An Alternative Approach to Measuring Financial Literacy

For years, financial literacy has been the touchstone of financial education and a primary target in the pursuit of improved financial well-being. As financial responsibilities shift to individuals in progressively complex financial environments, there is a belief that an increase in financial literacy will lead to better decision making and favorable financial outcomes for individuals and their communities.

However, while other forms of literacy (reading, health, digital, data) recognize the role of multiple types of knowledge, financial literacy is unique in its often exclusive focus of explicit financial concepts—for example, the calculation of compound interest or the differences between 15 and 30-year mortgages. Given mixed findings of this narrow view of financial literacy to improve financial outcomes, this study began with the premise that we need a roomier understanding and measure of it—one that expands the effect our field might have on financial well-being. The potentially rich construct of financial literacy should not be reduced to financial knowledge alone.

This shift in thinking was first influenced by Dr. Dee Warmath's work with the Consumer Financial Protection Bureau's financial well-being study. The expectation was to discover better ways to deliver financial education so financial knowledge of Americans could improve. Instead, in conversations with 59 consumers across the country she found many examples of people managing their money well without such knowledge of financial concepts and calculations. She also heard stories of how consumers learned from their mistakes—or near mistakes—and how their recovery from poor decisions taught them invaluable lessons. In fact, most people gained their financial knowledge from their experiences—good or bad—rather than the other way around (what the research team came to call "financial skill"). Additionally, Dr. Warmath learned about how simply having the confidence to act or knowing when and how to ask for help made a big difference in consumers' financial outcomes.

Are you literate? How can you tell? For a moment, let's treat reading literacy as we do financial literacy. The test of your ability to read might look something like this:

- What is the direct object in this sentence? Dylan accidentally tripped Karen as she was leaving the classroom.
- What is the past participle in this sentence? Eaten by mosquitoes, we wished that we had made hotel, not campsite, reservations.
- Is this statement true or false? A sonnet is written in iambic pentameter.

How did you do? Do you know how to read? If reading literacy were assessed in the same way as financial literacy, whether you got the right answers would determine your reading literacy level despite the fact you were reading words while answering these questions. We would probably say that about 90 percent of Americans do not know how to read given their responses.

These financial narratives led to a paradigm shift. Financial literacy as knowledge alone did not seem to fit the lived experiences of people or recognize how they learn. If it did, it would likely expand the tools we have to support improved financial well-being for more people with different learning styles and experience. It would also provide a richer way to measure financial literacy and evaluate financial education programs.

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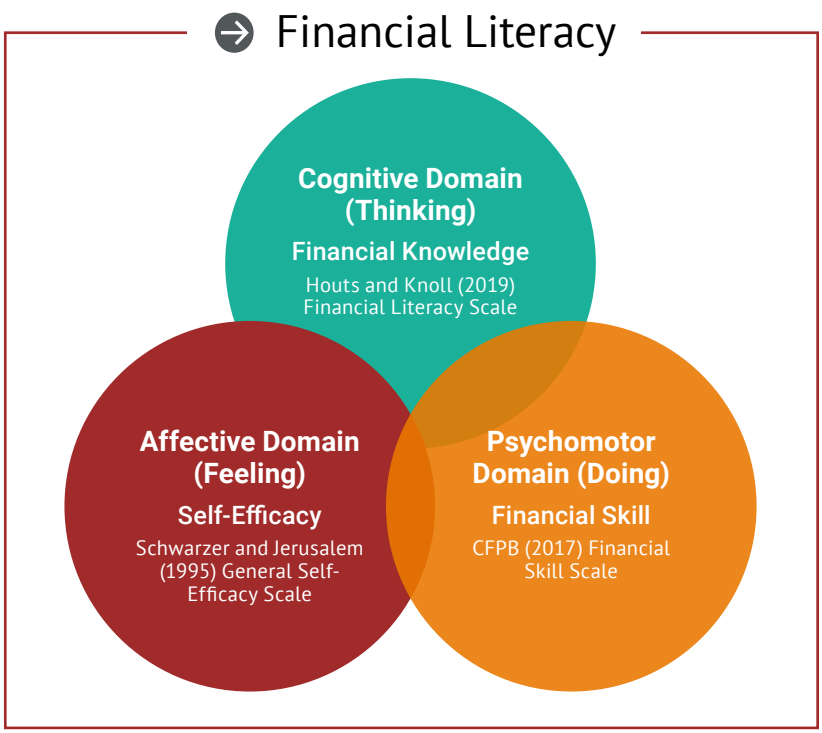
RETHINKING HOW TO CONCEPTUALIZE AND MEASURE FINANCIAL LITERACY: A FORMATIVE SCALE

This study uses methods of formative scale development and data from a national survey to construct and validate a new way of conceptualizing and measuring financial literacy. As opposed to reflective scale development methods, which see a scale as a reflection of an underlying construct, formative scale development methods assume that various indicators combine to "cause" an individual score on a given construct, such as when education level and occupation combine with other indicators to determine an individual's socioeconomic status.



Under formative scale development methods, content and indicator specification are critical and a strong definition of the underlying concept is likewise very important. Researchers utilized Bloom's theory on domains of knowledge to refine the concept of financial literacy itself. Bloom's theory holds that, for an individual, operating in the world requires not just the recognition or recall of knowledge (i.e., the cognitive domain of knowledge), but also motivation (the affective domain) and motor skills (the psychomotor domain).

To construct a new assessment measure that combines financial knowledge with the additional components of financial skill[1] and self-efficacy[2], researchers redefined the concept of financial literacy as one's capacity to make effective financial decisions. Linked back to Bloom's theory on knowledge domains, self-efficacy can be seen as representing the affective domain of financial knowledge and financial skill, the psychomotor domain. If an individual grows in any one of the three components, then their financial literacy—or capacity to make effective financial decisions—should also increase.

MEASURES AND DATA

Measures for knowledge, skill and self-efficacy were selected from existing valid, reliable scales. For financial knowledge, researchers used the 10-item scale developed by Houts and Knoll (2019) Financial Literacy Scale using item-response theory (IRT) modeling. For financial skill, they used the scale developed by the CFPB (2017) Financial Skill Scale. For self-efficacy, they used the Schwarzer and Jerusalem (1995) General Self-Efficacy Scale. The included tables, found at the bottom of the report, show the items included in each scale and provides a brief description of the original scale development. Data were obtained through an online survey of adults ages 18 and older selected from the Survey Sampling International panel. A total of 601 surveys were completed. The average age of survey participants was 41 years and average income was $70,027. Females represented 55.9 percent of the sample. In terms of race and ethnicity, 14.2 percent of the participants were Hispanic, 61.5 percent were non-Hispanic Whites and 12.0 percent were non-Hispanic Blacks. Bachelor's degrees or higher levels of education were present for 25.4 percent of the sample.

[1] Financial skill is defined as the ability to find and use information or advice when needed.

[2] Self-efficacy is defined as the "confidence to deal with a situation without being overwhelmed" [Hira 2010, p.15].

FURTHER STEPS IN FORMATIVE SCALE DEVELOPMENT

To test the scale, researchers followed the remaining suggested practices for formative scale development: examining correlation between proposed indicators, examining association with a hypothesized correlate and examining relationship with hypothesized outcomes of financial literacy.

1 Examining correlation between indicators.

Correlations between indicators in a formative scale can be positive, negative or non-significant, but should not be high. Although the three indicators were positively and significantly correlated, none of the correlations indicated multicollinearity. However, given high correlation between financial skill and financial self-efficacy, researchers used a confirmatory factor analysis (CFA) to examine the discriminant validity between the two indicators. Results suggested financial skill and self-efficacy are indeed distinct constructs.

2 Examining the relationship between the formative scale and a closely related construct.

Next, researchers examined the relationship between the proposed indicators of financial literacy and the individual's perception of their knowledge of financial matters compared to the average person (i.e., the hypothesized correlate). An ordered probit model revealed that all three indicators of financial literacy had statistically significant and positive associations. Overall, findings suggested that financial skill, knowledge and self-efficacy are all reasonable indicators of financial literacy, with each indicator contributing uniquely to the overall concept.

3 Criterion validity.

In the final step, researchers assessed the concurrent validity of the indicators with hypothesized outcomes of financial literacy, in this case by choosing financial well-being as the dependent variable in an ordinary least squares (OLS) regression and examining the proposed indicators both as independent variables and as a three-indicator model. A comparison of Akaike Information Criterion for each model confirmed that the three-indicator model performed better than any of the others with one or more indicators removed. The coefficients indicated that all three indicators were significantly related to an individual's level of financial well-being.

In sum, these findings supported the criterion validity of the combination of financial skill, self-efficacy and knowledge as a formative financial literacy scale. All three indicators have an independent relationship with the hypothesized outcome, and the three-indicator model is as good, or better, than a model containing only one or two of the indicators.

ADDITIONAL FINDINGS ABOUT THE EXPANDED FINANCIAL LITERACY SCALE

Researchers found that this expanded view of financial literacy was significantly correlated with an individual's money management skills (r = .447), their personal savings orientation (r = .599) and their self-reported FICO score (r = .391). It was significantly related to overall financial well-being (beta = .333), current money management stress (beta = -.273) and expected future financial security (beta = .550), even when controlling for demographic characteristics.

This revised construct and measure also revealed a broader set of opportunities for building financial literacy among different demographic groups. For example, people with higher incomes or college/graduate degrees tended to score higher on all three dimensions of financial literacy. While non-Hispanic Whites did score higher than other racial or ethnic groups on financial knowledge, they did not do so on financial skill or self-efficacy. Blacks did have lower levels of financial knowledge as reported in previous studies, but they also had significantly higher levels of financial skill. Although the study did not allow time or space to explore the rich potential for an evolution of financial education design, it does suggest that there are likely important differences in the type of education that will have the greatest positive impact.

CONCLUSION

The formative scale outlined in this report offers researchers and practitioners a meaningful opportunity to leverage a more robust understanding of the concept of financial literacy. In some ways, this study reinforces what financial coaches and counselors already are discovering and implementing in their practices: that building knowledge of financial concepts and calculations is only one component of financial literacy, and that financial knowledge may be more about discovery than recall.

Helping individuals gain a working knowledge of explicit financial concepts is certainly important, but knowledge acquisition should be seen as just one leg of a three-legged stool of financial literacy. To produce positive financial outcomes, it's just as relevant to increase a person's ability to recognize a need for knowledge, help them identify and use trustworthy sources of information when a decision is immanent, and provide them with the opportunity to practice decisions and build a sense of mastery.

By treating knowledge, self-efficacy and skill as interconnected components and indicators of financial literacy rather than independent constructs, we have the potential to drive new insights and innovations in our field and improve financial well-being for those we serve.

Measuring Financial Literacy

10-Item Financial Literacy Scale (Houts & Knoll, 2019)

Developed as a short version of the 20-item scale published in 2012 using item response theory and data collected with 1700 respondents to the Understanding America Survey to produce a psychometrically sound measure. Red text indicates a correct response.

Imagine that the interest rate on your savings account was 1% per year and inflation was 2% per year. After 1 year, would you be able to buy more than, exactly the same as, or less than today with the money in this account?

ANSWER OPTIONS: 1. More than today; 2. Exactly the same as today; 3. Less than today

If the interest rates rise, what should happen to bond prices?

ANSWER OPTIONS: 1. They will rise; 2. They will fall; 3. They will stay the same

Considering a long time period (for example 10 or 20 years), which asset described below normally gives the highest return?

ANSWER OPTIONS: 1. Savings accounts; 2. Bonds; 3. Stocks

Normally, which asset described below displays the highest fluctuations over time?

ANSWER OPTIONS: 1. Savings accounts; 2. Bonds; 3. Stocks

When an investor spreads his or her money among different assets, does the risk of losing a lot of money increase, decrease or stay the same?

ANSWER OPTIONS: 1. Increase; 2. Decrease; 3. Stay the same

Do you think the following statement is true or false? "If you were to invest $1000 in a stock mutual fund, it would be possible to have less than $1000 when you withdraw your money."

ANSWER OPTIONS: 1. True; 2. False

Do you think the following statement is true or false? "'Whole' life insurance has a savings feature while 'term' insurance does not."

ANSWER OPTIONS: 1. True; 2. False

Houts and Knoll (2019) Financial Literacy Scale (10-Item) (Cont'd)

Do you think the following statement is true or false? "A 15-year mortgage typically requires higher monthly payments than a 30-year mortgage, but the total interest paid over the life of the loan will be less."

ANSWER OPTIONS: 1. True; 2. False

Do you think the following statement is true or false? "Housing prices in the US can never go down."

ANSWER OPTIONS: 1. True; 2. False

Suppose you owe $3,000 on your credit card. You pay a minimum payment of $30 each month. At an Annual Percentage Rate of 12% (or 1% per month), how many years would it take to eliminate your credit card debt if you made no additional new charges?

ANSWER OPTIONS: 1. Less than 5 years; 2. Between 5 and 10 years; 3. Between 10 and 15 years; 4. Never, you will continue to be in debt.

Financial Skill Scale (CFPB, 2017)

Developed using three waves of data collection with more than 14,000 U.S. adults and a national study with more than 6,000 U.S. adults to confirm the scale. Item response theory was the method used for scale development and for calculation of our measure.

How well does this statement describe you or your situation? • I know how to get myself to follow through on my financial intentions. • I know where to find the advice I need to make decisions involving money. • I know how to make complex financial decisions. • I am able to make good financial decisions that are new to me. • I am able to recognize a good financial investment. • I know how to keep myself from spending too much. • I know how to make myself save.	**Response Options:** • Describes me completely • Describes me very well • Describes me somewhat • Describes me very little • Does not describe me at all
How often does this statement apply to you? • I know when I do not have enough information to make a good decision involving money. • I know when I need advice about my money. • I struggle to understand financial information.	**Response Options:** • Always • Often • Sometimes • Rarely • Never

General Self-Efficacy Scale (Schwarzer & Jerusalem, 1995)

The German version was originally developed in 1979 and then translated into 26 different languages. Studies in 23 countries over three decades have confirmed the reliability and validity of the scale. The response options for these items are as follows: Not at all true; Hardly true; Moderately true; Exactly true.

- I can always manage to solve difficult problems if I try hard enough.
- If someone opposes me, I can find the means and ways to get what I want.
- It is easy for me to stick to my aims and accomplish my goals.
- I am confident that I could deal efficiently with unexpected events.
- Thanks to my resourcefulness, I know how to handle unforeseen situations.
- I can solve most problems if I invest the necessary effort.
- I can remain calm when facing difficulties because I can rely on my coping abilities.
- When I am confronted with a problem, I can usually find several solutions.
- If I am in trouble, I can usually think of a solution.
- I can usually handle whatever comes my way.

About the Study

Dee Warmath, Ph.D., assistant professor at the College of Family and Consumer Sciences at the University of Georgia, and the National Endowment for Financial Education® (NEFE®) collaborated on this research report to highlight aspects of the following published journal article: Warmath, D., & Zimmerman, D. (2019). Financial literacy as more than knowledge: The development of a formative scale through the lens of Bloom's Domains of Knowledge. *The Journal of Consumer Affairs*, 53(4), 1602-1629. https://doi.org/10.1111/joca.12286.

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