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Parent Financial Socialization Scale: Development and Preliminary Validation

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Parent Financial Socialization Scale: Development and Preliminary Validation

Abstract

A theoretically-grounded, validated measure of parent financial socialization is needed. This paper describes the development and validation process of three new scales: the Parent Financial Modeling Scale (eight items), the Parent-Child Financial Discussion Scale (nine items), and the Experiential Learning of Finances Scale (three items). These may be treated as subscales of a multidimensional latent construct: the Parent Financial Socialization Scale (20 items). The three scales measure the three primary methods of family financial socialization. The scales are designed to be retrospective, with target participants being U.S. emerging adults (age 18-30). A rigorous development process was undertaken: an initial pool of items was generated, expert assessments were collected, cognitive interviews were conducted, and (following preliminary data collection) preliminary item reduction analysis and confirmatory factor analysis were conducted. Final data were collected from a diverse (51.7% female, 47.6% male; 31.6% White, 22.0% Black, 19.8% Latinx, 14.6% Asian; 50.4% no parent with college degree, 47.4% parent with college degree) sample of 4,182 U.S. emerging adults. During validation, item reduction analysis, confirmatory factor analysis, reliability tests, measurement invariance tests, and construct validity tests were conducted. The scales demonstrated acceptable reliability and validity, and invariance was established across sex, race, and parents' education level. These scales are unique in their ability to capture nuance and will allow for comparisons across studies. They will enhance the quality of family financial socialization research, expand the questions that can be answered, and allow for the development of programming that is effective for a wide range of families.

Key words: family financial socialization, scale development, financial modeling, financial discussion, experiential learning

Parent Financial Socialization Scale: Development and Preliminary Validation

Family financial socialization theory, studied as a specific theory since 2011, posits that what and how children learn about money from their parents while growing up will be associated with their financial wellbeing later in life (Gudmunson & Danes, 2011). Financial wellbeing, “a financial status in that a consumer or family has adequate resources to live a comfortable life” (Xiao, 2016, p. 9), is linked with other aspects of wellbeing such as relational and mental health (Curran et al., 2021; Totenhagen et al., 2018) and life satisfaction (Sorgente & Lanz, 2017). The field of family financial socialization has grown quickly over the past decade (LeBaron & Kelley, 2021), and many studies have found links between family financial socialization and financial wellbeing (Kim & Chatterjee, 2013; Ullah & Yusheng, 2020), including examining financial outcomes in emerging adulthood (Allsop et al., 2020; Damian et al., 2019; Jorgensen et al., 2017). However, a study (and, on a larger scale, a field) is only as good as its measures. The considerable limitations of existing measures of family financial socialization have undermined the field’s ability to 1) capture nuance (i.e., various methods) in socialization, 2) compare results across studies, and 3) trust the validity of results (LeBaron & Kelley, 2021; Vosylis & Erentaite, 2019). For the field to continue to progress, better measures of family financial socialization are needed to ensure that our studies are reliable and valid.

To meet this need, we developed and psychometrically tested three scales that measure the three primary methods of parent financial socialization (i.e., how parents teach their children about money): the Parent Financial Modeling Scale, the Parent-Child Financial Discussion Scale, and the Experiential Learning of Finances Scale. Final data were collected from a diverse sample of 4,182 U.S. emerging adults. It is hoped that 1) the measures will reflect family financial

socialization theory, 2) other studies will use these new scales and there will be more consistency across the field, and 3) the measures will be psychometrically valid and so the field will be able to make more sound conclusions from results.

Literature Review

Introduction to the Three Scales

Family financial socialization is defined as “the process of acquiring and developing values, attitudes, standards, norms, knowledge, and behaviors [within families] that contribute to the financial viability and individual wellbeing” (Danes, 1994, p. 128). Previous research has identified three main methods of family financial socialization: modeling, discussion, and experiential learning (Larsen Gibby et al., 2021; see LeBaron & Kelley, 2021 for a review). While parent financial modeling and parent-child financial discussion have been the focus of financial socialization research for the past decade (Rea et al., 2019; Serido & Deenanath, 2016), in a recent qualitative project experiential learning of finances was identified as a third primary method of family financial socialization (LeBaron et al., 2018a, 2019).

The scales presented in this paper seek to measure the three main methods of family financial socialization, as identified by the *Whats and Hows of Family Financial Socialization* project (LeBaron et al., 2018a). Information about this project is in the supplementary literature review. *Parent financial modeling* is defined as parent(s)’ enactment of financial behaviors as observed or recognized by their child (Rosa et al., 2018). *Parent-child financial discussion* is defined as verbal communication between parent(s) and their child about finances (LeBaron et al., 2020b). *Experiential learning of finances* is defined as “the process of using life experience to internalize [financial] knowledge” (LeBaron et al., 2019, p. 437). The three scales are retrospective (i.e., asking participants to recall how their parents taught them about money while

the participants were growing up), with target participants being U.S. emerging adults (i.e., age 18-30). The scales may be adapted for other groups, but the scales in their current version were developed and tested for this specific age group.

Limitations of Existing Measures

A detailed, fairly comprehensive literature review (e.g., items, psychometric information) on existing measures of family financial socialization is in the supplementary literature review. We will summarize the most relevant information from that literature review in this section. For *parent financial modeling*, there are two existing measures. Shim et al. (2010) listed alphas for the scales and reported that one of the scales was “based on the focus group interviews and a pilot study” (p. 1461). If further psychometric testing was conducted for either scale, it was not reported. *Parent-child financial discussion* is the most-measured of the three methods of family financial socialization, and we discuss in depth eight existing measures of this method in the supplementary literature review. Of those eight measures, one was accompanied by no psychometrics, three were accompanied by alphas, two were accompanied by scale development procedures (e.g., expert assessments, criterion validity) but had an insufficient number of items (i.e., two items and one item, respectively), and two were accompanied by detailed scale development and validation information (e.g., focus groups, exploratory factor analysis, confirmatory factor analysis) but measured specific topics of parent-child financial discussion (vs. discussion as a general method of parent financial socialization) (i.e., openness on family finances, instructing on money management). For *experiential learning of finances*, there are no existing measures of this construct, but in the supplementary literature review we describe two existing one-item, binary measures that capture specific financial experiences.

There are three main limitations to the existing measures. First, rarely has the same scale been used in more than one or two studies. This lack of consistency in measurement is likely contributing to inconsistencies in results. For example, research on gender as a moderator between financial socialization and outcomes has not found patterned results (Garrison & Gutter, 2010; Jorgensen & Savla, 2010); while some studies have found that family financial socialization is more strongly associated with females' outcomes, others have found the opposite, and still others have found no difference by gender at all. These varying results are likely due to lack of consistency in items that measure financial socialization.

Second, the existing measures do not reflect the most recent theoretical understanding of family financial socialization methods (e.g., LeBaron et al., 2018a, 2019; Serido & Deenanath, 2016). For example, many of the existing measures that seem to capture “parent-child financial discussion” specifically were labeled as “financial socialization” generally (e.g., Hira et al., 2013; see Table S1 for inconsistencies in parent-child financial discussion measures). This is discordant with Gudmunson and Danes' (2011) original theoretical model, which distinguished between explicit socialization (i.e., parent-child financial discussion) and implicit socialization (i.e., parent financial modeling). Additionally, recent theoretical developments stemming from qualitative findings (LeBaron et al., 2018a, 2019; Rea et al., 2019; Solheim et al., 2011) require new and updated measures. For example, through analysis of 153 interviews of emerging adults, parents, and grandparents, the researchers learned that experiential learning is a primary method of financial socialization (LeBaron et al., 2019), yet there are no existing scales that measure experiential learning of finances.

Third, the majority of the existing measures have not been rigorously psychometrically tested. Psychometric validation of scales is vital to ensuring that the scale “measures what it

purports to measure and gets the same results over multiple uses” (Dew & Xiao, 2011, p. 44).

Further, “instruments that have not been psychometrically validated may produce questionable inferences” (Dew & Xiao, 2011, p. 44).

While we have little control over the first limitation, the goal is that by producing theoretically-grounded, reliable, valid scales we may encourage others to use these new scales more consistently across the field. Another goal is that these new scales will be a starting point to overcome the second and third limitations; that is, these new scales were designed to reflect recent developments in family financial socialization theory, and they were rigorously psychometrically tested in order to be as reliable and valid as possible.

Study 1 Method: Scale Development

For scale development and validation, we followed the process outlined by Boateng and colleagues (2018), modified for our specific research design and taking into consideration other methodological advice (e.g., Sorgente & Lanz, 2019).

Initial Items

First, we identified and defined the constructs we intended to measure and generated initial items. To generate items, we used both deductive (i.e., grounded in prior literature) and inductive (i.e., grounded in qualitative findings) approaches, which Boateng et al. (2018) stated to be the “best practice” (p. 5). We included or adapted some existing items in our new scales. The initial pool of items was at least twice as large as the desired final number of items so that in later stages of the process only the most reliable, valid items could be kept and the others discarded (Boateng et al., 2018; Schinka et al., 2012). We attempted to create items that were generalizable across sociodemographic groups (e.g., race, gender; Boateng et al., 2018) and were “simple, straightforward, and . . . follow the conventions of normal conversation” (Boateng et al.,

2018, p. 6). To obtain optimal reliability for Likert-type scales, we used seven-point items (i.e., *strongly disagree* to *strongly agree*; Boateng et al., 2018). See Table S2 for definitions of constructs and the initial pool of items.

Expert Assessments

We tested face validity (i.e., does the scale appear to measure what it is supposed to measure?) via assessments from experts (Boateng et al., 2018; Dew & Xiao, 2011; Nguyen, 2019). Six financial socialization experts (i.e., established researchers in the field) independently assessed the items, indicating for each item either “Yes” (i.e., the item reflects the construct) or “No” (i.e., the item does not reflect the construct). Fleiss’ coefficient kappa was used as an indicator of inter-rater agreement (Boateng et al., 2018). A coefficient of .41 or higher would be considered acceptable, given that according to Landis and Koch (1977), a coefficient of .81-1 is “almost perfect,” a coefficient of .61-.8 is “substantial,” and a coefficient of .41-.6 is “moderate.”

We tested Fleiss’ kappa using SPSS. Fleiss' kappa was .19, meaning that the experts did not have acceptable agreement about which items were reflective of the construct. However, the experts’ feedback was very helpful for the scale development and validation process.

We *removed* items where four or more of the experts indicated “no” (i.e., “does not reflect the construct”), and we *revised* many other items. All of the experts provided comments and suggestions about items, which we used in revising the items. For example, regarding the item “I want to follow my parents’ example when it comes to money management,” five of six experts indicated that the item was reflective of the construct Parent Financial Modeling, but one expert said, “This is not retrospective.” Accordingly, the item was revised to “Growing up, I wanted to follow my parents’ example when it came to money management.”

Cognitive Interviews

We pretested the scales with members of the target population (i.e., emerging adults age 18-30 living in the U.S.) using in-person cognitive interviews. To ensure demographic variety, we employed two strategies for participant recruitment: 1) some emerging adults we personally knew and had built rapport with were invited to participate in an interview, and 2) we posted a Qualtrics survey on our personal social media accounts to gather demographic information of possible participants, after which we emailed select individuals to invite them to participate in an interview. Our sample included demographic variety (Beatty & Willis, 2007; Sorgente & Lanz, 2019) in terms of sex (i.e., three females and three males; an option for those who identify as a sex other than male or female), age (i.e., from 19 to 30), race/ethnicity (i.e., African, American Indian, Asian, Latinx/Hispanic, White), and socioeconomic status (i.e., some who report high socioeconomic status and some who report low socioeconomic status). The first and fourth authors conducted six (i.e., until saturation) semi-structured cognitive interviews wherein we administered the scale items (one at a time) to the participant and then asked the participant to verbalize their mental process as they read the item and responded to it (Beatty & Willis, 2007; Boateng et al., 2018; Drennan, 2003; Nguyen, 2019; Sorgente & Lanz, 2019). “This approach helps to determine whether the question is generating the information that the author intends by helping to ensure that respondents understand questions as developers intended and that respondents are able to answer in a manner that reflects their experience” (Boateng et al., 2018, p. 7). We also used this technique to evaluate the quality of responses (Beatty & Willis, 2007).

We instructed the participant to “think out loud as much as possible” as they read and responded to each item (Beatty & Willis, 2007, p. 288), and then we asked follow-up questions to further probe what they think the question means (e.g., “Can you tell me in your own words what that question was asking?”; Beatty & Willis, 2007, p. 290), how they decided upon their

answer, and whether they had any difficulties in answering (Beatty & Willis, 2007). This semi-structured format gave me flexibility to ask questions specific to each interview (“e.g., if a participant hesitated, . . . ‘You took a little while to answer that question—what were you thinking about?’”; Beatty & Willis, 2007, p. 300). Subpar items (e.g., items which are confusing or do not reflect the intended construct) were removed or revised accordingly (Boateng et al., 2018; Sorgente & Lanz, 2019). For example, we removed the item, “I am a hard worker now because my parents gave me opportunities to work hard growing up” because one participant had a hard time answering it (likely because it was double-barreled). See Table S3 for the scale items used in preliminary data collection.

Preliminary Data Collection

Participants and procedures. IRB approval was obtained in August 2019 from The University of Arizona. Preliminary data were collected from 402 participants (emerging adults age 18-30 living in the U.S.) using Qualtrics Panel. For scale development, Comrey and Lee (1992) stated that a sample size of 400 is between “good” and “very good” (with sample sizes of 100, 200, 300, and 500 being poor, fair, good, and very good, respectively, and a sample size of 1,000 or greater being excellent). The survey took approximately 20 minutes to complete. Participants were paid \$15, minus Qualtrics Panel fees (approximately 50%). Strategies for ensuring high quality data are described in the supplementary method document.

The mean age was 24.71 ($SD = 3.85$). Of the 402 participants, 200 (49.8%) reported their sex as female and 200 (49.8%) reported as male, with one participant (.2%) reporting “Other” and one participant (.2%) preferring not to answer. For education received, 11 (2.7%) reported less than high school, 91 (22.6%) high school or equivalent, 90 (22.4%) some college, 38 (9.5%) Associates, 121 (30.1%) Bachelors, 35 (8.7%) Masters, 15 (3.7%) Advanced degree, and 1 (.2%)

prefer not to answer. For race/ethnicity, 109 (27.1%) identified as White or Caucasian, 91 (22.6%) as Hispanic or Latinx, 83 (20.6%) as Black or African American, 65 (16.2%) as Asian, three (.7%) as American Indian or Alaska Native, three (.7%) as other, and 48 (11.9%) selected more than one category (with Native Hawaiian or Other Pacific Islander as an option).

Measures. The version of the three parent financial socialization scales used for preliminary data collection is in Table S3. To later test for construct validity, we used the means of the following measures. *Parental financial behavior* while growing up ($\alpha = .84$) was measured using five items (Shim et al., 2010) such as “How often did your parents engage in tracking monthly expenses?” Participants responded on a Likert scale ranging from 1 (*never*) to 5 (*always*), with higher scores indicating higher frequency of parents’ healthy financial behaviors. *Direct parental teaching* while growing up ($\alpha = .86$) was measured using six items (Shim et al., 2010) such as “My parents discussed family financial matters with me.” Participants responded on a Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*), with higher scores indicating more parental teaching about finances. *Helicopter parenting* while growing up was measured using seven items (LeMoyne & Buchanan, 2011) such as “My parents supervised my every move growing up.” Participants responded on a Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Two items were reverse coded so that higher scores indicate more helicopter parenting. The alpha of the helicopter parenting scale in this study was low ($\alpha = .51$), despite having an acceptable alpha ($\alpha = .71$) in the paper in which it was originally published (LeMoyne & Buchanan, 2011). The low reliability may have contributed to the lack of convergent validity achieved with the Experiential Learning of Finances Scale. Current *emotional closeness* with parents ($\alpha = .80$) was measured using three items (Mangen et al., 1988; Silverstein et al., 1997) such as “All things considered, how close do you feel the relationship

between you and your parent is at this point in your life?” Participants responded on a Likert scale ranging from 1 to 6 (response options varied between items), with higher scores indicating more emotional closeness with parents.

Preliminary Item Reduction Analysis

After preliminary data collection of 402 participants, we conducted item reduction analysis “to ensure that only parsimonious, functional, and internally consistent items are ultimately included” (Boateng et al., 2018, p. 9). Using SPSS, we tested for normal distribution of items, and items with kurtosis and skewness higher than $|1|$ were removed (Nguyen, 2019; Sorgente & Lanz, 2019). We also tested corrected item-total correlations, removing items with correlations below .3 (“very low correlations”; Boateng et al., 2018). Within the Parent Financial Modeling Scale, seven items were removed due to kurtosis higher than $|1|$, one item was removed due to skewness higher than $|1|$, and two items were removed due to correlations below .3. Within the Parent-Child Financial Discussion Scale, nine items were removed due to kurtosis higher than $|1|$. Within the Experiential Learning of Finances Scale, three items were removed due to kurtosis higher than $|1|$, one item was removed due to skewness higher than $|1|$, and three items were removed due to correlations below .3.

Preliminary Confirmatory Factor Analysis

A confirmatory factor analysis (CFA) was conducted using R to test model fit indices and to remove items with factor loadings below .5 (Nguyen, 2019; Sorgente & Lanz, 2019; Vosylis & Erentaite, 2019) and items which compromised the factor’s internal consistency (Zumbo, 2005). Exploratory factor analysis (EFA) is a common step prior to confirmatory factor analysis (CFA) in scale development (Boateng et al., 2018; Hope et al., 2019; Sorgente & Lanz, 2019). However, we did not conduct EFA because the factors have already been identified in previous

theory and research (see LeBaron & Kelley, 2021; Serido & Deenanath, 2016) as well as analysis of qualitative exploratory research (LeBaron et al., 2018a; Rea et al., 2019). An EFA would provide information regarding number of factors and which items belong to which factor (Levine, 2005). However, the three subscales are theoretically driven and separate constructs. Thus, a CFA—which is used for testing the validity of predetermined factors rather than exploring number of factors—is a more appropriate test for a project at this stage (e.g., already defined constructs; Levine, 2005). Per Levine (2005), using only CFA and not EFA is appropriate when the “researcher has an a priori idea of which items measure which constructs” (p. 336). CFA was, however, an essential step in confirming the validity of the scales (Boateng et al., 2018; Dew & Xiao, 2011; Sorgente & Lanz, 2019).

Latent variables were created for the three scales. The latent variance method was used to set the scale, such that the variances of the three scales were fixed at 1. The factor loadings were allowed to be freely estimated. Two indicators of Modeling, three indicators of Discussion, and two indicators of Experiential Learning had factor loadings below .50. The correlation between Discussion and Modeling was .91, the correlation between Discussion and Experiential Learning was .92, and the correlation between Modeling and Experiential Learning was .84. Acceptable model fit (Little, 2013), indicated by a CFI > .90, an RMSEA < .08, and a SRMR < .08, was not achieved, $\chi^2(431) = 1855.43$, $p < .001$, CFI = .82, RMSEA = .09 (90% CI: [.086, .095]), SRMR = .07.

After removing the seven indicators with factor loadings below .50, the CFA was conducted again. All factor loadings were then above .50 with the exception of one Modeling item, so that indicator was removed and the CFA was conducted again. All factor loadings were then above .50. The correlation between Modeling and Discussion was .91, the correlation

between Modeling and Experiential Learning was .84, and the correlation between Discussion and Experiential Learning was .92. Model fit suggested that the model did not fit the data well, $\chi^2(227) = 1058.14, p < .001, CFI = .88, RMSEA = .10$ (90% CI: [.09, .10]), SRMR = .06.

Because we planned to run a final CFA later in the scale validation stage, with appropriate modification indices to improve model fit if necessary, we continued to the final data collection.

Study 2 Method: Final Data Collection

Participants and Procedures

Final data for the *Measuring Family Financial Socialization* project was collected from 4,182 participants (emerging adults age 18-30 living in the U.S.) using Qualtrics Panel. The sample size was selected given that larger sample sizes produce lower measurement errors, more stable factor loadings, more replicable factors, and more generalizable results (Boateng et al., 2018). This sample size is well over Comrey and Lee's (1992) standard of "excellent" (i.e., sample size of 1,000 or greater). The survey took approximately 20 minutes to complete. Participants were paid \$15, minus Qualtrics Panel fees (approximately 50%). For information on market research panels and how participants are recruited, see Qualtrics (2020). For information on strategies for ensuring high-quality data, see the supplementary method document.

Beyond the age (i.e., 18-30) and location (i.e., in the U.S.) restrictions, the following sampling quotas were enforced during data collection to ensure a highly diverse sample: sex (approximately 50% female and 50% male) and race (approximately 25% each of White, Black, and Hispanic). In the initial phases of data collection, two additional sampling quotas were enforced: parents' income and parents' education level (approximately 10% in each category); however, these two quotas were loosened during later stages of data collection (see the supplementary method document). While 13,452 "entrants" or individuals began the survey,

3,275 voluntarily left the survey, 5,518 were automatically terminated during the survey (due to not meeting age or location requirements, failing an attention check question, “speeding” through the survey, or providing an impossible response), and 477 were later “scrubbed” (i.e., removed from the dataset) due to being flagged as “bad data” (see the supplementary method document).

The mean age of the sample was 23.81 ($SD = 3.84$). Of 4,182 participants, 2,161 (51.7%) reported their sex as female and 1,991 (47.6%) reported as male, with six participants (.1%) reporting “Other” and 24 (.6%) preferring not to answer. In terms of education received, 105 (2.5%) reported less than high school, 1,089 (26.0%) high school or equivalent, 1,248 (29.8%) some college, 410 (9.8%) Associates, 945 (22.6%) Bachelors, 273 (6.5%) Masters, 75 (1.8%) Advanced degree, and 37 (.9%) prefer not to answer. For race/ethnicity, 1,321 (31.6%) identified as White or Caucasian, 921 (22.0%) as Black or African American, 826 (19.8%) as Hispanic or Latinx, 609 (14.6%) as Asian, 62 (1.5%) as American Indian or Alaska Native, 50 (1.2%) as other, 21 (.5%) as Native Hawaiian or Other Pacific Islander, 321 (7.7%) selected more than one category, and 51 (1.2%) selected prefer not to answer.

Measures

For the three financial socialization scales, the items included in the final survey are marked with an asterisk in Table S3. The measures used to test construct validity were included in the preliminary survey only, and information about those measures can be found in the supplementary method document.

Study 2 Results: Scale Validation

Item Reduction Analysis

We conducted item reduction analysis again, this time with the final data, following the same methods described for preliminary item reduction analysis. For the Modeling Scale, one

item was removed due to kurtosis higher than $|1|$. For the Discussion Scale, one item was removed due to kurtosis higher than $|1|$. For the Experiential Learning Scale, one item was removed due to skewness higher than $|1|$. The final version of the scales is in Table 1.

Confirmatory Factor Analysis

A CFA was conducted again using the same methods described for the preliminary CFA. All indicators had factor loadings above .50. The correlation between Discussion and Modeling was .90, the correlation between Discussion and Experiential Learning was .92, and the correlation between Modeling and Experiential Learning was .87. Acceptable model fit was achieved, $\chi^2(167) = 5002.98, p < .001, CFI = .92, RMSEA = .08$ (90% CI: [.081, .085]), SRMR = .04. The χ^2 was likely significant due to the large sample size.

Test of redundancy. A test of redundancy was conducted to determine whether Modeling, Discussion, and Experiential Learning are indeed distinct constructs or are better represented as a unidimensional construct (Kline, 2015). It was important to do this test as correlations between the three scales were high (Mansfield & Helms, 1982). The three covariances between the three scales were fixed at 1 and the model fit for this alternative model was compared to the model fit for the original model. For this model, acceptable model fit was not achieved, $\chi^2(170) = 6773.32, p < .001, CFI = .89, RMSEA = .10$ (90% CI: [.094, .098]), SRMR = .04. Because the model fit did not improve, we conclude that Modeling, Discussion, and Experiential Learning are distinct constructs.

Multilevel CFA. A two-level CFA was conducted to determine whether the three scales can be treated as subscales of an overarching, multidimensional latent construct: the Parent Financial Socialization Scale. To do this, Modeling, Discussion, and Experiential Learning were both latent constructs with their own indicators as well as indicators of an overarching latent

construct Parent Financial Socialization. The latent variance method was again used to set the scale, so the three subscales as well as the overarching construct were fixed at 1. The factor loadings were allowed to be freely estimated, and the covariances between the three scales were fixed at 0. Because there are three subscales (i.e., just-identified), the model fit was identical to the one-level CFA: $\chi^2(167) = 5002.98, p < .001, CFI = .92, RMSEA = .08$ (90% CI: [.081, .085]), SRMR = .04. The factor loadings of Parent Financial Socialization were .92 (Modeling), .94 (Experiential Learning), and .98 (Discussion). Thus, we concluded that the three scales may be treated as subscales of a multidimensional Parent Financial Socialization Scale.

Reliability

We tested reliability in SPSS using coefficient alpha (which measures covariance among items in a scale; Boateng et al., 2018), with an alpha of .7 or higher as acceptable (Boateng et al., 2018). For the Parent Financial Modeling Scale, $\alpha = .91$. For the Parent-Child Financial Discussion Scale, $\alpha = .92$. For the Experiential Learning of Finances Scale, $\alpha = .81$. For the overarching Parent Financial Socialization Scale, $\alpha = .96$.

Invariance Tests

We conducted invariance tests for each scale using MPlus to assess whether the same construct is being measured across groups (e.g., males vs. females; Boateng et al., 2018; Sorgente & Lanz, 2019). We tested invariance in terms of sex, race, and parents' education level. Three levels of invariance were tested (Kline, 2015; Little, 2013): configural (all parameters are freely estimated, and each factor loadings for all groups are checked for significance), weak (factor loading of each indicator is constrained to be equal across groups, and model fit is compared with configural invariance model fit), and strong (intercept of each indicator is constrained to be equal across groups, and model fit is compared with weak invariance model

fit). A $\Delta CFI \leq .01$ was used as an indicator of measurement invariance (Cheung & Rensvold, 2002; Kline, 2015). Because the Experiential Learning of Finances Scale has three indicators and thus is a just-identified model on its own, we analyzed its invariance in a model with Parent Financial Modeling (so that model fit indices could be compared across levels of invariance).

To test invariance across sex groups, we used those who reported their sex as female ($n = 2,161$) as one group and those who reported their sex as male ($n = 1,991$) as another group. The six participants who reported “Other” and the 24 participants who selected “Prefer not to answer” were not included in this analysis due to a small n and were coded as missing.

To test invariance across racial groups, we used five groups: White or Caucasian (hereafter White; $n = 1,321$), Black or African American (hereafter Black; $n = 921$), Hispanic or Latinx (hereafter Latinx; $n = 826$), Asian ($n = 609$), and multiracial (participants who selected more than one race; $n = 321$). The 62 participants who reported “American Indian or Alaska Native,” the 50 participants who selected “Other,” the 51 participants who selected “Prefer not to answer,” and the 21 participants who selected “Native Hawaiian or Other Pacific Islander” were not included in this analysis due to a small n and were coded as missing.

To test invariance across parents’ education level (i.e., highest level of education either parent has received), we used two groups: no college degree (less than high school, high school or equivalent, some college; $n = 2,107$) as one group and college degree (Associates, Bachelors, Masters, Advanced degree; $n = 1,982$) as a second group. Forty participants who selected “Prefer not to answer” were not included in this analysis due to a small n and were coded as missing.

The results of the invariance tests can be seen in Table 2. All three scales achieved strong invariance across sex, race, and parents’ education level. The model fit indices are also in Table 2 (see rows labeled “Strong”).

Construct Validity

Finally, we tested for construct validity to ensure that the scales are accurate measures of their respective constructs (Boateng et al., 2018). Unlike the rest of the scale validation testing, the construct validity tests were conducted using the preliminary data because the measures needed were only included in the preliminary survey and not the final survey. Information about the measures can be found in the Preliminary Data Collection section of the paper. We assessed convergent validity and discriminant validity by assessing correlations between the scales (i.e., mean score) and a closely-related construct (i.e., mean score of an existing, relevant measure) as well as an unrelated construct (Boateng et al., 2018). Theoretically similar measures should be highly correlated ($r > |.30|$; Hope et al., 2019) and thus convergent, while theoretically dissimilar measures should have low correlations ($r < |.30|$; Swank & Mullen, 2017) and thus be discriminant (Boateng et al., 2018; Zumbo, 2005).

To test convergent validity, we correlated the three scales with the following existing scales: parental financial behavior (expected to be highly, positively correlated with Parent Financial Modeling), direct parental teaching (expected to be highly, positively correlated with Parent-Child Financial Discussion), and, as there are no other existing measures of experiential learning of finances, helicopter parenting (expected to be highly, negatively correlated with Experiential Learning of Finances). The results provided evidence for high convergent validity for Parent Financial Modeling ($r = .72, p < .001$) as well as Parent-Child Financial Discussion ($r = .81, p < .001$). In comparison, Experiential Learning of Finances did not achieve satisfactory convergent validity ($r = .15, p = .003$).

To test discriminant validity, we correlated each of the three scales with the emotional

closeness scale. We chose this scale to test whether the three new scales were actually measuring financial socialization (retrospectively recalled) during childhood and not parent-child closeness in emerging adulthood. The results provided evidence for fairly acceptable discriminant validity, with Parent Financial Modeling ($r = .26, p < .001$) and Experiential Learning of Finances ($r = .27, p < .001$) having correlations below .3, and Parent-Child Financial Discussion ($r = .33, p < .001$) having a correlation of just above .3. Overall, the three scales achieved acceptable construct validity, with the caveat that it was difficult to test the convergent validity of the Experiential Learning of Finances Scale with no previous measures of the construct.

Discussion

In this paper, we presented the scale development and validation process of three new scales: the Parent Financial Modeling Scale, the Parent-Child Financial Discussion Scale, and the Experiential Learning of Finances Scale. The scales were designed to measure the three primary methods of family financial socialization while participants were growing up (until age 18; Larsen Gibby et al., 2021; LeBaron et al., 2018a), as recalled retrospectively in emerging adulthood (age 18-30). Steps of scale development included generating an initial pool of items, collecting expert assessments, conducting cognitive interviews, and (following preliminary data collection of 402 U.S. emerging adults) conducting preliminary item reduction analysis and CFA. Based on expert assessments of the face validity of each item and cognitive interviews with members of the target population, some items were removed and many items were revised. During item reduction analysis, additional items were removed due to non-normal distribution, kurtosis, skewness, and low corrected item-total correlations. During CFA, items were removed due to low factor loadings.

Following scale development, final data were collected from a sample of 4,182 U.S.

emerging adults that was diverse in terms of sex (51.7% female, 47.6% male, etc.), race (31.6% White, 22.0% Black, 19.8% Latinx, 14.6% Asian, etc.), and parents' education level (50.4% no college degree, 47.4% college degree). Scale validation included the following steps: conducting final item reduction analysis and CFA, reliability tests, measurement invariance tests, and construct validity tests. The final versions of the scales are composed of eight, nine, and three items, respectively. The final CFA achieved acceptable model fit. A test of redundancy provided evidence that Modeling, Discussion, and Experiential Learning are not unidimensional but are distinct constructs. A multilevel CFA provided evidence that the three scales may be treated as subscales of a multidimensional latent construct: the Parent Financial Socialization Scale (20 items). All scales achieved high reliability, with all alphas above .8. Overall, the construct validity tests demonstrated that the three scales are acceptably convergent with similar constructs and discriminant with parent-child emotional closeness. Taken together, the results of these psychometric tests demonstrate that the scales presented in this paper are reliable and valid. Given that these are the first measures of the three primary methods of family financial socialization to be rigorously psychometrically tested, these scales should enhance the quality of family financial socialization research.

Also, we found evidence that the scales are highly generalizable across U.S. emerging adults (i.e., all three scales achieved strong invariance across sex, race, and parents' education level). Scholars have not tested invariance across sex, race, or parents' education level for the majority of existing measures of family financial socialization; in fact, none of the existing measures we reviewed in the supplementary literature review reported any measurement invariance testing. Further, most family financial socialization studies have used fairly homogenous samples and/or have not examined differences in family financial socialization

across sex (cf. Garrison & Gutter, 2010; LeBaron et al., 2020a), race (cf. Serido et al., 2020; White et al., 2020), or parents' education level (cf. Luhr, 2018; Shim et al., 2010). By failing to test for measurement invariance across groups and for differences in socialization across groups, and by using fairly homogenous (i.e., majority White, college-educated) samples, researchers miss out on valuable information that could benefit minority populations (e.g., socialization methods that are more pertinent to certain groups, associations between certain methods and certain outcomes that are stronger for certain groups, etc.).

By contrast, scholars can gain insight into how to improve financial socialization and therefore future financial wellbeing when they examine differences across groups. For example, using a nationally representative sample of 14,662 college students, White and colleagues (2021) found that, compared to other racial/ethnic groups, Black emerging adults had received less parent socialization about saving and banking, while Latinx emerging adults had received less parent socialization about investing. This study by White et al (2021) provided needed information about understudied and underserved groups and suggests that programming should be tailored to the target community. Financial education programs should consider conducting needs assessments to make sure their programming meets the needs of the communities they serve, rather than assuming the same program will be equally effective for all families.

In the field of family financial socialization, authors have concluded in their reviews or discussion sections how a better understanding of racial and ethnic disparities in consumer finance issues such as financial socialization is still needed (Anong, 2016; Serido & Deenanath, 2016). Such statements are made given that empirical studies or reviews of financial socialization in which race has been a primary focus are still rare (for exceptions see Roy et al., 2021 and White et al., 2020). In the current study our scales were invariant across sex, race, and

parents' education level. This invariance allows future studies to examine differences across groups and test demographic variables as moderators of associations between these new measures and outcomes. In this way, the new scales described in this study expand the questions that can be answered.

The newly developed Parent Financial Socialization Scale will allow for the development of programming that is effective for a wide range of families. To help parents become better financial educators to their children, we need to examine what specific socialization methods are associated with different outcomes under different circumstances (Rea et al., 2019; Van Campenhout, 2015). For example, emerging adults who perceive that during their childhood they lacked healthy financial modeling are at risk for unhealthy financial behaviors (Shim et al., 2010); for these individuals, perhaps experiential learning opportunities that promote formation of healthy financial habits would be particularly important. Additionally, perhaps a combination of socialization methods may be associated with the best outcomes (LeBaron, 2019); for example, parent-child financial discussion might be especially helpful when paired with healthy financial modeling. These are the kinds of questions researchers have not yet asked given that we lacked the nuanced measures to answer these questions with rigor. Reliable and valid scales will allow us to start the process of gathering knowledge to answer these complex questions about financial socialization during childhood and adolescence. Subsequently, understanding the nuanced impact of financial socialization under various circumstances and for different groups of individuals will allow future programs and interventions to be more targeted and therefore have a greater impact on wellbeing (Van Campenhout, 2015).

Strengths, Limitations, and Future Directions

The three scales presented in this paper are the most theoretically-grounded, reliable, and valid measures of family financial socialization currently available. Future studies could develop and psychometrically test a short version of the Parent Financial Modeling Scale and a short version of the Parent-Child Financial Discussion Scale. In future research scholars could also test the validity of a short-version (e.g., 9-item) Parent Financial Socialization Scale. Additionally, this study adds to the literature by using a diverse sample (in terms of sex, race, and SES) and testing invariance across sex, race, and parents' education level. We encourage other scholars to also test for measurement invariance across these demographic characteristics, to examine potential differences in family financial socialization across these characteristics, and to use them as moderators in the associations between family financial socialization and financial, relational, and other outcomes.

Given these strengths, the scales also have limitations. First, the three scales were highly correlated, and although the test of redundancy indicated that they are three separate constructs, researchers should pay attention to issues of possible multicollinearity when using them as separate scales. Second, the Experiential Learning of Finances Scale did not achieve acceptable convergent validity with helicopter parenting (expected high, negative correlation was not achieved). It is possible that helicopter parenting and experiential learning are too dissimilar to accurately test convergent validity. However, given that no previous measure of experiential learning of finances exists, there may not be a better construct against which to test the convergent validity of the new scale. It was also not ideal to test convergent validity for Parent Financial Modeling and Parent-Child Financial Discussion with less rigorously developed and psychometrically tested existing measures. However, the measures used were among the best available existing measures when the data were collected. Finally, the Parent-Child Financial

Discussion Scale did not quite achieve acceptable discriminant validity with parent-child emotional closeness. This means that Parent-Child Financial Discussion shares a little more variance with parent-child emotional closeness than would be ideal. In future research, scholars may want to test the correlation between the Parent-Child Financial Discussion Scale and parent-child emotional closeness. If this correlation is high, scholars may consider controlling for parent-child emotional closeness in their analyses. However, the correlation (i.e., $r = .33$, $p < .001$) between these two constructs in the current study was so close to the recommended cutoff ($r < |.30$; Swank & Mullen, 2017) that shared variance may not be an issue. Future research could test for additional evidence of discriminant validity by examining associations between the Parent Financial Socialization Scale and dispositional variables (e.g., eye color, extraversion) that should not be significantly correlated. Given these limitations, future studies should use and further validate the three scales presented in this paper. Replicability is an essential component of the scientific process (Pashler & Wagenmakers, 2012). For example, it will be important to determine whether the scales continue to have high reliability in other samples.

Conclusion

The scales presented in this paper, including the first scale to measure experiential learning of finances, reflect the latest developments in family financial socialization theory and have undergone rigorous psychometric testing to be, overall, acceptably reliable and valid. It is our hope that scholars will use these scales so that 1) the measures used will reflect family financial socialization theory, 2) there will be more consistency across the field, and 3) we will be able to make more sound conclusions from results. A field is only as good as its measures, and we hope that these measures will strengthen the field of family financial socialization and serve as a springboard for future research.

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Table 1

Parent Financial Socialization Scale – Final Version

Parent Financial Modeling Scale

Growing up, I learned how to manage money by observing how my parents managed money.
 While I was growing up, my parents were good examples of how to manage money.
 When it came to managing money while I was growing up, I looked to my parents as my role models.
 Growing up, I often made financial decisions based on what my parents had done in similar situations.
 Growing up, I sometimes saw my parents use a budget to manage their money.
 Growing up, I knew that my parents regularly tracked their expenses.
 While I was growing up, my parents prioritized saving money.
 While I was growing up, my parents preferred to save up for most purchases rather than go into debt.

Parent-Child Financial Discussion Scale

I learned how to manage my money through conversations with my parents while I was growing up.
 My parents talked with me about money while I was growing up.
 While I was growing up, my parents told me about their past financial experiences.
 While I was growing up, my parents were open with me about their budget (or, if they did not have a budget, were open with me about that).
 My parents would teach me about money during day-to-day activities, such as at the bank, at the store, etc. while I was growing up.
 While I was growing up, my parents talked to me about financial concepts when I was ready for them.
 Growing up, I knew I could go to my parents when I had questions about money.
 Growing up, I asked my parents questions about money.
 While I was growing up, my parents would answer my questions about money.

Experiential Learning of Finances Scale

My parents gave me opportunities to practice money management while I was growing up.
 My parents gave me hands-on experiences with money while I was growing up.
 While I was growing up, my parents encouraged me to put a certain percentage of my money away for something like savings or donations.

Note. All items are on a 7-point Likert scale (1: Strongly Disagree, 2: Disagree, 3: Somewhat Disagree, 4: Neither Agree nor Disagree, 5: Somewhat Agree, 6: Agree, 7: Strongly Agree). At the beginning of this section of the survey, we gave participants the following three instructions: 1) *We will ask you about your “parents.” If your parents were not your primary caregiver(s) from birth to age 18, please substitute “parents” for whomever your primary caregiver(s) were as you respond.* 2) *You will be asked several questions about money management. By “money management,” we mean what someone does with their money.* 3) *When we say “growing up,” we want you to think about as early as you can remember until about age 18.*

Table 2

Measurement Invariance of the Three Scales Across Sex, Race, and Parents' Education Level

	χ^2	(df)	CFI	Δ CFI	RMSEA	SRMR
Parent Financial Modeling Scale						
<i>Sex</i>						
Configural	1075.801	(40)	.945	--	.112 [.106, .117]	.036
Weak	1103.949	(47)	.944	.001	.104 [.099, .109]	.042
Strong	1120.094	(54)	.944	.000	.098 [.093, .103]	.043
<i>Race</i>						
Configural	1108.008	(100)	.945	--	.112 [.106, .118]	.038
Weak	1164.086	(128)	.943	.002	.101 [.095, .106]	.049
Strong	1311.670	(156)	.936	.007	.096 [.091, .101]	.060
<i>Parents' Education</i>						
Configural	1080.475	(40)	.944	--	.113 [.107, .119]	.036
Weak	1089.454	(47)	.944	.000	.104 [.099, .110]	.038
Strong	1118.799	(54)	.943	.001	.098 [.093, .103]	.039
Parent-Child Financial Discussion Scale						
<i>Sex</i>						
Configural	852.001	(54)	.964	--	.084 [.079, .089]	.030
Weak	859.525	(62)	.964	.000	.079 [.074, .083]	.031
Strong	890.159	(70)	.963	.001	.075 [.071, .080]	.032
<i>Race</i>						
Configural	959.041	(135)	.961	--	.087 [.082, .093]	.032
Weak	993.826	(167)	.961	.000	.079 [.074, .083]	.039
Strong	1089.748	(199)	.958	.003	.075 [.071, .079]	.042
<i>Parents' Education</i>						
Configural	799.425	(54)	.966	--	.082 [.077, .087]	.029
Weak	807.988	(62)	.966	.000	.077 [.072, .081]	.031
Strong	871.236	(70)	.963	.003	.075 [.070, .079]	.033
Experiential Learning of Finances Scale						
<i>Sex</i>						
Configural	2031.585	(86)	.930	--	.104 [.100, .108]	.045
Weak	2060.918	(95)	.930	.000	.100 [.096, .104]	.048
Strong	2083.106	(104)	.929	.001	.096 [.092, .099]	.049
<i>Race</i>						
Configural	2171.871	(215)	.927	--	.107 [.103, .111]	.048
Weak	2236.169	(251)	.926	.001	.099 [.096, .103]	.054
Strong	2410.173	(287)	.921	.005	.096 [.093, .100]	.061
<i>Parents' Education</i>						
Configural	2049.625	(86)	.928	--	.106 [.102, .110]	.046
Weak	2064.649	(95)	.928	.000	.101 [.097, .105]	.047
Strong	2099.949	(104)	.927	.001	.097 [.093, .101]	.048

Note. CFI = Comparative Fit Index; RMSEA = Root Mean Square Error of Approximation; SRMR = Standardized Root Mean Residual.