

Literacy and financial capability

An evidence review

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While the link between financial capability and numeracy has been explored in numerous pieces of research, there is a dearth of studies that have explored the link between financial capability and literacy. This review pulls together the current evidence base that not only explores whether there is a link between the two but also showcases how this link can be conceptualised by focusing on skills, motivation and confidence. Overall, it suggests that there is a need to establish exactly how literacy supports financial education, and practical ways of implementing this.

Introduction

Both literacy and financial capability have gained priority in education and policy in recent years as their importance for everyday life has increased in the 21st century. Recent developments, such as more available options for financial products, more individual responsibility on financial decisions as well as the new technologies and the rapid growth in information, have fundamentally changed the need for everyone to be functionally literate and financially capable. It is crucial that we support children and young people to be able to communicate properly to progress through education and enter the job market, and to be able to make informed financial decisions to avoid negative financial behaviours.

What do we mean by FINANCIAL CAPABILITY?

“The Financial Capability Strategy for the UK defines ‘financial capability’ as encompassing the financial **skills, knowledge, motivation** and **attitudes** required to make good financial decisions and to achieve good financial wellbeing.” (Conlon, Peycheva & Landzaat, 2018a)

However, there are large gaps in children's, young people's and adults' literacy skills and financial capability. 25% of 11-year-olds in England were unable to read well by the time they left primary school in 2018 (Department for Education, 2018a), and less than half (43%) of 16-year-olds failed to achieve good GCSE grades in English and maths in 2018 (Department for Education, 2018b). Similarly, the recent PISA findings showed that one in four 15-year-olds from 15 countries were unable to make everyday spending decisions (OECD, 2017a). A survey of children and young people's financial capability by the Money Advice Service showed that there is a knowledge gap around complex financial concepts. For example, nearly a quarter (24%) of 14- to 17-year-olds could not identify whether an investment made your money grow or was something that needed paying back¹.

Literacy and financial capability are also an issue for adults. Recent international data show that 1 in 6 (16.4%) adults in England have very low literacy, potentially causing them to struggle with longer texts and unfamiliar topics (OECD, 2016). Nearly a quarter of adults (24.2%) struggle with basic numeracy. In addition, millions of people in the UK struggle to budget effectively, plan for the future and make informed decisions (Bagwell, Hestbaek, Harries & Kail, 2014).

The link between financial capability and numeracy has been explored in numerous pieces of research. For example, Lusardi (2012) discusses studies that have linked numeracy to retirement planning, accumulation of wealth and stock- and housing-market participation. Similarly, a literature review on numeracy and financial capability (Hulme & Newton, 2017) found that numeracy is linked to day-to-day financial management and planning ahead. A report by the Money Advice Service (2017a), which explored the relationship between numeracy and financial capability in depth, found that people with higher numeracy were more likely to demonstrate financially capable behaviours than those with lower numeracy, even when demographic variables such as income and housing tenure were controlled for.

However, there is a dearth of studies that have explored the link with literacy even though some research findings have suggested a link exists. Most prominently, literacy has been linked to financial capability as a basic skill. For example, a study conducted by the Money Advice Service (Lane, Peycheva, Landzaat, & Conlon, 2017), which explored the links between a range of both cognitive (e.g., literacy and numeracy) and non-cognitive variables (e.g., self-esteem and social skills) in childhood and adult financial capability, suggests that literacy is as important in driving financial capabilities as numeracy (Lane et al., 2017). This relationship is also reflected in the financial capability outcomes frameworks developed as part of the Financial Capability Strategy for the UK, which place literacy as one of the basic skills of financial capability for both adults and children, and young people (Bagwell et al., 2014).

¹ Money Advice Service (2017). Financial Capability of Children, Young People and their Parents in the UK 2016: Initial results from the 2016 UK Children and Young People's Financial Capability Survey.

Research on how the concepts are linked to each other is particularly important in childhood and adolescence. As the Money Advice Service report on what children need to develop for good financial capability highlights, childhood and adolescence are vital times to influence skills, knowledge, mindsets, attitudes and behaviours essential to adult financial capability (Griffiths & Ghezelayagh, 2018). The same is true for literacy: developing reading, writing, speaking and listening skills in childhood provides a foundation for strong literacy skills later in life. Schools might also be ideally placed to support children and young people to develop sufficient literacy and financial skills, as parents might lack the confidence and skills themselves. Therefore, knowledge on the interrelationships between literacy and financial capability might offer practical insight into how to support children to develop the skills they need later in life.

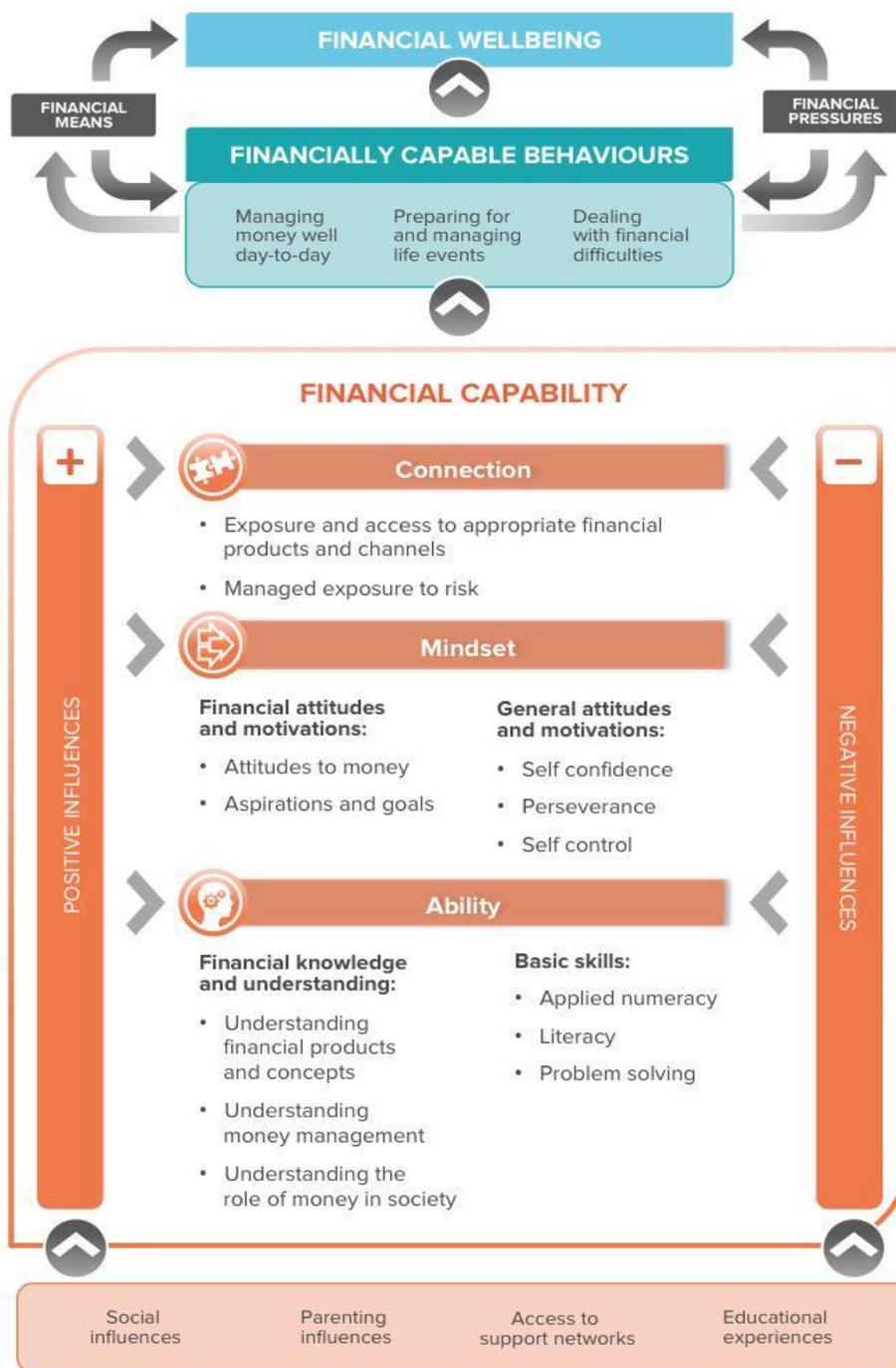
This review explores the link between literacy and financial capability for children and young people in primary and secondary school. The aim is to establish what the links between the concepts are and to build theoretical models of the interrelationships that can be empirically tested in the future.

Beyond traditional models of financial capability and literacy

Financial capability has sometimes been understood simply as financial knowledge: i.e., people's understanding of financial concepts and products. Recently, there has been a shift to a more complex model of financial capability (e.g., children and young people financial capability framework developed by NPC, see **Figure 1**; Bagwell et al., 2014) that aligns knowledge and understanding with skills as well as attitudes, confidence and non-cognitive skills (e.g., self-regulation, motivation, perseverance and self-control). These, in turn, are influenced by people's experiences and circumstances.

It is also important to distinguish between the terms *financial capability* and *financial literacy*, which have sometimes been used synonymously. However, definitions of financial literacy have often focused on skill. For example, Johnson and Sherraden (2007) suggest that "*financial literacy includes increases in financial knowledge and changes in financial behavior*". In contrast, financial capability tends to be broader and take into account attitudes and behaviours. However, some organisations have defined financial literacy as a combination of skills, attitudes and behaviours, which is similar to financial capability. For example, the definition of financial literacy by OECD (2011a) treats the concept as a combination of awareness, knowledge, skill, attitude and behaviour. This review therefore refers to these types of definitions as financial capability.

Figure 1: Children and young people financial capability framework

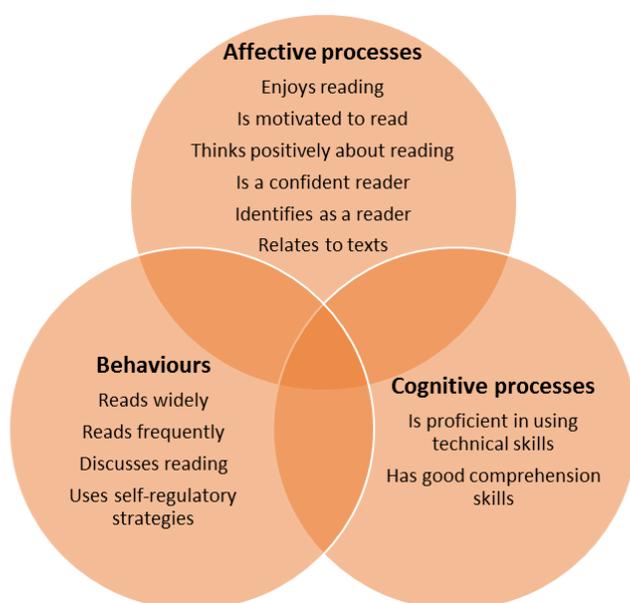


Source: Bagwell et al., 2014

New conceptualisations of literacy reflect the evolving definition of financial capability. While the initial conceptualisations of literacy have tended to focus on skills (often termed as the simple view of reading), it has been argued recently that the conceptualisation of reading needs to be much broader and also needs to take into account affective processes and behaviours, such as enjoyment and positive reading behaviours (Clark & Teravainen, 2017). For example, as **Figure 2** below shows, conceptualisation of reading should consider

variables such as enjoyment of reading, motivation and reading frequency in addition to the cognitive processes, which are technical and comprehension skills.

Figure 2: Top-level tripartite conceptualisation of what is meant by ‘reading’



Source: Clark & Teravainen, 2017

This broader view of reading is also supported by the academic literature and other relevant organisations. For example, OECD (2016) states that:

“Changes in our concept of reading since 2000 have led to an expanded definition of reading literacy, which recognises motivational and behavioural characteristics of reading alongside cognitive characteristics.”

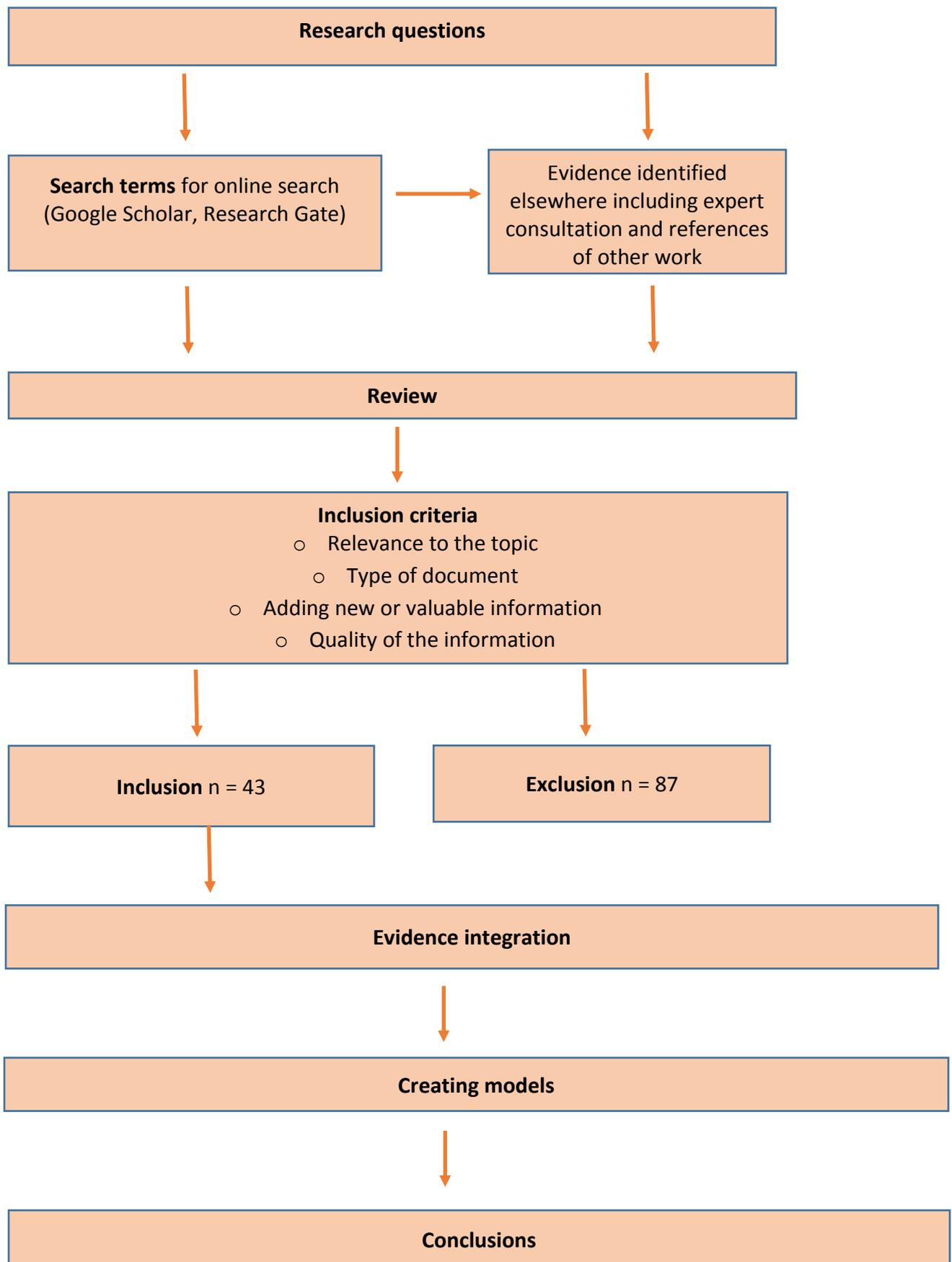
Methodology

The first step of the review was to refine the research questions. The final research questions were identified as:

1. What are the current conceptualisations of financial capability and literacy?
2. What are the direct links between literacy and financial capability?
3. What are the indirect links between literacy and financial capability?

After refining the research questions and agreeing key definitions, a search strategy was developed. Due to the exploratory nature of the project, the search terms continued to evolve throughout the project and new search terms were formulated based on the initial findings. **Figure 3** below presents the research process of this review.

Figure 3: The research process of this review



Link between reading and financial capability skills

A report produced by the Welsh Assembly Government (2007) on financial literacy clearly highlights how literacy is closely related to financial skill. For example, it states how people with poor basic skills like reading, writing, speaking and mathematics often also have poor financial literacy skills (Welsh Assembly Government, 2007). Poor basic skills might limit a person's knowledge, skills and understanding needed when dealing with financial matters (Welsh Assembly Government, 2007). Indeed, the same report also cites the Adult Financial Literacy Advisory Group (AdFLAG), which has found that a lack of financial skills is often a direct result of poor basic skills such as literacy and that there is a link between the need for adequate basic skills in numeracy, literacy and financial skills (Welsh Assembly Government, 2007, p. 5).

The report also suggests that the lack of financial skills leads to a lack of confidence, which means these people are more likely to fall victim of fraud, may not be receiving benefits they are entitled to, or find it more challenging to keep track of day-to-day finances (Welsh Assembly Government, 2007). The report identifies six key areas of literacy and shows examples of some of the financial activities they underpin. For example, reading comprehension is required for reading 'a booklet from a bank explaining different accounts', listening comprehension for listening 'to a simulated set of instructions about services available via telephone banking/utilities', and vocabulary, word recognition and phonics in order to 'read and understand key words linked to using an account, e.g. credit and debt' (Welsh Assembly Government, 2007).

Similarly to the literacy skills required to understand financial matters highlighted above, the Financial Literacy Competence Model created at the German Institute for Adult Education includes six financial literacy domains sub-divided into dimensions of knowledge, reading, writing and numeracy including potential requirements for everyday life (Project CurVe, 2017). This model links literacy to financial skills by including both reading and writing as everyday requirements for financial literacy competencies. Moreover, the model links reading and writing skill to all the sub-domains of financial literacy such as income, taxes, spending decisions, loans and pensions plans. We have reproduced the model in **Appendix 1** of this review.

Other evidence from both national and international sources also highlights that literacy is indeed associated with financial capability as a basic skill. Findings of the Programme for International Student Assessment (PISA), which tests 15-year-old students across the OECD countries, have shown that there is a strong positive correlation² between financial capability and reading (OECD, 2017a). Earlier PISA results from 2012 had already indicated that 75% of the financial capability score could be explained by performance in

² More specifically correlation of 0.75

mathematical and/or reading assessment (OECD, 2014). Indeed, the PISA 2015 financial literacy framework (OECD, 2017b) discusses the impact of other domain skills, such as reading and mathematics, on financial literacy, which they define similarly to our financial capability definition. It highlights that *“capacity to read and interpret the language of financial documents (...) is regarded as part of financial literacy”*.

The Financial Capability Outcomes Framework for adults, children and young people (Bagwell et al., 2014) has also identified literacy as a basic skill of financial capability. The evidence presented in the report highlights that for adults, low literacy means facing a range of barriers to positive financial behaviour, such as the inability to access the necessary information. The report also highlights that while not all people with poor literacy and numeracy skills have low financial capability, there is also evidence that people with no qualifications do struggle with choosing appropriate products (Bagwell et al., 2014). Indeed, a recent Financial Lives Survey by the Financial Conduct Authority (FCA, 2017) has included having no qualifications as a factor associated with “potential vulnerability”, defined to take into account a range of characteristics and covering for example those who may suffer disproportionately if things go wrong and those who may be less able to engage with their finances or with financial services. The survey found that 68% of adults with no qualifications are potentially vulnerable.

A paper by Sole (2014) highlights that several skills are needed to be able to read financial documents. One must have a familiarity with economic terms, strong vocabulary, high level of reading comprehension, and strong mathematical and analytical skills. Her study (2014) found that university students did not perform well in the financial capability tasks. The results of the study showed that while students struggled with concepts such as understanding an effective tax rate (see **Figure 4** for sample question), when they were explained, a number of students found computing the questions relatively easy (Sole, 2014). This indicates that the difficulties were caused by reading comprehension and cognitive skills rather than by their ability to perform mathematical calculations. This demonstrates the importance of having a variety of skills, including reading, to be financially capable.

Figure 4: Sample question highlighting the various skills needed to be financially capable

- How much would a single filer who had a salary of \$38,000 pay in taxes and what would be the worker's after tax salary?
- Find the effective tax rate, which is the average rate at which a person's salary is taxed?
- What would be the after tax salary of a worker who made \$36,000?

Table 1

2014 Tax Brackets for Single Filer

2014 TAX BRACKETS	
Tax rate	Single filers
10.0%	Up to \$9,075
15.0%	Over \$9,075, but not over \$36,900
25.0%	Over \$36,900, but not over \$89,350
28.0%	Over \$89,350, but not over \$186,350
33.0%	Over \$186,350, but not over \$405,100
35.0%	Over \$405,100, but not over \$406,750
39.6%	\$406,750 or more

Source: Sole (2014)

A recent analysis of the OECD Survey of Adult Skills data (PIAAC; Bhutoria, Jerrim & Vignoles, 2018) highlights how most financial literacy questions focus on higher-level financial concepts, while PIAAC focuses on questions building on numeracy and literacy skills, along with applying knowledge to a real-world financial situation (Bhutoria, Jerrim & Vignoles, 2018). Similarly, the Financial Services Authority (FSA; 2005) argues that to be able to apply knowledge and understanding in order to manage money and make appropriate financial decisions requires a range of specific skills that need to be underpinned by basic levels of literacy and numeracy. The FSA also argues that someone who doesn't have sufficient literacy and numeracy skills or hasn't developed coping strategies to overcome the lack of skills would not be able to engage in financially capable behaviours such as managing money, planning ahead, making choices or getting help when they need it. Therefore, measuring financially capable behaviour implicitly also tests literacy and numeracy (FSA; 2005). This implies that literacy is in fact inherent to financial capability.

Data from the 1970 British Cohort Study supports the idea of literacy being part of financial capability as a basic skill. An analysis of the data by the Money Advice Service (Lane et al., 2017) explored links between cognitive and non-cognitive skills and behaviour in childhood and adolescence, and financial outcomes in adulthood. Their results showed that a cognitive ability score (which includes literacy) at age 5 and age 10 is linked to regular saving, pension saving, net wealth and financial self-assessment in adulthood. Interestingly, cognitive ability at age 16 was only linked to pension saving of all the financial outcomes. Cognitive ability at

ages 5 and 10 was also linked to being economically active in adulthood (Lane et al., 2017). This shows that childhood literacy skills are crucial for being financially capable later in life.

Literacy and financial capability linked through socioeconomic factors

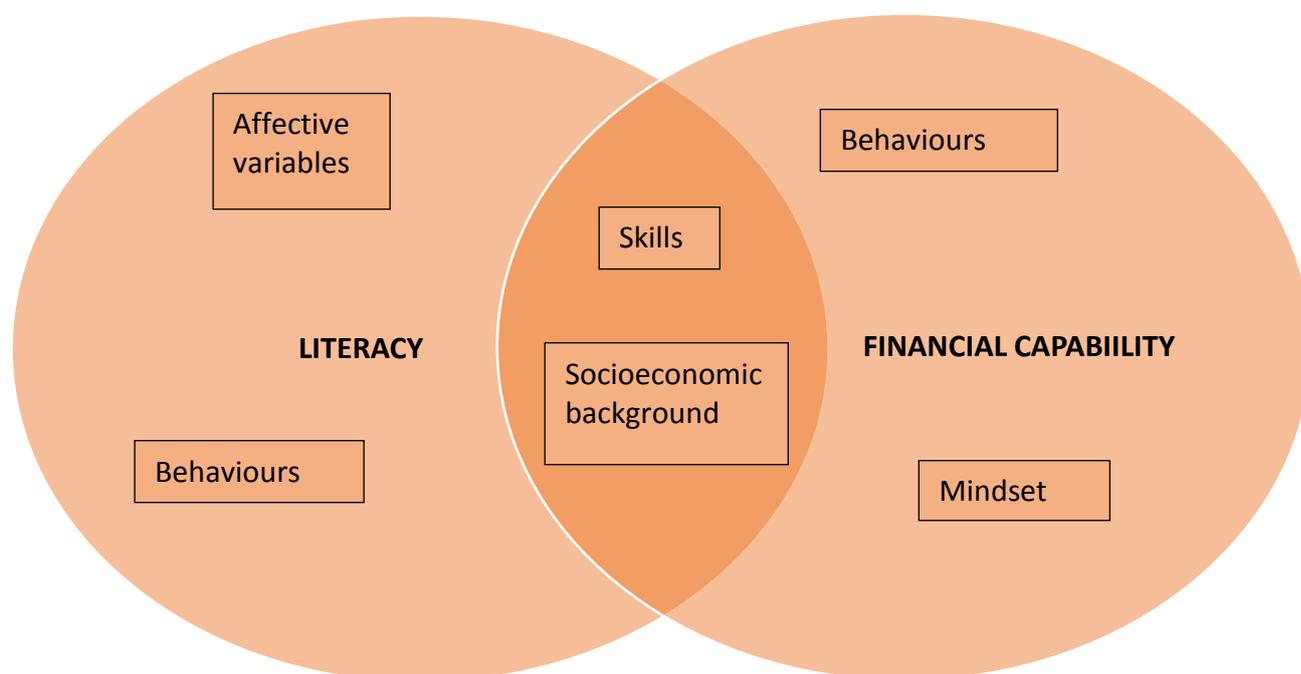
Literacy as a skill needed for financial capability becomes particularly important, especially when considering differences in skills as socioeconomic factors have been associated with both literacy and financial capability. Numerous studies have found a relationship between financial literacy and socioeconomic background for both adults and young adults (Lusardi, 2015). Recent PISA findings (OECD, 2017a) of 15-year-olds across 10 countries show 10% of the variation in student performance in financial capability can be explained by socioeconomic status. Similarly, findings in relation to literacy show that students from lower socioeconomic backgrounds have poorer literacy outcomes. For example, in 2018, 60% of pupils receiving free school meals achieved expected levels in reading at age 11, compared with 75% of their peers not receiving free school meals (Department for Education, 2018a).

Looking at adults, the link between literacy and financial capability can be established particularly through employment and wages. As Bagwell and her colleagues (2014) argued, there is a link between literacy and financial wellbeing as a result of the impact of low literacy on employment rates: a quarter of men and almost a third of women with low literacy skills live in non-working households, which in turn is likely to have a negative impact on financial wellbeing. Atkinson (2007), who explored the financial capability of adults with literacy and numeracy needs, found that adults who were identified as having difficulty reading English and were born in the UK (to control for English as an additional language) were six times more likely to struggle at making ends meet if they were also unemployed. These findings suggest that low literacy combined with unemployment might increase the risk of low financial capability.

Model of literacy and financial capability through skills

While a wealth of evidence suggests that there is a link between literacy and financial capability through skills, no studies exploring contemporary UK children and young people's data were found to support the link directly. However, based on the findings discussed above, and taking into account findings related to the socioeconomic background, we propose the following model of the relationship between literacy and financial capability as basic skills.

Figure 5: Theoretical relationship between literacy and financial capability through skills and socioeconomic background



Moving on from skills: non-cognitive factors

As Webley and Nyhus (2013) highlight, it is worth bearing in mind that better financial information does not necessarily result in positive financial behaviour. This shows that focusing on the link between literacy and financial capability only as a skill would be too narrow a view. Indeed, as the definitions of financial capability show, it is not only a skill but also comprises other non-cognitive factors. For example, research by the Money Advice Service (Conlon et al., 2018b) has included ‘mindset’ as one of the composite measures of financial capability. This is defined as “children’s values and attitudes towards money” (Conlon et al., 2018b). Similarly, it is known that affective variables such as enjoyment and motivation are linked to literacy skill. For example, the PISA results in reading (OECD, 2011b) have shown that one could predict nearly a fifth of the differences in students’ reading scores based on how much they enjoy reading, with enjoyment explaining 18% of the variation in reading performance.

Both literacy and financial capability have been shown to be closely linked to non-cognitive factors, especially motivation. Motivation means to be moved by something and therefore acts as an impetus for action (Ryan & Deci, 2000). Indeed, motivation has long been known to be a key driver of individual behaviour (Mandell & Klein, 2007). This section will explore

how motivation and other non-cognitive factors are linked to both financial capability and literacy, and it will also explore the interrelationships between all three concepts.

How is financial capability linked to non-cognitive factors?

A survey of children and young people conducted by the Money Advice Service (Griffiths & Ghezelayagh, 2018) found that ‘mindset’, defined as children’s values and attitudes towards money, is directly linked to financial capability behaviours. In fact, the research tested which variables predicted financial capability when all variables were simultaneously considered, and it was able to conclude that financial mindset along with connection (i.e., engagement and access to financial products/services) were more important elements of financial capability to children’s financial behaviour than skill (Griffiths & Ghezelayagh, 2018).

Mandell and Klein’s (2007) research based on the Jump\$tart survey, a large-scale biennial survey of financial literacy among high-school students in the US that assesses various factors relating to financial knowledge and skill, found that motivation in general is an important driver of financial skills. In particular, their results showed that students’ perceptions of future goals as a motivational construct were related to financial knowledge and skill. The authors suggest that as a result, financial education programmes should “address student expectations and challenge them to develop a financial plan that will lead to success” (Mandell & Klein, 2007).

Interest in financial matters, which is closely related to motivation, is also known to be connected to financial capability. For example, Lührmann, Serra-Garcia and Winter (2013) state that teenagers’ interest is a first step towards increasing their financial knowledge and engagement with financial matters in the future. Their study of the impact of short financial education programmes for teenagers showed that even a relatively short financial education programme increases their knowledge of financial matters and also their interest in them (Lührmann, Serra-Garcia and Winter, 2013).

Some evidence also suggests that persistence, a component of the expectancy-value theory of motivation (Wigfield & Eccles, 2000), is linked to financial capability. Often called ‘perseverance’ in literature related to financial capability, it has been identified as part of the ‘mindset’ variable in the Children and Young People’s Financial Capability Framework (Bagwell, Hestbaek, Harries & Kail, 2014). Indeed, evidence presented as part of the frameworks shows that perseverance might be linked to children and young people’s financial capability. For example, the 2012 PISA study (OECD, 2014) found even when scores in mathematics and reading are accounted for, 15-year-olds who agreed that ‘when confronted with a problem, I give up easily’ scored lower in their financial capability than those who disagreed.

All contemporary theories of motivation also include a concept related to beliefs about competence (Cook & Artino, 2016). This is closely related to confidence, which is also associated with financial capability. For example, a study of Canadian adults found that financial confidence is a predictor of financial outcomes associated with day-to-day money and debt management as well as important for understanding many planning and saving outcomes (Palameta, Nguyen, Hui & Gyarmati, 2016). Interestingly, these findings also showed that people with high levels of confidence achieve good outcomes in these areas even if they have relatively low levels of knowledge (Palameta, Nguyen, Hui & Gyarmati, 2016). Similarly, the Children and Young People's Financial Capability Survey by the Money Advice Service (2017b) found that children's confidence managing money is associated with positive financial capability and financial behaviours. For example, they found that nearly a quarter of the children who are not confident would choose to save every or most times they have money compared with over half of those who are confident (Money Advice Service, 2017b).

How is literacy linked to non-cognitive factors?

As becoming literate is an activity that requires effort, it is expected that children need to be motivated to practise to achieve sufficient skills. Numerous studies that have explored motivation and literacy have found a relationship between the concepts. For example, motivation is known to be linked to time spent engaging in reading activities (McGeown, Osborne, Warhurst, Norgate & Duncan, 2015) and therefore unsurprisingly reading motivation and reading amount have been found to be important predictors of reading literacy (Becker, McElvany & Kortenbruck, 2010). Reading motivation has also been linked to specific sub-skills of reading. For example, Wang and Guthrie (2004) found that intrinsic motivation predicted text comprehension.

Related to motivation in literacy are perceptions of efficacy, which also help determine how much effort people will expend on an activity and how long they will persevere (Pajares, 1996). This clearly has implications for literacy development as children who don't see themselves as capable of completing the goals are unlikely to persist and master them. Indeed, studies have found that students who don't believe in their own reading abilities try to avoid challenging reading activities (Carroll & Fox, 2017).

The interrelationships between financial capability, literacy and non-cognitive factors

The latest PISA results (OECD, 2017) showed that pupils' learning motivation is linked to their financial capability scores, with those who are motivated having higher scores. However, this relationship becomes weaker when mathematics and reading scores are accounted for. This might suggest that while motivation is linked to financial capability, it might be mediated by reading score, i.e., literacy and mathematics skills. This in turn might

indicate that motivation to become financially capable in itself is not sufficient to result in positive financial skills and behaviour but needs to be combined with literacy and numeracy.

However, not a single study was found that has explored the link between literacy, financial capability and non-cognitive factors in more depth. This raises the question about whether it is actually appropriate to assume that a link exists between these concepts through non-cognitive factors. While this review was not able to determine whether there is a direct relationship between the non-cognitive components of reading and financial capability, some indication of the possible relationship was found by exploring domain specificity in motivation, that is whether motivation is specific to a particular subject.

A study of 722 pupils that explored the domain-specificity of motivation in upper primary school found indications that motivations in various subjects are correlated (Hornstra, van der Veen & Peestma, 2016). While the findings showed that overall the motivational constructs in language and mathematics were domain-specific in nature, the authors also highlight that compared with previous studies in secondary or higher education, the degree of domain-specificity in upper primary school is limited as there are strong cross-domain correlations. They found that achievement goals in particular were highly domain-general (Hornstra, van der Veen & Peestma, 2016) suggesting that the reasons pupils have for engaging in achievement tasks might be general across the subjects. This indicates that certain types of motivation can be generalised across areas.

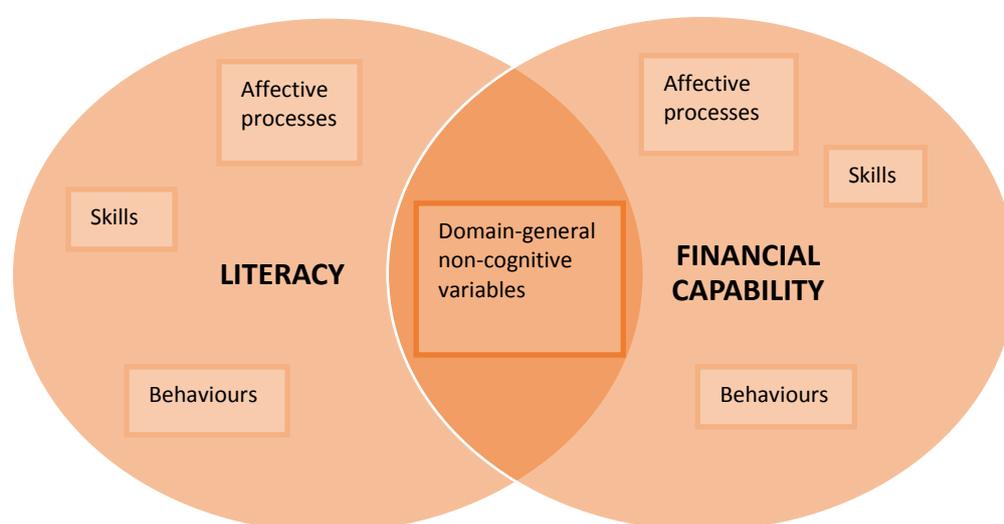
Similarly, Green, Martin and Marsh (2007) have pointed out that findings from research exploring domain specificity in academic motivation have been mixed, and indeed their own findings showed that while motivation seems to be subject-specific, the level of domain specificity varied across the motivation and engagement constructs. For example, the results showed that while between-subject correlations for motivational constructs such as valuing (e.g., 'Learning in this subject is important to me') were low, some, such as task management (e.g., 'When I study, I usually study in places where I can concentrate') and anxiety ('When exams and assignments are coming up, I worry a lot'), were more strongly correlated across subjects (Green, Martin & Marsh, 2007). Interestingly, as constructs such as task management are linked to positive engagement in learning more generally, these findings might suggest that motivation in an academic context, especially in primary school, could be linked to both literacy and financial capability.

Some aspects related to motivation – such as confidence – might also act as a mediator between financial capability and literacy. As confidence can be defined both as a trait and as a situationally specific concept (Norman & Hyland, 2003), it can be hypothesised that it can be transferred from one subject to another, that is confidence in literacy might be transferable to financial confidence and vice versa. However, no studies were found which would have explored the relationship by focusing on confidence.

Model of literacy and financial capability including non-cognitive factors

Our review shows that in addition to skills, the link between financial capability and literacy can be theoretically formed through non-cognitive factors. However, as before, we did not find any studies that specifically explored the interrelationships between the concepts. The model proposed below places domain-general non-cognitive variables as the central element connecting literacy and financial capability. It posits that non-cognitive factors might potentially explain the link between literacy and financial capability.

Figure 6: Model of reading and financial capability connected by domain-general non-cognitive variables



Role of schools

Although it is known that families are a primary source of financial socialisation (Sherraden, Johnson, Guo & Elliott, 2009), they can't provide all the financial knowledge and skills children need when they grow older. For example, research by the Money Advice Service (2017b) found that only three in five parents feel confident talking to their children about money. Indeed, as the All-Party Parliamentary Group (APPG) on Financial Education for Young People report (2016) highlights, schools play an important role in ensuring young people develop the confidence and skills they need to manage their finances. Therefore, there is a very clear need to focus on financial education as well as literacy in schools.

However, the role of schools is not straightforward. Schools face barriers in teaching financial capability and literacy. One of the barriers teachers face in terms of both literacy and financial capability is lack of confidence. The APPG on Financial Education for Young People report (2016) found that there are significant concerns about current levels of

teacher confidence in teaching financial education. Similarly, a survey of teachers by the National Literacy Trust found that teachers lack confidence in literacy pedagogy, particularly around assessment and in teaching specific groups such as those on free school meals (Clark & Teravainen, 2015).

A meta-analysis conducted by Fernandes, Lynch Jr. and Netemeyer (2014) found that interventions designed to improve financial knowledge and skills only explain 0.1% of the variance in financial behaviour. The authors hypothesise that one of the reasons is possibly a lower level of teacher training and expertise compared with other subjects. This hypothesis is supported by survey findings of the APPG on Financial Education for Young People, which showed that only 17% of secondary-school teachers have received training or advice on teaching financial education or are aware that a colleague has received training (The APPG on Financial Education for Young People report, 2016).

Moreover, the authors suggest that future financial education could focus on teaching ‘soft skills’ such as propensity to plan, confidence to be proactive and willingness to take investment risks more than content knowledge about financial concepts (Fernandes, Lynch Jr. & Netemeyer, 2014). This highlights the need to focus on non-cognitive aspects in financial education. A wealth of research has shown that non-cognitive variables such as motivation are very closely linked to attainment, thereby highlighting the need to focus on those in literacy education.

Next steps

This review has shown that literacy is linked to financial capability as a skill and highlighted evidence that the link between the concepts might be formed through non-cognitive factors. While it would be inappropriate to assume that low literacy skills are automatically linked to poor financial capability, the findings on both financial capability and literacy indicate that the same people, particularly those from lower socioeconomic backgrounds, might be at risk of struggling with both low literacy and financial capability. Combining this with the findings around non-cognitive factors, the relationships between these complex multi-dimensional constructs highlights the need to explore the interrelationships further, particularly in the schools’ space.

Not a single study was found that has explored the link between components of literacy and financial capability directly taking into account the comprehensive definition of the concepts beyond skill. In particular, there is a lack of research in these variables and how they interact in childhood and adolescence.

We will address these gaps by conducting a survey of children and young people. This survey will:

- Explore the skills aspect of literacy and financial capability by testing how the skills aspect of reading and financial capability relate to each other.
- Explore the interrelationships between reading and financial skills, motivation and attitudes. This will particularly focus on determining the importance of the non-cognitive factors in the model with both literacy and financial capability.

References

All-Party Parliamentary Group on Financial Education for Young People. (2016). *Financial education in school two years on – job done?* Retrieved 6 July 2018 from <https://www.young-money.org.uk/sites/default/files/APPG%20on%20Financial%20Education%20for%20Young%20People%20-Final%20Report%20-%20May%202016.pdf>

Atkinson, A. (2007). *Financial capability amongst adults with literacy and numeracy needs*. Report produced for the Basic Skills Agency. Retrieved 26 June 2018 from <http://www.bristol.ac.uk/media-library/sites/geography/migrated/documents/pfrc0701.pdf>

Bagwell, S., Hestbaek, C., Harries, E. & Kail, A. (2014). Financial capability outcome frameworks. Report commissioned as part of the Financial Capability Strategy for the UK. Retrieved June 26, 2018 from <https://www.thinknpc.org/wp-content/uploads/2014/09/Financial-Capability-Outcome-Frameworks-MAS.pdf>

Becker, M., MacElvany, N. & Kortenbruck, M. (2010). Intrinsic and extrinsic reading motivation as predictors of reading literacy: A longitudinal study. *Journal of Educational Psychology*, 102(4), pp. 773-785. doi: 10.1037/a0020084

Bhutoria, A., Jerrim, J. & Vignoles, A. (March 2018). The financial skills of adults across the world. New estimates from PIAAC. PIAAC Working Paper. Downloaded 26 June 2018 from <https://johnjerrim.com/piaac/>

Carroll, J. M. & Fox, A. C. (2017). Reading Self-Efficacy Predicts Word Reading But Not Comprehension in Both Girls and Boys. *Frontiers in Psychology*. doi: <https://doi.org/10.3389/fpsyg.2016.02056>

Clark, C. & Teravainen, A. (2017). *What it means to be a reader at age 11: valuing skills, affective components and behavioural processes: An outline of the evidence*. Report prepared on behalf of the Read On. Get On. campaign. Retrieved 26 June 18 from <https://literacytrust.org.uk/research-services/research-reports/what-it-means-be-reader-age-11-valuing-skills-affective-components-and-behavioural-processes/>

Conlon, G., Peycheva, V. & Landzaat, W. (2018a). Children and Young People's Financial Capability Deep Dive: Parenting. Retrieved 26 June 2018 from <https://www.moneyadvice.service.org.uk/en/corporate/research>

Conlon, G., Peycheva, V. & Landzaat, W. (2018b). Children and Young People's Financial Capability Deep Dive: Vulnerability. Retrieved 26 June 2018 from <https://www.moneyadvice.service.org.uk/en/corporate/research>

Cook, D. A. & Artino, A. R., Jr. (2016). Motivation to learn: an overview of contemporary theories. *Medical Education*, 50(10), pp. 997-1014. doi: 10.1111/medu.13074

Department for Business, Innovation and Skills. (2012). *The 2011 Skills for Life Survey: A Survey of Literacy, Numeracy and ICT Levels in England*. (BIS Research paper number 81). Retrieved 26 June 2018 from https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/36000/12-p168-2011-skills-for-life-survey.pdf

Department for Education. (2018a). *Key Stage 2 national tables* [data file]. Retrieved 17 January 2019 from <https://www.gov.uk/government/statistics/key-stage-2-and-multi-academy-trust-performance-2018-revised>

Department for Education. (2018b). *Provisional GCSE and equivalent results in England, 2017 to 2018*. Retrieved 17 January 2019 from https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/748503/2018_KS4_statistical_release.pdf

Fernandes, D., Lynch Jr, J. & Netemeyer, R. (2014). Financial literacy, financial education, and downstream financial behaviors. *Management Science*, 60(8), pp. 1861-1883. doi: <https://doi.org/10.1287/mnsc.2013.1849>

Financial Conduct Authority (2017). *Understanding the financial lives of UK adults: Findings from the FCA's Financial Lives Survey 2017*. Retrieved 17 July 2018 from <https://www.fca.org.uk/publication/research/financial-lives-survey-2017.pdf>

Financial Service Authority. (2005). *Measuring financial capability: an exploratory study*. (Consumer Research 37). Retrieved 26 June 2018 from http://www.pfrc.bris.ac.uk/publications/completed_research/Reports/Fincap_June05.pdf

Green, J., Martin, A. & Marsh, H. (2007). Motivation and engagement in English, mathematics and science high-school subjects: towards an understanding of multidimensional domain specificity. *Learning and Individual Differences*, 17, pp. 269-279. doi: 10.1016/j.lindif.2006.12.003

Griffiths, A. & Ghezelayagh, S. (2018). *Children and Young People & Financial Capability: Needs Analysis*. Retrieved 26 June 2018 from <https://www.moneyadvice.service.org.uk/en/corporate/research>

Hornstra, L., van der Veen, I. & Peetsma, T. (2016). Domain-specificity of motivation: A longitudinal study in upper primary school. *Learning and Individual Differences*, 51, pp. 167-178. doi: 10.1016/j.lindif.2016.08.012. Retrieved 6 July 2018 from <https://www.sciencedirect.com/science/article/pii/S104160801630156X#!>

Hulme, A. & Newton, J. (2017). Numeracy literature review. Report prepared for the Money Advice Service. Retrieved 26 June 2018 from <https://www.moneyadvice.service.org.uk/en/corporate/research>

Johnson, E. & Sherraden, M. S. (2007). From Financial literacy to financial capability among youth. *Journal of Sociology & Social Welfare*, 34(3), 119-145. Retrieved 26 June 2018 from <https://scholarworks.wmich.edu/cgi/viewcontent.cgi?referer=https://scholar.google.co.uk/&httpsredir=1&article=3270&context=jssw#page=118>

Lane, M., Peycheva, V., Landzaat, W. & Conlon, G. (2017). *The journey from childhood skills to adult financial capability – analysis of the 1970 British Cohort Study*. Retrieved 26 June 2018 from <https://www.moneyadvice.service.org.uk/en/corporate/research>

Lührmann, M., Serra-Garcia, M. & Winter, J. (2013). *Teaching teenagers in finance: does it work?* (Munich Discussion Paper No. 2012-24). Retrieved 26 June 2018 from https://epub.ub.uni-muenchen.de/14101/1/L%C3%BChrman_Serra-Garcia_Winter_2012_The_effects_of_financial_literacy_training_Evidence_from_a_field_experiment_with_German_high-school_children.pdf

Lusardi, A. (2012). *Numeracy, financial literacy, and financial decision-making* (NBER Working Paper No. 17821). Retrieved 26 June 2012 from <http://www.nber.org/papers/w17821.pdf>

Lusardi, A. (2015). Financial Literacy Skills for the 21st Century: Evidence from PISA. *The Journal of Consumer Affairs*, 49(3), pp. 639-659. doi: 10.1111/joca.12099. Retrieved from http://gflec.org/wp-content/uploads/2015/11/Lusardi-2015-Journal_of_Consumer_Affairs.pdf

Mandell, L. & Klein, L. S. (2007). Motivation and financial literacy. *Financial Services Review* 16, 105–116. Retrieved 26 June 2018 from

<http://citeseerx.ist.psu.edu/viewdoc/download;jsessionid=D4B327419572F766138902D74BDDFCOB?doi=10.1.1.392.2771&rep=rep1&type=pdf>

McGeown, S. P., Osborne, C., Warhurst, A., Norgate, R. & Duncan, L. G. (2015). Understanding children's reading activities: Reading motivation, skill and child characteristics as predictors. *Journal of Research in Reading*, 39.1, pp. 109-125. doi: <https://doi.org/10.1111/1467-9817.12060>

Money Advice Service (2017a). *Numeracy and Financial Capability: Exploring the links*. Retrieved 26 June 2018 from <https://www.moneyadvice.org.uk/en/corporate/research>

Money Advice Service (2017b). *Financial Capability of Children, Young People and their Parents in the UK 2016: Initial results from the 2016 UK Children and Young People's Financial Capability Survey*. Retrieved 26 June 2018 from <https://www.moneyadvice.org.uk/en/corporate/research>

Norman, M. & Hyland, T. (2003). The role of confidence in lifelong learning. *Educational Studies*, 29(2): pp. 261-272.

OECD (2014). *PISA 2012 Results: Students and Money: Financial Literacy Skills for the 21st Century (Volume VI)*. Paris: OECD Publishing. <http://dx.doi.org/10.1787/9789264208094-en>

OECD International Network on Financial Education (INFE). (2011a). *Measuring Financial Literacy: Questionnaire and Guidance Notes for Conducting an Internationally Comparable Survey of Financial Literacy*. Paris: OECD Publishing. Retrieved 26 June 2018 from <https://www.oecd.org/finance/financial-education/49319977.pdf>

OECD. (2011b). *Are students who enjoy reading better readers? in PISA 2009 at a Glance*. Paris: OECD Publishing. doi: 10.1787/9789264095250-28-en

OECD. (2016). *Skills Matter: Further Results from the Survey of Adult Skills*. Paris: OECD Publishing. doi: <https://doi.org/10.1787/9789264258051-en>

OECD. (2017a). *PISA 2015 Results (Volume IV): Students' financial literacy*. Paris: OECD Publishing. doi: <http://dx.doi.org/10.1787/9789264270282-en>

OECD. (2017b). *PISA 2015 Assessment and Analytical Framework: Science, Reading, Mathematic, Financial Literacy and Collaborative Problem Solving*. Paris: OECD Publishing. <http://dx.doi.org/10.1787/9789264281820-en>

Pajares, F. (1996). Self-efficacy beliefs in academic setting. *Review of Educational Research*, 66(4), pp. 543-578. doi: 10.2307/1170653

Palameta, B., Nguyen, C., Shek-wai Hui, T. & Gyarmati, D. (2016). *The link between financial 2011 confidence and financial outcomes among working-aged Canadians*. Report for the Financial Consumer Agency of Canada. Retrieved 26 June 2018 from <http://www.financialliteracy.gov.au/media/559982/thelinkbetweenfinancialconfidenceandfinancialoutcomes-canada-2016.pdf>

Project CurVe. (2017). *The Financial Literacy Competence Model*. Retrieved June 26, 2018 from http://die-curve.de/Content/PDF/DIE_Compentence_Model-engl.pdf

Ryan, R. M. & Deci, E. L. (2000) Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary Educational Psychology*, 25, pp. 54-67.

Sherraden, M., Johnson, L., Guo, B. & Elliott, W. (2011). Financial Capability in Children: Effects of Participation in a School-based Financial Education and Savings Program. *Journal of Family & Economic Issues*, 32(3), pp. 385-399. doi: 10.1007/s10834-010-9220-5

Sole, M. A. (2014). Financial literacy: An essential component of mathematics literacy and numeracy. *Journal of Mathematics Education at Teachers College*, 5(2), 55-62. Retrieved 26 June 2018 from https://academicworks.cuny.edu/cgi/viewcontent.cgi?article=1011&context=nc_pubs

Wang, J. H. & Guthrie, J. T. (2004). Modeling the effects of intrinsic motivation, extrinsic motivation, amount of reading, and past reading achievement on text comprehension between U.S. and Chinese students. *Reading Research Quarterly*, 39(2), pp. 162-186. doi: <https://doi.org/10.1598/RRQ.39.2.2>

Welsh Assembly Government. (2007). *Financial Literacy*. Retrieved 26 June 2018 from <http://learning.gov.wales/docs/learningwales/publications/07financialliten.pdf>

Webley, P. & Nyhus, E. K. (2013). Economic socialization, saving and assets in European young adults. *Economics of Education Review* 33, pp. 19-30. doi: <http://dx.doi.org/10.1016/j.econedurev.2012.09.001>

Wigfield, A. & Eccles, J. (2000). Expectancy-Value Theory of Achievement Motivation. *Contemporary Educational Psychology*, 25, pp. 68-81. doi: 10.1006/ceps.1999.1015

Appendix 1

The Financial Literacy Competence Model adapted from the German Institute for Adult Education (Project CurVe, 2017)

Financial capability domain	Subdomain	Everyday requirements in reading	Everyday requirements in writing
Revenue	Income	Can read and extract the essential meaning of employment contracts and pay slips	Can communicate in writing with employer (e.g. recording overtime)
	Welfare and benefits	Can read and extract the essential meaning of notices of performance	Can fill in application forms; can communicate in writing with authorities
	Assets	Can read and extract the essential meaning of tables of information	Can formulate sales offers
	Financial support	Can read and extract the essential meaning of a notification of approval or rejection	Can write or fill in an application
Money and payments	Monetary system	Can pick out or read off appropriate values from conversion charts	
	Payments	Can read and extract the essential meaning of account statements; can read transfer forms or vouchers; can read and extract the essential meaning of fee statements	Can fill in bank and payment forms
	Investment	Can read and extract the essential meaning of information material and contracts	Can fill in contract forms
	Taxes	Can read and extract the essential meaning of tax declaration forms; can read and extract the essential meaning of tax assessments	Can communicate with authorities in writing; can appeal against tax assessments
Expenditure and purchases	Shopping	Can read and extract the essential meaning of product descriptions; can read and extract the essential meaning of general terms and conditions of purchase	Can write shopping lists; can formulate or fill in orders
	Offers	Can read and extract the essential meaning of content descriptions, promotional	Can communicate in writing with providers (e.g. to get a quote)

		material and test results	
	Spending decisions	Can read and extract the essential meaning of contracts; can read and double check bills	Can communicate in writing with providers; can formulate cancellations of, terminations of and amendments to transactions
	Benefits, bonuses and exemption	Can read and extract the essential meaning of assessments (e.g. exemptions from requirement of TV and radio licences)	Can fill in an application (e.g. for exemption from a radio and TV licence)
Budgeting	Overview	Can identify items of information from documents (e.g. subject, reference, sender, date, etc.)	Can keep and maintain inventories and other records
	Weekly and monthly planning	Can read account statements; can read and extract the essential meaning of contracts (deadlines, time and amount of recording, etc.)	Can make entries in a cash book or ledger; can list income and expenditures
	Annual planning	Can read account statements; can read and extract the essential meaning of contracts (deadlines, time and amount of recording, etc.)	Can list income and expenditures
	Risk and crisis management	Can read and extract the essential meaning of utility bills; can read information regarding subsequent payments for electricity and tax	Can formulate objections; can make a request for payment in instalments
	Saving	Can read and extract the essential meaning from information material	
Borrowing money and debts	Loans	Can read and extract the essential meaning of credit agreements	Can fill in an application form for a credit agreement; can formulate the cancellation of a credit agreement
	Hire purchase	Can read and extract the essential meaning of estimates or quotations	Can fill in hire purchase forms (e.g. online forms)
	Borrowing money		Can fill in or formulate a promissory note or IOU
Making provisions and insurance	Pension plan	Can read and extract the essential meaning of a pensions statement	Can communicate with authorities in writing; can formulate an application
	Insurance	Can read and extract the	Can fill in insurance forms;

		essential meaning of test results and information material; can read and extract the essential meaning of insurance contracts	can formulate terminations; can formulate notifications of claim
	Reserves and capital investment	Can read and extract the essential meaning of information material; can read and extract the essential meaning of contracts	Can write terminations; can communicate in writing with banks and insurance organisations