. (1988). A structural equation test of the value-attitude-behavior hierarchy. *Journal of Personality and Social Psychology*, *54*(4), 638–646.
Kahle, L. R. (1983). *Social values and social change: Adaptation to life in America.* New York, NY: Praeger.
Lempers, J. D., & Clark-Lempers, D. S. (1997). Economic hardship, family relationships, and adolescent distress: An evaluation of a stress–distress mediation model in mother–daughter and mother–son dyads. *Adolescence*, *32*(126), 339–356.
Lotz, S., Shim, S., & Gehrt, K. (2003). A study of Japanese consumers' cognitive hierarchies in formal and informal gift-giving situations. *Psychology & Marketing*, *20* (1), 59–85.
Lyons, A. C. (2004). A profile of financially at-risk college students. *The Journal of Consumer Affairs*, *38*(1), 56–80.
Lyons, A. C. (2008). Risky credit card behavior of college students. In J. J. Xiao (Ed.), *Advances in Consumer Financial Behavior Research* (pp. 185–207). New York, NY: Springer Publishing Company.
Lyons, A. A., Rachlis, M., & Scherpf, E. (2007). What's in a score? Differences in consumers' credit knowledge using OLS and quantile regressions. *The Journal of Consumer Affairs*, *41*(2), 223–249.
Lyons, A. C., Scherpf, E., & Neelakantan, U. (2007). *Intergenerational transfer of financial behaviors from parents to children. Working paper No. 14.* Urbana, IL: Department of Agricultural and Consumer Economics, University of Illinois at Urbana-Champaign.
Lyons, A. C., Scherpf, E., & Roberts, H. (2006). Financial education and communication between parents and children. *The Journal of Consumer Education*, *23*, 64–76.
Lyons, A. C., & Yilmazer, T. (2005). Financial strain and health: Evidence from the survey of consumer finances. *Southern Economic Journal*, *71*(4), 873–890.
Maggs, J. L. (1997). Alcohol use and binge drinking as goal-directed action during the transition to postsecondary education. In J. Schulenberg, J. L. Maggs, & K. Hurrelmann (Eds.), *Health risks and development transitions during adolescence* (pp. 345–371). New York: Cambridge University Press.
Moschis, G. P. (1987). *Consumer socialization: A life-cycle perspective.* Lexington, MA: Lexington Books.
Nellie Mae, N. (2005). Undergraduate students and credit cards in 2004. *An analysis of usage rates and trends.* Braintree, MA: Nellie Mae. Retrieved September 28, 2005 from http://www.nelliemae.com/library/research_12.html
Peng, T. -C. M., Bartholomae, S., Fox, J. J., & Cravener, G. (2007). The impact of personal finance education delivered in high school and college courses. *Journal of Family and Economic Issues*, *28*(2), 265–284.
Petersen, A. C., Compas, B. E., Brooks-Gunn, J., Stemmler, M., Ey, S., & Grant, K. E. (1993). Depression in adolescence. *American Psychologist*, *48*, 155–168.
Roberts, R., Golding, J., Towell, T., & Weinreb, I. (1999). The effects of economic circumstances on British students' mental and physical health. *Journal of American College Health*, *48*(3), 103–109.
Rowe, D. C. (1994). Genetics and cultural explanations of adolescent risk taking and problem behavior. In R. D. Ketterlinus, & M. E. Lamb (Eds.), *Adolescent problem behaviors* (pp. 109–126). Hillsdale, NJ: Lawrence Erbaum Associates.
Schoeni, R. F., & Ross, K. E. (2005). Material assistance from families during the transition to adulthood. In R. A. Settersten, F. F. Furstenberg, & R. G. Rumbaut (Eds.), *On the frontier of adulthood* (pp. 396–416). Chicago: University of Chicago Press.
Schwartz, S. H., & Bilsky, W. (1990). Toward a theory of the universal content and structure of values: Extensions and cross-cultural replications. *Journal of Personality and Social Psychology*, *58*(5), 878–891.
Schwartz, S. H., & Sagie, G. (2000). Value consensus and importance. *Journal of Cross-Cultural Psychology*, *31*(4), 465–497.
Shim, S., & Eastlick, M. A. (1998). The hierarchical influence of personal values on mall shopping attitude and behavior. *Journal of Retailing*, *74*(1), 139–160.
Shim, S., & Maggs, J. (2005). A cognitive and behavioral hierarchical decision-making model of college students' alcohol consumption. *Psychology & Marketing*, *22* (8), 649–668.
Settersten, R. A., Jr. (2005). Social policy and the transition to adulthood: Towards stronger institutions and individual capacities. In R. A. SettterstenJr., F. F. Furstenberg Jr., & R. G. Rumbaut (Eds.), *On the frontier of adulthood: Theory, research, and public policy* (pp. 534–560). Chicago: University of Chicago Press.
Ward, S. (1974). Consumer socialization. *Journal of Consumer Research*, *1*(2), 1–14.
Xiao, J. J., Sorhaindo, B., & Garman, E. T. (2006). Financial behaviours of consumers in credit counseling. *International Journal of Consumer Studies*, *30*(2), 108–121.