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Viewing Peers as Good Financial Role Models**

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WORKING PAPER

No. 14/2024

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Adolescent Financial Literacy: Viewing Peers as Good Financial Role Models

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Abstract: This study aims to develop a peer financial modelling scale to ascertain any correlations between the role modelling of peers and the financial literacy of adolescents. The theoretical foundation for this aim lies in Social Learning Theory. The study also examines the reliability of the recently developed short and minimal versions of the Parent Financial Socialisation Scale. Using a survey administered through Qualtrics, data were collected from a sample of 382 fifteen to nineteen-year-olds. Confirmatory factor analysis was used to measure model fit of any proposed scale, with Cronbach's alpha calculated to test for internal consistency reliability. An ordinary least squares regression was then run to assess any correlation between the scale developed and financial literacy, incorporating control variables for gender and socioeconomic status. A Peer Financial Modelling Scale is developed and found to be negatively correlated with financial literacy levels. Adolescents with lower financial literacy are more likely to view their peers as good financial role models. All three versions of the Parent Financial Socialisation Scale were found to be positively correlated with financial literacy knowledge.

Keywords: Adolescent financial literacy, Peer financial modelling, Social learning theory, Financial socialization, Financial education

JEL Categories: I20, D14, Z13

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Theoretical perspectives

Prior to Bandura's (1977) paper introducing *Social Learning Theory*, theories of learning focused on directly experienced response consequences as being the primary influence on behaviour. In simple terms, people learned from their own experiences (Bandura, 1977). *Social Learning Theory* challenged this prevailing view, with Bandura proposing "virtually, all learning phenomena resulting from direct experiences can occur on a vicarious basis through observation of other people's behaviour and its consequences for them" (Bandura, 1977, p. 2). Conservative behaviour can be lessened by seeing others in a similar position not adversely effected, while frivolous behaviour can be lessened by seeing others punished for similar actions. An important component of the *Social Learning Theory* framework is learning through modelling, with Bandura believing "Most of the behaviours that people display are learned, either deliberately or inadvertently, through the influence of example.... under most circumstances, a good example is therefore a much better teacher than the consequences of unguided actions" (Bandura, 1977, p. 5). Observed reinforcement can have the motivational effect of encouraging people to do things they see rewarded, and avoid those they see punished. For children, parents play an important role in this process of establishing norms; offering encouragement when behaviour meets expected standards, and showing displeasure when behaviour fall short of expectations. Once these norms have been established, children then serve as their own reinforcing agents (Bandura, 1977). Children are however often exposed to a variety of modelling influences, with adult and peer modelling a common example. In a between group experiment, Bandura found that "when faced with a conflict between adult and peer modelling, children would be predisposed toward peer modelling" p. 29). The justification for this includes peers being viewed as a more appropriate model of comparison. There has also been some evidence that modelling with higher aspirations (more likely to be parents) increases self-criticism discouraging adoption. In his between group study, Bandura (1977) found that "Children exposed to conflicting modelling influences were more inclined to reward themselves for low achievement than children who had observed only the adult model consistently adhering to a high standard of self-reinforcement" (p. 29).

Literature Review

Since the end of the 20th century, *Social Learning Theory* has become an emergent concept in the context of financial literacy, in the form of financial socialisation. This term refers to the process by which an individual comes to develop attitudes, values, perceptions, and behaviours pertaining to financial affairs (Danes, 1994), and is considered a sub-process of general socialisation (Gudmunson et al., 2016). The term family financial socialisation has been coined to describe financial socialisation processes occurring within key familial environments (Gudmunson & Danes, 2011). In their model, Gudmunson & Danes hypothesise family interactions and relationships shape financial attitudes, knowledge, and capabilities, which in turn contribute to financial behaviour and wellbeing (2011). This has been shown to hold across different cultures, with a study of youth in Sub Saharan Africa concluding that "parental financial socialization was a strong and consistent predictor of youth financial behaviour" (Chowa and Despard, 2014). A study examining school leavers found parents can substantially influence the financial attitudes and behaviour of their children, with attitudes to debt, and the importance of saving enduring messages taught by parents. All participants in the study reported being influenced by their parents to some extent, with parents considered the "major force in educating them financially" (McNeill and Turner (2013), p. 129).

In their 1999 paper Bussey and Bandura presented the social cognitive theory of gender development. *Social Cognitive Theory* acknowledges the role of evolutionary characteristics in human adaptation, but also stresses learning that occurs from the social environment. They

proposed three modes of influence on children: modelling, enactive experience and direct tuition. Much of the subsequent literature on financial socialisation can be grouped under those three modes, with the focus of how family financial socialisation impacts financial attitudes, confidence and behaviour, using parental discussions (a proxy for direct tuition), experiential learning (enabled through the provision of pocket money) and parental modelling as socialisation tools (Gibby et al., 2021; LeBaron & Kelley, 2021).

Parental Discussions

When summarising the prevailing literature, Garrison and Gutter (2010) highlighted a link between parental financial communication and their children's subjective financial knowledge. This subjective financial knowledge is then, in turn, associated with positive financial attitudes. Parental financial discussions with children have been found to be positively correlated with future saving (Kim et al., 2011) and can shape spending behaviours and attitudes by allowing parents an opportunity to engage in "direct discussions about purchasing decisions, money, credit, and related topics" (Allen, 2008, 352). Parental financial discussions are also considered particularly important in increasing financial literacy (Xiao et al, 2011). These findings led to a call to incorporate parental discussions into financial education programmes (Van Campenhout, 2015). There is also some evidence that parental financial discussions are significantly correlated with higher rates of healthy financial behaviours, as well as increased financial confidence (Deenanath et al. (2019).

Parental Modelling

Previous literature has referenced social learning theory when stating "attitudes are developed based on observation of key figures in childhood", with adults identifying that "mothers and fathers were the most influential people in forming their own money beliefs and attitudes" (Deenanath et al; 2019; p. 543). A study by Zhu (2018) found that parental socialisation processes improve financial attitudes and behaviours as children replicate their parents' positive financial behaviours; while Garrison and Gutter (2010) found that observation of parents' financial behaviour was influential in developing financial behaviours in children that endure into the future.

Experiential learning

Giving children pocket money provides them an opportunity to experience concepts first hand, such as saving, budgeting and spending. Receiving childhood pocket money has been described by Britt (2016) as "a quantifiable indicator of parental socialisation", finding a "documented association between receipt of an allowance and reduced reliance on revolving credit later in life" (p. 546). Interestingly, it has been found that stronger association between receiving pocket money and more desirable financial attitudes and behaviours is found if the provision of pocket money is accompanied by parental instruction (Britt, 2016), (Norvilitis and Maclean, 2010).

The culmination of this focus in the literature was the development of the *Parent Financial Socialization Scale* (Appendix One) using confirmatory factor analysis (LeBaron-Black et al; 2022). The scale consists of three subscales which mirror the three modes of influence on children identified by Bussey and Bandura (1999): the *Parent Financial Modelling Scale* (eight items), the *Parent-Child Financial Discussion Scale* (nine items), and the *Experiential Learning of Finances Scale* (three items). Subsequent to the development of the *Parent Financial Socialization Scale*, LeBaron-Black et al (2024) developed two further versions, the nine item short version, and the three item minimal version (appendix one). When ascertaining at what age children begin to be financially

socialised in the home, previous research has established that financial concepts can be understood in children four years old or younger (Holden et al., 2009; Gudmunson and Danes, 2011). Others have suggested both formal and informal financial education should start at pre- or primary school age (Suiter and Meszaros, 2005; Friedline, 2015; Webley, 2005). Van Campenhout (2015) cites Webley’s (2005) when stating that children between 6 and 12 years old can make significant progress in their economic understanding.

While the subscales of the *Parent Financial Socialization Scale* align closely with the modes of influence on children proposed by Bussey & Bandura (1999), it is worth noting Bussey & Bandura did not limit the influences on children to just parents. Throughout their paper they also discuss the influence of peers on children, stating that children “notice the various activities modelled by their parents and peers” (Bussey & Bandura, 1999, p. 695), going on to state that “Children’s own self-evaluative standards are affected by modeled ones to which they have been exposed” concluding that they “construct their standards through reflective processing of these multiple sources of direct and vicarious influences” (Bussey & Bandura, 1999, p. 691). While explicitly stating that “Peers are sources of much social learning” (p.700), Bussey & Bandura (1999) identify that differences in behaviour modelled by parents and peers may add complexity to a child’s modelling processes. To date, the literature on financial socialisation of children has focussed on the home as a source of financial socialisation, rather than peers.

This study has three research objectives. The first is to investigate whether a scale can be developed to capture the socialising effect of peers, as discussed by Bussey & Bandura (1999) in their seminal paper. The second objective is to ascertain whether the *Parent Financial Socialization Scale* and or the peer scale developed in this paper are correlated with level of financial literacy, after controlling for gender and socioeconomic status. The third objective is to establish the relative predictive ability of the recently developed full, short and minimal *Parent Financial Socialization Scales* on financial literacy in the model.

Method

Based on the suggestion by Bussey and Bandura (1999) that differences in behaviour modelled by parents and peers may add complexity to a child’s modelling processes, the Parent Financial Modelling Sub-scale (LeBaron-Black et al; 2022) was modified to represent a *Peer Financial Modelling Scale*. As table one shows, statements 4 to 8 from the parent scale have been slightly modified, referring to friends rather than parents. Statement 3 from the parent scale inquiries about how the participant’s financial decision making was influenced by parental decision making in a similar situation. For the peer scale, this was rephrased in the context of how financial decision-making pertaining to spending is influenced by the presence of peers. Lastly, statements 1 and 2 on the parent scale measuring how money management is shaped by parental modelling were condensed into one statement measuring the influence of peers on financial habits. These changes were made as the relationship with peers is less likely to be a ‘teacher-learner’ type of relationship such as parent and child, and more about modelling peer behaviour for group conformity. The statements on the *Peer Financial Modelling Scale* were also modified to refer to the present, rather than ‘growing up’ as the statements in the *Parent Financial Socialization Scale* are phrased.

Table One: Items in the Parent Financial Modelling Sub-scale (LeBaron-Black et al; 2022) and Proposed Peer Financial Modelling Scale.

Parent Financial Modelling Scale	Peer Financial Modelling Scale
----------------------------------	--------------------------------

1. Growing up, I learned how to manage money by observing how my parents managed money.	1. I learn good financial habits from my friends.
2. When it came to managing money while I was growing up, I looked to my parents as my role models.	1. I learn good financial habits from my friends.
3. Growing up, I often made financial decisions based on what my parents had done in similar situations.	2. When I am out with my friends, I am likely to spend more money than I intended to.
4. While I was growing up, my parents were good examples of how to manage money.	3. My friends are good examples of how to manage money.
5. Growing up, I sometimes saw my parents use a budget to manage their money.	4. My friends sometimes use a budget to manage their money.
6. Growing up, I knew that my parents regularly tracked their expenses.	5. My friends regularly track their expenses.
7. While I was growing up, my parents prioritized saving money.	6. My friends prioritise saving money.
8. While I was growing up, my parents preferred to save up for most purchases rather than go into debt.	7. My friends prefer to save up for most purchases rather than go into debt.

Ethics committee approval was obtained to survey students aged fifteen and over from four diverse secondary schools in New Zealand. The questionnaire was administered using the Qualtrics platform after approval was received from each school’s principal. To help ensure the validity and reliability of the data, the Qualtrics timing function was used for each question, to identify participants clicking through questions in an unrealistic time frame. Once outliers such as participants reporting an age greater than 19 were removed, along with responses containing missing data through participants logging out of Qualtrics without finishing the questionnaire, a sample size of 382 remained.

For the analysis, principal component and confirmatory factor analysis was used to establish whether a reliable and valid *Peer Financial Modelling Scale* could be developed, to be used alongside the *Parent Financial Socialization Scale*, to give a broader tool for measuring financial socialization.

The *Peer Financial Modelling Scale* developed was then used in an ordinary least squares (*OLS*) regression to identify correlations between financial socialisation and financial literacy levels, controlling for demographic variables. The *OLS* model contains a dependant variable of a score out of 10 on a financial literacy test (Appendix Two) made up of multiple-choice questions from Ranyard et al (2020), Lusardi & Mitchell (2011) and Fernandes et al (2014). Predictor variables in the *OLS* model include the *Parent Financial Socialization Scale* (LeBaron-Black et al, 2022) score and *Peer Financial Modelling Scale* score, along with a control variable of gender. The number of books in the home is also included as an indicator of a home environment that values literacy, the acquisition of knowledge, and general academic support (Beaton et al., 1996). It has also been used as an indicator of socio-economic status (*SES*) (Eriksson et al., 2021; Jerrim & Micklewright, 2014). The indicator is made up of six ordinal categories ranging from zero – ten books to greater than 500 books.

Lastly, included are two parental education questions developed by the NSW Department of Education and Communities to represent *SES* in the Family Occupation and Education Index used to fund Australian schools (Rickard & Lu, 2014). Each variable is made up of six ordinal categories ranging from ‘has not been in paid work in the past 12 months’ to ‘Senior management in large organisations, government administration and defence, and qualified professionals’.

The resulting *OLS* model is:

$$\text{Financial Literacy} = \alpha + \beta_1 \text{ Parent Financial Socialization Scale} + \beta_2 \text{ Peer Financial Modelling Scale} + \beta_3 \text{ Female Gender} + \beta_4 \text{ Books in home} + \beta_5 \text{ Father's Occupation} + \beta_6 \text{ Mother's Occupation} + \epsilon \quad (1)$$

Results

The descriptive statistics for the sample are shown in table two.

Table Two: Descriptive Statistics (N=382).

Variable	Mean
Financial Literacy Test (10)	5.91
Parent Financial Socialization Scale (140)	101.53
Peer Financial Modelling Scale (28)	10.76
Gender	Female: 51%
	Male: 49%
Books in the Home (6)	3.45
Fathers' Occupation (5)	3.45
Mothers' Occupation (5)	3.40

The mean score on the ten-question financial literacy test was 59%. A higher score on the twenty item *Parent Financial Socialization Scale* indicates a greater level of agreement that an adolescent has received positive parental financial socialisation experiences. The mean score of 72.5% on the seven-point Likert scales used for each item equates to an overall level of agreement of ‘somewhat agree’. A higher score on the *Peer Financial Modelling Scale* indicates a greater level of agreement an adolescent’s friends provide positive peer financial socialisation experiences. The mean score of 51.2% on the seven-point Likert scales used for each of the four items in the scale equates to an overall level of agreement of ‘neither nor disagree’. This suggests a neutral view of the financial socialisation interactions shared with friends. The mean of 3.45 out of six for the books in the home variable indicates a middling level of *SES*. For both the mothers’ and fathers’ occupation scales, a higher number corresponds to a greater level of *SES*. The parental occupation scales each returned a very similar score around 3.4 out of five, suggesting a middling level of *SES*, a similar result to the books in the home variable.

Peer Financial Modelling Scale.

An initial principal components analysis was conducted using the seven items making up the *Peer Financial Modelling Scale* to determine if they did satisfactorily load onto one factor. The results of the Direct Oblimin rotation with Kaiser Normalization are shown in table three. Bartlett’s test for sphericity was significant ($X^2_{21} = 1126.223$, $p < 0.001$) while the KMO statistic of 0.866 demonstrated a strong sampling adequacy. There was no sign of multi-collinearity, with correlations below 0.8 and

a determinant of 0.051. In addition, the sample size of 382 gave a nearly 55:1 ratio of cases-to-variables, which is in line with best practice (Field, 2005; Hogarty et al, 2005).

Table Three: Pattern Matrix Factor Loadings.

	1	2
My friends are good examples of how to manage money.	.833	
My friends sometimes use a budget to manage their money.	.793	
My friends regularly track their expenses.	.785	
My friends prioritise saving money.	.822	
My friends prefer to save up for most purchases rather than go into debt.	.664	
When I am out with my friends, I am likely to spend more money than I intended to.		.991
I learn good financial habits from my friends.	.829	

Two components were suggested explaining 68% of the variance. Component two contained only one item (which was reverse coded), ‘When I am out with my friends, I am likely to spend more money than I intended to’, suggesting this item may be measuring a different construct to the remaining six items. For the purpose of creating a *peer financial modelling scale* with an acceptable model fit, the principal component analysis suggests this item should be removed from the scale.

In a similar approach to that used by LeBaron-Black et al (2022) in developing the *Parent Financial Socialization Scale*, confirmatory factor analysis (CFA) is used to test whether the data fit the original hypothesized seven item measurement model. SPSS analysis confirmed the seven *Peer Financial Modelling Scale* items met the assumption of normal distribution. There was an absence of kurtosis and skewness, with no item measuring greater than one (or less than negative one) on either metric. No item-total correlations were less than 0.3 (Boateng et al, 2018). A latent variable was created for the *Peer Financial Modelling Scale*. With a factor loading of -0.03, the item ‘When I am out with my friends, I am likely to spend more money than I intended to’ was removed from the model, supporting the findings of the principal component analysis. The remaining six items did not achieve an acceptable model fit ($\chi^2_9 = 77.628$, $p < 0.001$, CFI = .938, RMSEA = .141 (90% CI [0.113, 0.171]), SRMR = .05). Of the remaining items, ‘my friends prioritise saving money’ and ‘my friends prefer to save up for most purchases rather than go into debt’ both refer to saving attitudes. From a theoretical perspective one of the items could be removed, with the modification indices suggesting removing the latter would result in the largest improvement in model fit. The same approach was used for the items ‘My friends sometimes use a budget to manage their money’ and ‘My friends regularly track their expenses’, with both measuring a similar concept of recording expenditure. The modification indices suggested removing the latter would result in the largest improvement in model fit. The remaining four items shown in table four achieved a satisfactory model fit ($\chi^2_2 = 9.210$, $p < 0.05$, CFI = .99, RMSEA = .097 (90% CI [.04, 0.165]), SRMR = .02). While at .097 the RMSEA suggests a mediocre model fit (MacCallum, Browne, and Sugawara, 1996), it is still below the suggested cut-off threshold of 0.1 (Browne & Cudeck, 1993; Kenny et al, 2015). Further, Kenny et al suggest models with small degrees of freedom (such as the four-item scale proposed here) inflate RMSEA for good fitting models (2015). Given the *Peer Financial Modelling Scale* reported very good CFI and SRMR measures, along with a mediocre but acceptable RMSEA, it was decided to continue to the next step of using the four item *Peer Financial Modelling Scale* in a series of OLS regressions.

Table Four: Four Item *Peer Financial Modelling Scale*.

1. My friends are good examples of how to manage money.
2. My friends sometimes use a budget to manage their money.

3. My friends prioritise saving money.
4. I learn good financial habits from my friends.

The *Peer Financial Modelling Scale* yielded a Cronbach’s alpha coefficient of $\alpha = .86$ suggesting good internal consistency reliability. When developing the *Parent Financial Socialization Scale*, LeBaron-Black et al (2022) found high correlations between the three subscales, reporting “the correlation between Discussion and Modelling was .90, the correlation between Discussion and Experiential Learning was .92, and the correlation between Modelling and Experiential Learning was .87” (LeBaron-Black et al, 2022, p. 948). This prompted the authors to raise the possibility of multicollinearity when using the three subscales as separate scales. With the teenaged adolescents used in this study, the comparable correlations were lower at 0.81, 0.74 and 0.69 respectively, but still highly correlated. By comparison, when examining the correlation between the *Peer Financial Modelling Scale* and the *Parent Financial Socialization Scale*, the correlation is low at 0.30. A similar low correlation of 0.22 is found between the *Peer Financial Modelling Scale* and the *Parent Financial Modelling Scale* the items were originally derived from. This gives confidence the peer and parental financial socialisation scales are measuring distinct constructs.

OLS Regression Analysis.

Turning to research objectives two and three, each of the three versions of the *Parent Financial Socialization Scale* were included in OLS regressions to compare the relative predictive power of the full scale (FPFS) (LeBaron-Black et al, 2022), short scale (SPFS) and minimal scale (MPFS) (LeBaron-Black et al, 2024) in our model. The three *Parent Financial Socialization Scales* along with the *Peer Financial Modelling Scale* were included in OLS regressions, along with a control variable of gender. Control variables of parental occupation and books in the home were also included as proxies for SES. A visual examination of the Q-Q plot for the dataset confirmed a normal distribution. With 382 participants and 6 predictor variables, this study has over 60 records per predictor. An examination of the Pearson correlations showed an absence of multicollinearity between the predictor variables. A linear relationship between the independent variables and the dependent variable was established via the P-P plot. The remaining assumptions of linear regression were met with standard residuals falling between 3 and -3, and a maximum Cook’s distance of 0.04 for the three regressions. Variance inflation factors for the independent variables were satisfactory, ranging from 1.02 to 1.22 across the three regressions. The results of the OLS regressions are shown in table five.

Table Five: OLS Regression Outputs Showing Correlations with Financial Literacy.

	<i>FPFS Scale</i>	<i>SPFS Scale</i>	<i>MPFS Scale</i>
<i>Parent Financial Socialization Scale</i>	0.022*** (0.007)	0.043*** (0.014)	0.093** (0.036)
<i>Peer Financial Modelling Scale</i>	-0.059** (0.025)	-0.057** (0.025)	-0.050** (0.025)
Female	-1.073*** (0.244)	-1.060*** (0.245)	-1.040*** (0.246)
Books in the Home	0.397*** (0.085)	0.398*** (0.086)	0.395*** (0.086)
Fathers’ Occupation	0.122 (0.107)	0.121 (0.108)	0.134 (0.109)
Mothers’ Occupation	0.097 (0.098)	0.105 (0.098)	0.106 (0.099)
R ²	0.168	0.164	0.157

The three versions of the *Parent Financial Socialization Scale*, and *Peer Financial Modelling Scale*, are significantly correlated with financial literacy test score. Interestingly, there is a positive correlation between financial literacy score and a higher score on the *Parent Financial Socialization Scale*, but a negative correlation between financial literacy score, and a higher score on the *Peer Financial Modelling Scale*. Being female is correlated with a lower financial literacy score, while a greater number of books in the home is correlated with a higher financial literacy score. Neither of the parental occupation variables are significantly correlated with financial literacy. The Cronbach's Alpha for the three *Parent Financial Socialization Scales* are .94 (FPFS), .87 (SPFS) and .74 (MPFS) suggesting good reliability. There is only a very marginal change in the R² value between the three different scales in the OLS regressions, suggesting a similar predictive power of all three variants of the *Parent Financial Socialization Scales*.

Discussion

The development of *Social Learning Theory* provides a theoretical framework to analyse the influence of a child's environment on their learning. As outlined in the literature review of this study, models and theories have been developed attempting to explain the process of financial socialisation of adolescents. This has primarily focused on the home setting, and the role of parents/care givers. This culminated in the development of the *Parent Financial Socialization Scale*, and its subscales: the *Parent Financial Modelling Scale*, the *Parent–Child Financial Discussion Scale*, and the *Experiential Learning of Finances Scale*. 'Small' and 'minimal' versions of the *Parent Financial Socialization Scale* have subsequently been developed.

When this research applies the *Parent Financial Socialization Scale* to a sample of 382 New Zealand adolescents, a greater level of parent financial socialisation is found to be correlated with an increased level of financial literacy, after accounting for various control variables. This is the case for the full, small and minimal versions. It is important to note this result on its own does not infer causality. It could be that greater rates of financial literacy increases the frequency of financial socialisation opportunities in the home, or be that greater exposure to financial socialisation opportunities in the home improves financial literacy in adolescents. We can however determine that the absence of parental financial socialisation is associated with lower levels of financial literacy.

This study also develops and validates a *Peer Financial Modelling Scale*. A *Peer Financial Modelling Scale* is developed rather than a *Peer Financial Socialisation Scale*, as adolescents are less likely to engage in financial discussions with their peers than with their parents. Often financial discussions in the home are prompted by the receiving of pocket money for example. Parents may sometimes engage in more formal instructive conversations around money, saving, budgeting etc. which are unlikely to be replicated between peers. It was therefore decided not to attempt to construct a peer–child financial discussion scale to mimic the *Parent–Child Financial Discussion* subscale in the *Parent Financial Socialization Scale*. Similarly, the three items in the *Experiential Learning of Finances* subscale: 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; are not applicable to a child-peer relationship. It was therefore decided to concentrate on a peer modelling scale rather than a peer financial socialisation scale, as modelling is more relevant to peers than financial discussions about financial habits or provision of

experiential learning opportunities. The resulting *Peer Financial Modelling Scale* is found to be a valid measure of an aspect of financial socialisation.

As stated earlier, when authoring their work on Social Cognitive Theory Bussey and Bandura (1999) stress that children don't just notice parental modelling, they also shape their own standards through reflective processing of peer modelling. With peers acknowledged as being a rich source of social learning through modelling, it is also recognised that differences in modelled behaviour can make a child's own modelling processes more complex (Bussey & Bandura, 1999). In this study, differences in the impact of financial socialisation are found. While regression analysis finds a positive correlation between the *Parent Financial Socialization Scale* and financial literacy levels, the correlation between the *Peer Financial Modelling Scale* and financial literacy levels is found to be negative. Adolescents who are less financially literate are more likely to view their peers as good financial role models. This is in line with a previous finding that a greater peer influence on financial socialization was associated with less healthy financial behaviours (LeBaron-Black et al; 2023). When the *Parent Financial Modelling* subscale is included in the *OLS* regression model rather than the *Parent Financial Socialization Scale*, it is found to be positively correlated with financial literacy. One possible intuitive explanation for this difference is the setting where the role modelling takes place. While parental role modelling is likely to take place in the context of buying groceries, paying bills or saving, peer role modelling is more likely to be in the context of socialising and spending on luxury items. For less financially literate adolescents, having a good time socialising because of spending may well be viewed as 'money well spent'. This may especially be the case for adolescents who do not have such a well-developed knowledge of saving, the cost of debt and managing their money appropriately. For them, the utility gained from spending with friends elevates their peers to good role models to follow. Adolescents with a good working knowledge of the benefits of saving and the cost of debt will be less likely to see their friends spending in a social setting as good role modelling. The same can be said for peers who receive positive affirmation due to their spending on clothes, accessories, phones, sporting equipment and so on. For those less financially informed, greater utility resulting from higher levels of financial expenditure now may be 'worth it'. The *OLS* regression results highlight the tension created by differences in behaviour modelled by parents and peers. As mentioned earlier, when children are exposed to differing parent and peer modelling, they tend to view peers as a more appropriate model of comparison (Bandura, 1977). Add in the social pressures of conformity and popularity for adolescents, and it is hardly surprising less financially literate adolescents could view peers as financial role models rather than parents.

The *Peer Financial Modelling Scale* constructed in this research generated a Cronbach's alpha of 0.86, similar to that found for the full and small *parents financial socialisation scales* (LeBaron-Black et al; 2022) of 0.94 and 0.87 respectively. These high Cronbach's alpha results indicate high internal consistency reliability. When considering the control variables used in the *OLS* regression analysis, females have lower financial literacy levels on average than males. This is in line with several other previous findings (Atkinson and Messy (2012), Mottola (2013), Agarwalla et al. (2015), Bucher-Koenen et al. (2017)). Of the three *SES* variables, the number of books in the home was significantly correlated with higher financial literacy levels.

Conclusions and Limitations

This study has three research objectives. The first is to investigate whether a scale can be developed to capture the socialising effect of peers, as discussed by Bussey & Bandura (1999) in their seminal paper. A *Peer Financial Modelling Scale* was able to be developed with good model fit and high internal consistency reliability. A novel contribution of this study is to apply social learning theory to peer financial socialisation. The finding that greater acceptance of peers as modelling agents and

financial literacy levels are negatively correlated is an important one. It highlights the need for good levels of financial literacy of adolescents to act as a possible buffer against peer pressure to engage in less desirable financial transactions. The second objective was to ascertain whether the *Parent Financial Socialization Scale* and or the *Peer Financial Modelling Scale* correlated with financial literacy level after controlling for gender and socioeconomic status. Both the *Parent Financial Socialization Scale* (all three versions) and the *Peer Financial Modelling Scale* were significantly correlated with financial literacy score, after controlling for gender and *SES*. While adolescents who scored lower on the financial literacy test were less likely to view their parents as good financial socialisation agents, adolescents who scored lower on the financial literacy test were more likely to view their peers as good financial role models. These contrasting findings illustrate the complexity of multiple sources of financial socialisation for adolescents. The third objective is to establish the relative predictive ability of the full, short and minimal *Parent Financial Socialization Scales* of financial literacy in the model. All three versions of the *Parent Financial Socialization Scale* yielded very similar R^2 values, suggesting similar predictive ability for the three scales. All three versions also showed a minimum of 'good' scale reliability, with Cronbach's alpha of at least .74. A limitation of this study is the absence of general cognitive ability measures, as well as personality measures when assessing correlations between financial literacy and the influence of peers. Future research could attempt to ascertain the relative effect sizes of financial socialisation and general cognitive ability when examining correlations with financial literacy levels.

Appendix One

Full Parent Financial Socialization (FPSS) Scale

Parent Financial Modelling Scale

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

Parent–Child Financial Discussion Scale

1. I learned how to manage my money through conversations with my parents while I was growing up.
2. My parents talked with me about money while I was growing up.
3. While I was growing up, my parents told me about their past financial experiences.
4. 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).
5. 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.
6. While I was growing up, my parents talked to me about financial concepts when I was ready for them.
7. Growing up, I knew I could go to my parents when I had questions about money.
8. Growing up, I asked my parents questions about money.
9. While I was growing up, my parents would answer my questions about money.

Experiential Learning of Finances Scale

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

(LeBaron-Black et al; 2022).

Small Parent Financial Socialization (SPFS) Scale

Parent Financial Modelling Scale

1. While I was growing up, my parents were good examples of how to manage money.
2. Growing up, I often made financial decisions based on what my parents had done in similar situations.
3. While I was growing up, my parents prioritized saving money.

Parent–Child Financial Discussion Scale

1. While I was growing up, my parents told me about their past financial experiences.
2. 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.
3. While I was growing up, my parents talked to me about financial concepts when I was ready for them.

Experiential Learning of Finances Scale

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

Minimal Parent Financial Socialization (MPFS) Scale

1. While I was growing up, my parents were good examples of how to manage money.
2. 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.
3. My parents gave me opportunities to practice money management while I was growing up.

(LeBaron-Black et al; 2024).

Appendix Two – Financial Literacy Test

1. Do you think that the following statement is true or false? “If you were to invest \$1,000 in a stock mutual fund, it would be possible to have less than \$1,000 when you withdraw your money.”
 - True
 - False
 - Do not know

2. When an investor spreads his money among different assets, does the risk of losing a lot of money:
 - Increase
 - Decrease
 - Stay the same
 - Do not know

3. Typically, if you buy things (mobile-phones, TVs, etc.) using credit you will pay...
 - ...more than paying cash
 - ...the same amount of paying cash
 - ...less than paying cash
 - Do not know

4. Suppose you had \$100 in a savings account and the interest rate was 2% per year. After 5 years, how much do you think you would have in the account if you left the money to grow?
 - More than \$102
 - Exactly \$102
 - Less than \$102
 - Do not know

5. Suppose you had \$100 in a savings account and the interest rate was 10% per year. After 2 years, how much do you think you would have in the account if you left the money to grow?
 - \$110
 - \$120
 - \$121
 - Do not know

6. Imagine that the interest rate on your savings account was 1% per year and inflation was 2% per year. After 1 year, how much would you be able to buy with the money in this account?
 - More than today
 - Exactly the same as today
 - Less than today
 - Do not know

7. Imagine depositing \$100 in your savings account. If after 1 year the balance on your account (included the interest) is \$104 and the inflation rate during the last year was 5%, How rich do you think you would be compared 1 year before?
- More rich
 - Exactly as rich
 - Less rich
 - Do not know
8. You have an “overdraft” in your bank account if...
- You use more money than is in your account
 - You receive interest on your deposit from the bank
 - You pay by cheques
 - Do not know
9. Everything else equal, if the maturity of a mortgage is longer the instalments will be...
- The same
 - Smaller
 - Bigger
 - Do not know
10. Which of the following pay back options for a \$100 debt shows the highest APR?
- \$102 after 1 week
 - \$105 after 1 month
 - \$110 after 2 months
 - Do not know

(Ranyard et al 2020; Lusardi & Mitchell (2011); Fernandes et al 2014)

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