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Adolescents' financial literacy: The role of financial socialization agents, financial experiences, and money attitudes in shaping financial literacy among South Korean youth

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ABSTRACT

The purpose of this study was to test the relationships between financial socialization agents, financial experiences, money attitudes, demographic characteristics, and the financial literacy of Korean adolescents. Using the 2006 Korean National Financial Literacy Test Survey for Adolescents ($N = 1185$), a series of regression analyses were performed to determine the factors related to financial literacy. It was found that those who chose media as their primary financial socialization agent, and those who had a bank account, exhibited higher levels of financial literacy. Among the sample, those who saw money as good or as a reward for efforts tended to report higher levels of financial literacy, while those perceiving money in terms of avoidance or achievement had lower levels of financial literacy. Students with mid-range monthly allowances showed higher levels of financial literacy compared to the highest allowance group. Implications for financial educators, policy makers, and researchers are provided.

Financial literacy can be generally defined as a person's ability to understand, analyze, manage, and communicate personal finance matters (Vitt et al., 2000). Specifically, financial literacy refers to the knowledge and skills necessary to handle financial challenges and decisions in everyday life. Financial literacy at the macro-level ensures that citizens of a country are adequately equipped to deal with everyday financial situations and transactions in the marketplace. Low levels of financial literacy can produce sub-optimal financial decisions, which, in the aggregate, can yield low levels of well-being by making it difficult for consumers to meet their financial needs essential for living. Previous research has found that low financial literacy is associated with a tendency for consumers to be disengaged from processes leading to optimal decision making. This often results in financial behaviors varying greatly from recommended guidelines, which, in turn, contributes to low levels of financial well-being (Hilgert, Hogarth, & Beverly, 2003; Lusardi & Mitchell, 2007). Furthermore, gauging the financial literacy of young people is especially important when viewed from the perspective that financial knowledge and skills acquired early in life create a foundation for future financial behavior and well-being (Beverly & Burkhalter, 2005; Martin & Oliva, 2001).

As a fast developing country, Korea shares many of the same consumer financial problems faced by other developing and developed nations. In 1997, Korea faced a severe currency crisis. The country emerged from the predicament financially

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stronger and with a renewed interest in the well-being of the nation's consumers. While many of Korea's financial troubles have been addressed, the country still faces serious threats to the financial stability of households, as measured by the continuation of credit delinquency and increasing household debt problems. In many respects, the consumer finance environment in Korea of the 21st century is similar to that of other countries facing financial transitions (e.g., India, Malaysia, Taiwan, and the United States) (Malroutu, 2005; Masud, 2005; Sohn, 2005; Xiao, 2005; Yieh, 2005). For example, in Korea, the average urban working household sets aside a quarter of its estimated monthly disposable income to fund debt payments (Choi, 2005). This ratio of debt to income has resulted in a surge in personal bankruptcies. In 2003, excess household debt led to a Korean economic recession along with a credit card bubble collapse that pre-dated the global credit meltdown later in the decade.

In addition, and similar to the situation in other developing nations, the number of financial products and services has exploded in Korea during the past two decades. For the first time in several generations, individual Koreans face consumer finance choices related to various investment options, such as mutual funds, variable annuities, and employer provided retirement plans. Not only are the numbers and types of products increasing, the laws and regulations that are related to personal finance products and services have also changed, both in volume and complexity. The proliferation of products, services, rules, and regulations is a cause of consumer confusion. This perplexity is magnified by borderless competition and the globalization of financial markets which makes financial decision making more difficult for individuals (Yoon, 2007).

In light of these concerns, public initiatives to expand financial literacy education have been implemented to help Koreans make more informed and responsible economic decisions. A special focus of these initiatives has been on younger generation Koreans. For example, the Korean Financial Supervisory Service (KFSS) recommended that programs be established to reinforce financial education in the schools to enhance children's and adolescents' financial literacy (Sohn, 2005). Even so, the delivery of financial literacy education, in formal settings, is still lacking in Korea. This is somewhat puzzling given that, traditionally, Korean children's and adolescents' educational achievements have been valued very highly. It appears that financial literacy education has not been integrated widely in the main topics of education because the Korean school system is characterized by a strong focus on primarily core subjects such as math and languages (e.g., Korean and English), which are deemed to be essential to passing college entrance examinations (Cho, 2010).

The end result is that the financial literacy of young Koreans appears to be broadly lacking (Cho, 2010). This may be the outcome of insufficient training in the formal education school system. The lack of financial literacy is likely related to other factors as well, including learned attitudes and behaviors acquired in informal settings such as families, peers, and media. In addition, the role of financial experience and money attitudes undoubtedly affect the literacy of Korean youth as well. It is these "other" factors that are of interest in this paper. Specifically, the broad purpose of the research reported in this paper was to determine what factors relate to financial literacy of Korean adolescents.

Outside of Korea, studies have examined the effect of financial education on financial literacy (e.g., Dolvin & Templeton, 2006; Edmiston & Gillett-Fisher, 2006) and efficient ways to deliver financial education (e.g., Servon & Kaestner, 2008). To date, however, few academic studies have examined the determinants of adolescents' financial literacy beyond conceptualizing literacy as an outcome of formal education. Thus, little is known about the interactions among financial literacy and other factors. The purpose of this research, therefore, involved the investigation of the influence of financial socialization and other factors, such as financial experiences and money attitudes, on adolescents' financial knowledge. Specifically, this study utilized a financial socialization perspective as a conceptual framework to test the relationships between financial literacy and financial socialization agents.

The financial socialization perspective posits that "socialization takes place through interaction of the person and various agents in specific social settings" (McLeod & O'Keefe, 1972, p.135). Those which a person interacts within social settings are called socialization agents. A primary assumption inherent in the socialization perspective is that to understand how consumers shape their knowledge and behavior, it is important to specify the influence of socialization agents and to examine the processes by which consumers acquire such knowledge and behavior (Churchill & Moschis, 1979). Guided by this perspective, this research not only examined the relationship between socialization agents (e.g., school, family, peers, and media) and financial literacy, but also the association between financial literacy and financial experiences and money attitudes.

Review of previous research

Previous research has shown that people obtain financial knowledge not only from formal educational networks but also from interactions with socialization agents such as friends, family, and media (Hilgert et al., 2003). In addition to socialization agents, financial experiences have been noted as significant because knowledge in the financial domain could be gained much more effectively when people actually practice prudent financial activities. Previous research suggests that people, regardless of age, who receive an allowance or have a bank account tend to be more financially savvy (Johnson & Sherraden, 2007; Kotlikoff & Bernheim, 2001; National Endowment of Financial Education (NEFE), 2004). Money attitudes (i.e., perception of money as a reward for efforts or as an object for retention) can also play a significant role in boosting the motivation to gain additional financial management knowledge (Edwards, Allen, & Hayhoe, 2007). Additionally, different perceptions about money have been found to be related with financial knowledge and behaviors (Norvilitis et al., 2006; Roberts & Jones, 2001). The remainder of this literature review focuses on previous research related how financial socialization agents, financial experiences, and money attitudes impact on adolescents' level of financial literacy.

Financial socialization agents and financial literacy

Financial socialization is a process by which individuals acquire from the environment those skills, knowledge, and attitudes that are necessary to maximize their consumer role in the financial marketplace (Ward, 1974). Socialization is often viewed as a social process by which various consumer characteristics are transmitted from specific sources, commonly known as socialization agents (Churchill & Moschis, 1979). Central to consumer socialization theory, which emphasizes the importance of specifying social origins in order to grasp how consumers acquire various knowledge and behavior (McLeod & O'Keefe, 1972), is understanding the extent to which consumer socialization agents influence young people in shaping and developing consumer skills, knowledge, and attitudes.

Much of the previous research has shown that family, peers, schools, and media are all significant agents of consumer socialization, and that each agent works differently throughout the lifecycle. In a study of adolescents' consumer socialization, for example, Churchill and Moschis (1979) discovered that family communication about consumption matters declines with age, whereas peer communication about consumption increases with age. That is, parental influence appears to slowly grow weaker over time, while the influence of peers grows stronger. As a child grows older, he or she will be exposed to various socialization agents, and from interactions with these socialization agents, the child learns about consumer roles. Young people also develop degrees of financial literacy through the socialization process. The following discussion highlights the relationships between primary socialization agents (i.e., family, peers, schools, and media) and financial literacy.

Family, especially parents, is known to be one of the primary socialization agents for youth when shaping money or saving attitudes (Clarke, Heaton, Israelsen, & Eggett, 2005; Rettig, 1985), credit attitudes (Norvilitis et al., 2006), and financial information gathering (Lyons, Scherpf, & Roberts, 2006). Consider the study by Lyons et al. (2006) in which they surveyed high school and college students who participated in a financial education workshop. Their results showed that almost 77% of the students had turned to their parents to obtain financial information.

Researchers have also noted that the influence of peers is important in shaping a young person's financial behavior (Kretschmer & Pike, 2010; Masche, 2010; Moore & Bowman, 2006). For example, in their study of adolescent gambling tendencies, Delfabbro and Thrupp (2003) found that even though behavior was shaped, in part, by the actions and attitudes of parents, a strong peer socialization aspect existed in youth gambling behavior. Peers have been found to influence adolescents' consumer behavior, particularly in relation to product choice (Bachmann, Roedder-John, & Rao, 1993), gift requests (Caron & Ward, 1975), materialistic attitudes (Churchill & Moschis, 1979), and consumer competency (Lachance & Legault, 2007). For example, Lachance and Legault found that college students who perceived consumption as a way to belong to or be accepted by their peer group were less likely to be competent consumers, whereas those who sought consumer information from peers were more likely to be competent consumers.

Formal education, as an agent of socialization, is also believed to play an important role in shaping knowledge of personal finance topics. Bernheim, Garrett, and Maki (2001), for example, provided evidence on the long-term behavioral effects of high school financial education by showing that mandated school financial education significantly increases saving rates at the household level and wealth levels over the course of the lifespan. In 2005, Varcoe, Martin, Devitto, and Go noted that using a professionally designed financial curriculum improved the financial knowledge and behavior of high school students.

Media is another important consumer socialization agent for children and adolescents. In a study by Lyons et al. (2006), about 33% of high school and college students reported that they had used media and the Internet as sources to acquire financial information. Research has shown that the amount of television viewed is positively related to adolescents' purchase requests, brand recognition, materialistic attitudes, and financial behaviors (Buijzen & Valkenburg, 2003; Churchill & Moschis, 1979; Loibl & Hira, 2005; Schor, 2004). For example, Loibl and Hira found that the degree to which people used media (e.g., newsletter, publications, software, and Internet) as an information source for financial planning was positively associated with better financial practices as well as financial satisfaction. They argued that a substantial amount of financial learning takes place at an individual's initiative, and that media sources serve as valuable self-directed learning sources for financial information.

As this review demonstrates, the significance of financial socialization agents in shaping financial knowledge for adolescents is important. It is likely that Korean adolescents acquire financial literacy from various socialization agents. Further, the influences from each agent could be different. An aim of the present study is to test this possibility.

Financial experiences and financial literacy

Johnson and Sherraden (2007) promoted the concept of financial capability as an alternative, yet more concrete, concept for financial literacy. Johnson and Sherraden argued that to become a better financial citizen "individuals need to develop financial knowledge and skills but also gain access to financial policies, instruments, and services" (p. 119). They addressed the significance of financial experiences, which they assumed are gained by access to financial policies, instruments, and services. They further suggested that financial education could be more effective when it combines cognitive knowledge skills with actual financial experiences, such as having a bank account. Other research has shown that those who have actively participated in the management of an allowance, bank account, or other financial product as a young person went on to save more as adults (Kotlikoff & Bernheim, 2001 as cited in Johnson & Sherraden, 2007).

A NEFE (2004) study also suggested that having a mainstream bank account positively influences financial behavior. The authors of the NEFE study recommended that financial education ought to incorporate practical applications of bank account ownership as a training tool. The study also noted that people generally have a better understanding about the stock market after they have invested in stocks and that knowledge about buying a home increases after purchasing one. In other words, financial literacy is likely associated with financial experience. Those with more financial experience should exhibit greater financial knowledge. Childhood experiences could be even more crucial because financial incidents that happen within a family context occur concurrently with consumer socialization. As such, financial experiences at a young age might be a key catalyst that leads to better financial literacy and behavior for adults. This research tries to examine the relationship between financial experiences and financial literacy for adolescents.

Money attitudes and financial literacy

Money is an important issue for people, not only as a utilitarian commodity but also as an emotional representation of worth or through symbolic meanings (Engelberg & Sjoberg, 2006; Mitchell & Mickel, 1999). Furthermore, money has been recognized as a powerful motivator of behavior (e.g., as a force leading to productivity in organizations), as well as a factor that shapes job satisfaction and stress (Tang & Gilbert, 1995). Similarly, in a study of college students' compulsive buying behavior, Roberts and Jones (2001) showed that money attitudes, especially in the power and prestige domain, were driving forces of compulsive buying. Hong (2005), working with a sample of Korean secondary and post-secondary students, supported this conclusion by showing a significant relationship between money attitudes and compulsive buying. Kim (2003) also found that money attitude was significantly related to spending patterns of college students in Korea.

In an analysis of college students, Edwards et al. (2007) found that money attitudes were related to students' openness with parents about their financial situation. These findings suggest that particular money attitudes could serve as a motivator to knowledge seeking behavior concerning financial matters in the same way that money attitudes influence other behavior (e.g., credit card debt and compulsive buying behavior). For example, Burgess (2005) found that specific money attitudes were related to self-direction and security values, implying that those attitudes likely interact with a self-directed behavior for security such as financial knowledge seeking.

There appears to be, in Korea, a mixed attitude toward money. In traditional Korean society, money or materialistic desires were considered something to be avoided. The conceptual basis for viewing issues associated with personal financial management, particularly the pursuit of wealth at the household level, as less important than other daily activities, has roots in the influence of Confucianism in Korean society (Grable, Park, & Joo, 2009). Confucianism is premised on the notion that people should be free from money to pursue more lofty outcomes such as truth, love, and justice. However, with rapid industrialization, a tendency to value money or wealth highly has penetrated Korean society, thus reducing the influence of traditional religious values. In Korea today, both positive and negative feelings related to money exist. These conflicting images may affect willingness to learn about money and thus influence the financial literacy of Korean adolescents. No research evidence exists, however, on the relationships among specific attitudes toward money and financial literacy. The current study is designed to address this gap in the research literature.

Method

Participants and procedure

Data from *Korean Financial Literacy Test Survey* (KFLTS) were used in this study. The Korean Council on Financial Education for Youth has conducted the KFLTS annually since 2003. The KFLTS is the only national dataset dedicated to financial literacy of the youth in Korea. The survey instrument was developed based on the U.S. Jump$tart's Financial Literacy Test questionnaire in 2000. The KFLTS was modified and adjusted to fit the cultural context of the Korean financial marketplace. The KFLTS developers used the U.S. Jump$tart questionnaire because the measures in the survey were originally developed based on well-established financial knowledge standards. The KFLTS survey instrument included 30 multiple-choice financial literacy test questions and 17 background assessment items, including personal and demographic profile questions.

The sample was drawn using a proportional quota sampling method based on gender and number of elementary, middle, and high school students to represent the entire student sample in Korea. For the purposes of this study, the 2006 dataset, which was the most recent survey of high school students at the time of analysis, was used. The survey was administered to 1970 sophomores in ten high schools in metropolitan areas in Korea. After excluding unreliable responses (i.e., those who provided no answers to all of the questions and those who marked the same answers to all questions), a total of 1770 cases were included in dataset; however, this study used 1185 cases in the regression analyses due to the list-wise deletion of missing values. The possibility of a systematic bias resulting from missing data was analyzed by comparing the regression sample ($n = 1185$) and the excluded sample ($n = 1770 - 1185 = 585$). It was found that financial literacy scores of the excluded sample were significantly lower than scores from the regression sample (49.7 versus 45.1, $t = 6.46$, $p = .000$). To resolve this discrepancy, a two-stage regression analysis was conducted to correct possible selection bias. Detailed information on the analysis is described in the Analytical Method section.

As shown in Table 1, about two-thirds (65.4%) of the regression sample were female. Slightly more than one quarter of the sample (26.7%) reported monthly household income between $1500 and $2999, while 28.7% answered that they did not know their household income. Most students in the sample chose their family (64.8%) as the most significant source of their financial knowledge, followed by the media (18.0%). The majority (78.4%) of the sample had one or more bank accounts of their own. Table 1 provides additional demographic details about the respondents.

Table 1
Sample characteristics.

	N = 1770	N = 1185 (regression sample)	N = 585 (excluded cases)
Variables	%	%	%
Financial literacy score (mean)	48.2	49.8	45.0
Gender			
Male	36.8	34.6	41.4
Female	63.2	65.4	58.6
Father's education			
Less than college graduate	44.9	46.0	41.9
College graduate or higher	55.1	54.0	58.1
Monthly household income			
Under $1500	7.1	7.0	7.4
$1500–$2999	25.8	26.7	24.7
$3000–$4499	19.4	21.8	15.2
$4500 or more	15.4	15.8	15.0
Don't know	31.9	28.7	37.7
Amount of monthly allowance (categories)[a]			
Under $20	10.2	9.0	13.6
$20–$39	29.7	31.3	25.3
$40–$59	30.7	31.1	29.5
$60–$99	14.1	14.7	13.6
$100 or more	15.0	13.8	18.0
Amount of monthly allowance (mean)[a]	$60.0	$56.2	$71.8
(Skewness)	(10.0)	(9.2)	(8.4)
(Kurtosis)	(138.7)	(110.8)	(90.7)
Main source of financial knowledge			
Family	63.2	64.8	58.1
Media	18.5	18.0	20.2
Peers	9.3	8.4	12.2
School	9.0	8.8	9.5
Possession of bank accounts			
Yes	75.3	78.4	69.0
No	24.7	21.6	31.0

[a] Calculated for US dollar ($1 = 1000 Korean won).

Measures

Financial literacy

Financial literacy was measured with a 30-item multiple-choice instrument developed to assess financial knowledge in the following domains: (a) income, (b) money management, (c) savings and investments, and (d) spending and credit. A total score of correct answers was calculated. This was then converted into a one-hundred-point scale, with high scores being indicative of greater literacy. Scores ranged from a low of zero percent correct to the highest of 83.3% correct.

According to Lucey (2005), the 30 items in the 2000 Jump$tart financial literacy survey showed moderately high internal consistency (KR20 alpha = .78). In terms of validity, the U.S. Jump$tart literacy questions were found to be representative of baseline knowledge needed to make effective decisions in the financial marketplace. Validity was tested numerous ways, including the use of Delphi panels consisting of professional and educational leaders in personal finance. As such, the reliability, as a form of internal consistency, and the face validity of the original financial literacy questions were (and have been) deemed acceptable. As a comparison, the internal consistency of the 2006 KFLTS financial literacy measure, based on student answers (correct versus wrong), was found to be acceptable using Cronbach's alpha (.70). Given the nature of the questions, the face validity of the instrument was also found to be strong (Korean Council on Financial Education for Youth, 2006).

Financial socialization agents

In the 2006 KFLTS, students were asked to choose who or what they considered to be their most influential source for financial information. Choices included family, peers, school, and media. The question was used as a proxy to measure the role of financial socialization agents in shaping financial literacy. Three dummy variables were created, one for peers, school, and media, with the family being the reference group.

Financial experiences

Personal financial experience was proxied by measuring whether or not a respondent had a bank account. A dichotomously coded variable was created to measure financial experiences, with those who possessed a bank account coded 1, otherwise 0.

Money attitudes

The 2006 KFLTS included a modified version of Tang's Money Ethic Scale (1992). Tang's Money Ethic Scale has 30 items, comprising six major factors, which can be categorized into three components: (a) an affective component (Good and Evil); (b) a cognitive component (Achievement, Respect, and Freedom/Power); and (c) a behavioral component (Budget) (Tang, 1995). The current study excluded the behavioral component in order to focus on attitudinal aspects about money. A total of 28 items were rated on a 5-point Likert-type scale ranging from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*). To examine the scale's transferability into Korean, the items were subjected to a principal components factor analysis. Using a criterion of eigen values greater than one rule, followed by Varimax rotation, six factors (28 items, 55% of the variance) were identified: (a) Power/Freedom, (b) Good, (c) Avoidance, (d) Reward for Efforts, (e) Achievement, and (f) Evil. Overall, money attitude types were very similar to Tang's scale; however, in this study, slightly more fractionalized attitudes toward money were identified. Table 2 summarizes the results of the factor analysis. Cronbach's alpha coefficients for the scale were found to be acceptable (.64 ∼ .82). According to the mean values adjusted to the number of items for each factor, Korean high school students tended to think that money provided a reward for efforts and that money was good. Korean students were less oriented to see money as an avoidance object and evil. In the regression analysis, financial literacy factor scores were used.

Background characteristics

Student background characteristics included gender, father's education, and amount of monthly allowance. Father's education and the amount of monthly allowance were used to proxy each student's socioeconomic status. Gender and father's education were coded dichotomously. Male students were coded 1 (otherwise 0), and those whose father was a college

Table 2
Money attitudes factor loadings and reliability estimates.

Item	Loading	Eigen value	Amount of variance explained	Cronbach's α	Mean[a]
Factor 1: Power/freedom					
Money can give you the opportunity to be what you want to be	.732	6.658	23.780	.818	3.2
Money means power	.707				
Money is honorable	.638				
Money can bring you many friends	.631				
Money makes people respect you in the community	.630				
Money will help you express your competence and abilities	.620				
Money can buy you luxuries	.491				
Money gives you autonomy and freedom	.448				
Factor 2: Good					
Money is good	.765	3.084	11.016	.811	3.9
Money is an important factor in the lives of all of us	.728				
Money is important	.675				
I value money very highly	.591				
Money is valuable	.585				
Money is attractive	.509				
Factor 3: Avoidance					
Money spent is money lost (wasted)	.746	2.208	7.887	.670	2.1
Money is shameful	.720				
Money is useless	.672				
Factor 4: Reward for Efforts					
I think that it is very important to save some money	.740	1.333	4.759	.637	4.0
I pay my bills immediately in order to avoid interest or penalties	.721				
Money does not grow on trees	.633				
A penny saved is a penny earned	.510				
Factor 5: Achievement					
Money represents one's achievement	.657	1.193	4.259	.701	3.2
Money is a symbol of success	.653				
Money in the bank is a sign of security	.613				
Money is the most important thing (goal) in my life	.472				
Money can buy everything	.397				
Factor 6: Evil					
Money is evil	.798	1.030	3.679	.665	2.9
Money is the root of all evil	.753				
Total			55.379	.844	

[a] 1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree; 5 = strongly agree.

graduate or higher were coded 1 (otherwise 0). Rather than rely on each respondent's estimate of their household income, the amount of monthly allowance received was used to assess household wealth. McGarry and Schoeni (1997) showed that providing an allowance allows a direct way for parents to transfer income and wealth to their children. As such, an allowance can serve as a proxy for household income when a respondent is unaware or forced to guess his or her family's income. This is the case in Korea. Many students were not aware of their household income, as evidenced by the number of missing responses to the income question in the dataset (see Table 1). A correlation test was used to evaluate the use of reported allowances as a substitute for household income. A positive significant correlation between students' reported monthly allowance and household income was noted ($r = .32$, $p = .000$). Further, a study about Korean youths' consumption was used to confirm the substitution. Yoon, Cho, Baek, and Yoo (2003) found a strong positive relationship between monthly allowance and socioeconomic status. The amount of monthly allowance was categorized into five bracket levels. Four dichotomous variables were created for monthly allowance, with the highest level ($100 or more) being the omitted category. Other factors, such as age, were excluded from the analysis because of the homogenous nature of the sample—the survey was administered to sophomore high school students who were of similar age and the age was not collected from the survey.

Analytical method

A series of linear regression analyses was employed to examine possible relationships among the financial socialization agents, financial experiences, money attitudes, and financial literacy. Because, a large proportion of the original sample was excluded due to the list-wise deletion of missing values, the mean financial literacy score of the excluded sample was found to be significantly lower than that of the included sample. This led to the possibility of a selection bias when estimating the regression coefficient (Greene, 2000). To correct for this possibility, the selection bias correction term, the inverse Mill's ratio, was generated from a probit analysis. This term was then included in the regression model (see procedure as recommended by Greene, 2007). A probit analysis was conducted with the sample membership (i.e., the included (coded 1) versus the excluded (coded 0)) as the dependent variable and other background factors from both samples as independent variables.

Among the four groups of independent variables, financial literacy was regressed against background characteristic variables first (Model 0). This was followed by socialization agents, financial experiences, and money attitudes. Each of these factors was separately entered with background characteristics (Models 1–3). Finally, all four groups of independent variables were entered in the regression analysis (Model 4). The R^2 changes for Models 1 to 3 from Model 0, and Model 4 from the other Models were tested for significance. To test the significant increases in R^2, F statistics was calculated using error sum-of-squares of the two different models. In this way, the significance and importance of each independent variable group was tested. To account for possible multicollinearity within the data, variables were analyzed using correlations and collinearity diagnostics prior to running the regression. No multicollinearity issues were noted.

Results

Overall financial literacy scores

Table 3 presents the frequency distribution of Korean high school students' financial literacy scores. Korean high school students performed poorly on the test as a whole with an average score of 49.8 out of 100.0. The Korean scores, which were nationally representative, compared unfavorably with the 52.4 score for American high school students on a similar test in the same year (National Jump$tart Coalition Survey, 2006).

Factors affecting financial literacy scores

Results from the regression analyses are presented in Table 4. Inspection of R^2 changes (shown in Fig. 1) reveals significant effects for each independent variable group used in the test. The relative importance of the variables can be identified on the

Table 3
Financial literacy scores by total and test domains ($N = 1185$).

Financial literacy score range	Total	Income	Money management	Savings and investment	Spending and credit
0.0–20.0	2.9%	8.4%	7.6%	4.9%	8.4%
20.1–40.0	25.1%	12.5%	20.8%	27.3%	28.5%
40.1–60.0	50.5%	49.9%	39.8%	23.2%	39.1%
60.1–80.0	21.4%	18.8%	29.5%	38.8%	21.2%
80.1–100.0	.2%	10.4%	2.2%	5.8%	2.8%
Total	100.0%	100.0%	100.0%	100.0%	100.0%
Mean Score	49.8	52.4	49.5	52.3	46.4
SD	14.3	20.9	23.7	19.4	17.0
Min	.0	.0	.0	.0	.0
Max	83.3	100.0	100.0	100.0	90.9

Table 4
Financial socialization, financial experiences, money attitudes and financial literacy ($N = 1185$).

Independent variables	Dependent variable: financial literacy				
	Model 0	Model 1	Model 2	Model 3	Model 4
	Unstandardized b	Unstandardized b	Unstandardized b	Unstandardized b	Unstandardized b
Background characteristics					
Gender (1 = male)	.204	−.002	.055	−.295	−.525
Father's education (1 = college graduate or higher)	−.739	−.536	−.960	−1.229	−1.266
Amount of monthly allowance (0 = $100 or more)					
Under $20	1.066	1.109	1.388	1.180	1.574
$20–$39	4.706***	4.311**	4.781**	4.244**	4.166**
$40–$59	3.970**	3.702**	4.210**	3.296	3.449**
$60–$99	3.156*	2.965	3.657*	2.846**	3.244*
Socialization agents (0 = Family)					
School		.085			.290
Peers		−2.836			−1.597
Media		4.281***			2.923**
Financial experiences					
Possession of a bank account (1 = yes)			6.502***		5.809***
Money attitudes					
Power/freedom				.434	.511
Good				.976*	.896*
Avoidance				−2.902***	−2.779***
Reward for efforts				.962*	.844*
Achievement				−2.047***	−1.831***
Evil				−.687	−.635
Inverse Mill's Ratio	−21.884**	−20.885**	−18.262**	−15.636**	−12.289**
Constant	58.358***	57.485***	51.322***	55.686***	48.957***
Total R^2	.039	.057	.074	.11	.15
F-value	6.85***	7.11***	11.70***	10.81***	11.68***

*** $p < .001$, ** $p < .01$, * $p < .05$.

basis of the relative changes in R^2 statistics. Money attitudes were found to be the most significant predictor of Korean high school students' financial literacy, followed by financial experiences, background characteristics, and socialization agents.

Gender, father's education, and monthly allowance were entered in the first model as background control variables. These background control variables accounted for 3.9% of the variance in financial literacy. Baseline background characteristic variables (Model 0) and socialization agents (Model 1) together accounted for 5.7% of the variance in financial literacy. When financial experiences were added (Model 2), 7.4% of variance was explained. Model 3 added money attitudes. The addition of this variable group increased the variance to 11%. When each variable was entered simultaneously, all four independent variable groups accounted for 15% of financial literacy scores.

Multivariate findings for Model 4 showed that monthly allowance, socialization agents, possession of a bank account, and money attitudes were significantly related with financial literacy. Monthly allowance was significant in explaining financial

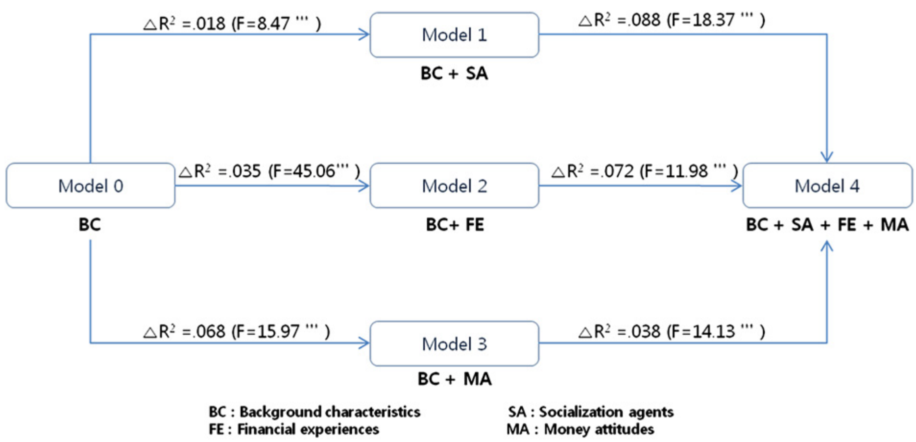

Fig. 1. R^2 changes of the various models of financial literacy.

literacy. Compared to the highest bracket level ($100 or more), those in the middle bracket levels of allowance ($20∼$39, $40∼$59, $59∼$99) ($t = 3.289$, $p = .001$; $t = 2.754$, $p = .006$; and $t = 2.233$, $p = .026$, respectively) exhibited higher financial literacy, while those in the lowest level (under $20) showed no difference, indicating that those with lower and higher allowances tended to have reduced levels of financial literacy compared to those in the middle allowance group. Compared to family (as a socialization agent), those who chose media as their primary financial socialization agent ($t = 2.812$, $p = .005$) reported higher levels of financial literacy. Possession of a bank account ($t = 6.139$, $p = .000$) was positively related to financial literacy. Among the money attitude variables, viewing money as "good" ($t = 2.244$, $p = .025$) and a reward for efforts ($t = 2.085$, $p = .037$) were positively associated with financial literacy, while holding an attitude of money avoidance ($t = -6.875$, $p = .000$) and achievement ($t = -4.644$, $p = .000$) were negatively related to the financial literacy of Korean adolescents.

Discussion

The results from this study illustrate how the financial literacy of Korean high school students is significantly associated with media as a socialization agent, possession of a bank account, money attitudes, and monthly allowance levels. Among the significant variables related to financial literacy, the explanatory power was greatest for the money attitudes variables. Perceptions of money as good or as a reward for efforts, among Korean adolescents, were positively associated with financial literacy. The perception that money was something to avoid or a tool to indicate life achievement were both negatively related to financial literacy. High school students with positive attitudes toward money tended to exhibit higher financial literacy scores, while those with negative attitudes tended to have lower scores. But some exceptions were found. Power/Freedom and Achievement, which generally can be thought of as positive attitudes toward money, were not significantly related or even negatively related to financial literacy. Within the context of this finding, when considering a view of money as power and freedom or achievement, it is apparent that money attitudes are likely highly related to perceptions of materialism. Tang (1992) found that Achievement was related to a low level of life satisfaction. He also found in a Chinese sample that this attitude was related to irritation and external locus of control (Tang, 1993). Tang (1995) argued that those who value money as a sign of achievement may become slaves, rather than masters, of money and may also experience a high level of stress. Analysis of the standardized beta coefficients from the Model 4 reveals that the negative effects of Avoidance and Achievement were stronger than the effects of the other money attitude factors.

The result showing a relationship between money attitudes and financial literacy was consistent with findings reported by Hong (2005) and Kim (2003). Hong revealed a significant positive relationship between attitudes toward money as "good" and budgeting behavior among Korean adolescents. Kim found that saving behavior was significantly associated with money attitudes as a tool for safety. It is possible that those who have a positive attitude toward money will actively seek out money management knowledge as a way to enhance their skill set. This knowledge seeking behavior could produce higher levels of literacy in the domain of personal finance. On the other hand, those who consider money as a thing to avoid or a tool for life achievement might be reluctant to take active steps to learn about money matters. Findings from this study suggest that efforts to change perceptions or attitudes could be very important factors in the financial education process. It may be necessary to include an attitudinal component, such as the concept of money and philosophical or emotional aspects of money, when providing financial education for Korean adolescents.

Only media, among the various socialization agents, was shown to have a significant relationship with the financial literacy of Korean high school students. Although family was reported to be the most important and prevailing socializing agent, as about two-thirds of the respondents chose family as being the most influential financial information source, family did not significantly contribute to the enhancement of high school students' financial literacy when compared to peers and schools. This means that for high school students in Korea, family, peers, and schools play a similar role in shaping financial literacy. This could also mean that high school students are in a life stage where they receive socialization in personal finance matters from the media primarily, or it could mean that in Korea a very little socialization about money and personal finances occurs in the family, schools, or through peers. As a proactive tool for increasing financial literacy, these results intimate that Korean students could learn a great deal more about money and personal finances through media sources, particularly if such media interactions were designed with adolescent needs, desires, and preferences in mind.

The socialization finding can also be examined from a student information seeking perspective. Financial knowledge and information provided by or through media sources, such as news, informational broadcasts, magazines, and the Internet may be obtained by conscious information seeking behavior. It is possible that those who feel a greater need for financial information opt-in and utilize media sources to increase their financial knowledge. On the other hand, financial knowledge and information provided through natural everyday interactions with parents and peers, or given in a class lecture at school, could be considered to be passive forms of information seeking. Therefore, it can be argued that gaining financial literacy through media sources is indicative of a young person's active effort to seek personal finance information. If true, this implies that with the rapid growth and popularity of user created materials circulating on the Internet, it is critical for consumers and those providing education to adolescents to examine the quality of personal financial information offered through the media, especially the Internet. It is somewhat ironic that to do so, however, requires a relatively high level of financial literacy sophistication.

The significant relationship between financial experience and financial literacy supports findings and suggestions reported by Johnson and Sherraden (2007), Kotlikoff and Bernheim (2001), and NEFE (2004) in confirming that having a bank account positively influences financial behavior. Experiences provide functional, rather than cognitive, knowledge, and in personal financial matters, these functional aspects could be important triggers leading to improved attitudes, behaviors, and literacy.

An important finding in the 2006 U.S. National Jump$tart Coalition Survey, as implemented in the United States, revealed that students who completed a high school personal finance course tended to do a little worse on the national standardized financial literacy test than those who did not. This insight might disappoint the designers and teachers of school-based financial education programs, but when viewed with a cultural lens this result may not be surprising. The results from this study suggest that simply providing information to adolescents may be among the least important factors associated with financial literacy. Instead, it appears that provisions of well-designed financial education programs should include attitudinal components and opportunities to obtain practical experience in the household and consumer finance marketplace. In the U.S., students who generally had hands-on experience with a stock market game scored well on the test. The results from the current study suggest that this type of experiential learning may be the key to increasing financial literacy among young people. It may not necessarily be the type of experience that is important, but rather the experience itself that drives knowledge gains.

This research also revealed that those who had a mid-range monthly allowance showed higher levels of financial literacy than those who had the highest monthly allowance. Initially, this finding appears somewhat counterintuitive because it shows that adolescents who have access to higher levels of family financial resources may not always exhibit the utmost financial knowledge and behavior. Upon further inspection, the results are not necessarily surprising. McGarry and Schoeni (1997) reported that adolescents living with high income earning parents may have less need to fully understand personal finance topics because their day-to-day needs are met directly by their parents. The results showing that those with the highest allowance did not have the highest literacy levels match those of Mandell and Klein (2007). They showed that in certain years U.S. Jump$tart financial literacy scores for the highest income respondents were lower than students in the middle range income group; however, in some cases no significant relationship between income and financial literacy has been noted (Chen & Volpe, 2002).

This study has important implications for policy makers, educators, and consumers. As recommendations from the OECD (2006) highlight, the importance of financial literacy among young people is a policy issue that should be addressed at the highest governmental levels. The OECD prompted governments around the world to take the issue of financial literacy seriously by enacting initiatives to promote financial education. The results from this study suggest that for adolescents, media is a significant financial socialization source. While the results from this research alone are not enough to recommend that governments take a proactive stance in using media sources to promote financial education, it is reasonable to advocate that policy makers take steps to ensure that the quality and content of financial information offered through the media is both of high quality and accurate. It is important to note, as well, that the findings from this study do not mean that school-based financial education programs are not important. Instead, the results from this study imply that school-based financial education is not enough nor effective enough to significantly improve financial literacy among adolescents. As discussed earlier, school financial education initiatives, with practical and attitudinal components, should be encouraged. Financial education programs with practical and attitudinal components may fill the gap between classroom financial education and the real world where consumers are faced with daily financial decisions.

Findings from this study also suggest that consumers have an important role to play in efforts to improve financial literacy. The finding that adolescents who have positive, favorable, and frugal attitudes toward money exhibit better financial literacy indicates that within families, parents should be encouraged to talk to and teach their children about money in a positive manner. This advice is not dissimilar to other areas of family life. Wight, Williamson, and Henderson (2006) determined that parental monitoring has a strong effect on the sexual behavior of adolescents. Zimmer-Gembeck and Locke (2007) reported that the family is the prime socializer during the adolescence stage of the lifecycle, and that positive family relationships are significantly associated with adolescents' active coping behaviors. It is reasonable to assume then that the way parents talk, use, and consider money likely influences children's money attitudes. As result, parents should be encouraged to show more positive, favorable, and frugal attitudes about money to their children.

This study advances the literature by taking a further step toward understanding financial socialization, financial experiences, money attitudes, and financial literacy among adolescents. The analysis presented here is unique because it reports on the financial literacy of Korean students, using an adaptation of a well-recognized U.S. survey instrument. The next research step includes examining these relationships by including financial behavior and financial well-being at the national and international level. While the findings are useful in providing benchmark guidelines for future research, there are several limitations in this research that ought to be noted. First, more detailed information regarding the interaction with each socialization agent could help in identifying the degrees and depths of influence each agent has on financial literacy. The dataset only asked students to identify their primary source of financial socialization. Further research on each socialization agent's influence on financial literacy may be needed. Second, even though the dataset was relatively large and representative of Korean adolescents, the data may not be appropriate in generalizing findings to other developed or developing countries. The differences in money attitudes should be examined more carefully in the context of cultural background differences and similarities. Third, even though the internal consistency, as a reliability measure of the literacy questionnaire, was adequate the survey questions could be further developed to ensure higher levels of validity in the future. Finally, further research on how to develop financial education initiatives to improve financial literacy of adolescents and especially for younger generations is recommended.

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