Financial Self-efficacy Scale: A Validation with Women in the United States

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OUTLINE

- Justification for the study
- Method
- Scale development
- Scale validation
Massive financial literacy education and few empirical evaluation to examine their impacts

One main reason for lack of empirical evaluation is the lack of standardized measurement
Lown’s Financial Self-Efficacy Scale

- Lown (2011) developed and tested a 6 item financial self-efficacy scale based on Schwarzer and Jerusalem’s (1995) General Self-Efficacy Scale (GSES)
- Coefficient alpha: .76
- Criterion validity was checked through correlation with the Retirement Personality Type (RPT)
- Factor analysis results showed that the scale contained two distinct factors: general self-efficacy and financial self-efficacy
Research Aims

- Developing a new Financial Self-Efficacy Scale (FSES)
- Testing the reliability and validity of the FSES
Scale Development

1. Literature Review
2. Consultation with experts
3. Think-aloud interviews
4. Focus group discussion
5. Pilot test
Financial Self-Efficacy Construct Map

Highly confident

- Highly believe that they can do all of the easier aspects of financial management, including debt management, cash flow management; AND most of the harder domains such as credit building, financial goals development, savings, and tax.

Moderately confident

- Moderately believe that they can achieve some main areas in financial management such as cash flow management, savings, debt management, and credit building.

Low confident

- Not very confident in their abilities in higher domain of financial management, but low to moderately confident in the basic domain such as debt management and cash flow management.
<table>
<thead>
<tr>
<th>Statements</th>
<th>Ranking</th>
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</thead>
<tbody>
<tr>
<td>1. I can keep track of my spending to see where I need to make changes</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>2. I can pay my bills on time.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>3. I can develop a plan to pay off my debt as early as possible.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>4. I can reduce my use of credit by making good spending decisions</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>5. I can find resources to help me solve a difficult financial problem.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>6. I can recognize and avoid a financial fraud.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>7. I can set financial goals for my future wellbeing.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>8. I can develop a plan to achieve my financial goals.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>9. I can stick to my financial plan.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>10. I can achieve my financial goals if I try hard enough.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>11. I can put aside some money for future unexpected expenses.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>12. I can put money into a savings account regularly for future goals.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>13. I can save for retirement.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>14. I can figure out how much money I can save per month.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>15. I can invest my savings appropriately to achieve my financial goals.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>16. I can be prepared to handle unexpected financial problems.</td>
<td>1 2 3 4 5</td>
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<tr>
<td>17. I can arrange for health insurance coverage I need.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>18. I can complete my income tax forms by myself.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>19. I can find resources to help me with completing my tax forms if I need it.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>20. I can get my Earned Income Tax Credit (EITC) if I am eligible.</td>
<td>1 2 3 4 5</td>
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*EITC: is a credit for people who earn low-to-moderate incomes. EITC can reduce your taxes, and can mean a refund.*
Scale Testing

- **Reliability**
  - Split-half method
  - Internal consistency method

- **Validity**
  - Content-related validity (expert panel)
  - Criterion-related validity and construct-related validity (correlation with the NGSES)

- **Factor analysis**
Online Recruitment:
- Women from 18 years old
- Have lived in the U.S. more than 3 years

Using Google forms to collect data
Ethnicities

- White: 69%
- Asian: 14%
- African-American: 2%
- Other, please specify: 11%
- American Indian and Alaska Native: 0%
- Native Hawaiian and Pacific Islander: 0%
- Identified by two or more: 4%
Education Level

- Some college: 6.7%
- High school degree: 0.3%
- Some high school: 0.3%
- Other: 92.6%
- College degree: 54.5%
- Graduate degree: 38.1%
RESULTS
• Item difficulty ranged from the easiest of .886 to the most difficult of .61.

• All item difficulty was above .5, which showed that there was no item that had less than half of the respondents getting the correct answers.

• All items had a positive item-total correlation, which means all items were positively correlated with the whole scale and that all items were measuring the same thing with the scale.

• Item 18 had the lowest item total-correlation of .338, was removed from the scale.
Item Characteristic Curve

![Item Characteristic Curve](image-url)
Test Characteristic Curve

![Test Characteristic Curve](image-url)
Person-item map
Split-half analysis yielded a correlation of .95: showed that the financial self-efficacy scale was reliable over time and the score differences at different test times were due to the intervention, not due to the measurement error.

The reliability analysis showed coefficient alpha of 0.93: means 93% of the observed scores are true scores, which is a high level of reliability.

Measurement (SEM) is 3.95 which is small, given the mean score is 83.4
Validity Evidence

- **Content-related validity:** expert panel agreed that the scale had the right questions to measure financial self-efficacy and it covered all main domains of financial management.

- **Response related validity:** think-aloud interviews

- **Construct-related validity and criterion-related validity:** correlation of .43 with the NGSES
Factor Analysis

- The Kaiser-Meyer-Olkin Measure of Sampling Adequacy was .925

- The Bartlett’s test of sphericity was significant ($x^2 = 3731.886, p = .000$), which indicated that the correlation matrix was not an identity matrix

Results of both these tests demonstrated that factor analysis was appropriate
### Exploratory Factor Analysis

<table>
<thead>
<tr>
<th>Actual Factors</th>
<th>Hypothesized Factors</th>
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<tbody>
<tr>
<td><strong>Factor 4: Cash flow management &amp; Credit basis</strong>&lt;br&gt;1. I can keep track of my spending to see where I need to make changes&lt;br&gt;2. I can pay my bills on time.&lt;br&gt;3. I can develop a plan to pay off my debt as early as possible.&lt;br&gt;4. I can reduce my use of credit by making good spending decisions</td>
<td><strong>Factor 1: Cash flow &amp; Debt management</strong>&lt;br&gt;1. I can keep track of my spending to see where I need to make changes&lt;br&gt;2. I can pay my bills on time.&lt;br&gt;3. I can develop a plan to pay off my debt as early as possible</td>
</tr>
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<td><strong>Factor 2: Knowledge about financial resources</strong>&lt;br&gt;5. I can find resources to help me solve a difficult financial problem.&lt;br&gt;6. I can recognize and avoid a financial fraud.&lt;br&gt;17. I can arrange for health insurance coverage I need.&lt;br&gt;19. I can find resources to help me with completing my tax forms if I need it.&lt;br&gt;20. I can get my Earned Income Tax Credit (EITC) if I am eligible.&lt;br&gt;21. I can protect myself from identity theft.&lt;br&gt;22. I can find resources to help me solve an identity theft problem if it happens to me.</td>
<td><strong>Factor 2: Repair and building credit</strong>&lt;br&gt;4. I can reduce my use of credit by making good spending decisions&lt;br&gt;5. I can find resources to help me solve a difficult financial problem.&lt;br&gt;6. I can recognize and avoid a financial fraud.</td>
</tr>
<tr>
<td><strong>Factor 3: Financial goals achievement</strong>&lt;br&gt;7. I can set financial goals for my future wellbeing.&lt;br&gt;8. I can develop a plan to achieve my financial goals.</td>
<td><strong>Factor 5: Taxation and financial protection</strong>&lt;br&gt;19. I can find resources to help me with completing my tax forms if I need it.&lt;br&gt;17. I can arrange for health insurance coverage I need.&lt;br&gt;20. I can get my Earned Income Tax Credit (EITC) if I am eligible.&lt;br&gt;21. I can protect myself from identity theft.&lt;br&gt;22. I can find resources to help me solve an identity theft problem if it happens to me.</td>
</tr>
<tr>
<td><strong>Factor 1: Saving and Investing</strong>&lt;br&gt;9. I can stick to my financial plan&lt;br&gt;11. I can put aside some money for future unexpected expenses.&lt;br&gt;12. I can put money into a savings account regularly for future goals.&lt;br&gt;13. I can save for retirement.&lt;br&gt;14. I can figure out how much money I can save per month.&lt;br&gt;15. I can invest my savings appropriately to achieve my financial goals.&lt;br&gt;16. I can be prepared to handle unexpected financial problems.</td>
<td><strong>Factor 3: Financial goals achievement</strong>&lt;br&gt;7. I can set financial goals for my future wellbeing.&lt;br&gt;8. I can develop a plan to achieve my financial goals.&lt;br&gt;9. I can stick to my financial plan</td>
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Confirmatory Factor Analysis

- Results of CFA for each factor showed that each of the factor had very good factor loadings with no value less than .40

- Reliability analysis of each factor showed that all factors have a moderate to high coefficient alpha (.80 to .90)
## Factor Correlations and Factor Coefficient Alpha

<table>
<thead>
<tr>
<th>Factor</th>
<th>M</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Savings (n=7)</td>
<td>24.87</td>
<td>5.90</td>
<td>(0.87)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Knowledge about financial resources (n=7)</td>
<td>26.74</td>
<td>5.05</td>
<td>0.743</td>
<td>(0.81)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Financial goals achievement (n=3)</td>
<td>11.96</td>
<td>2.3</td>
<td>0.548</td>
<td>0.563</td>
<td>(0.85)</td>
<td></td>
</tr>
<tr>
<td>4. Cash flow management and credit basis (n=4)</td>
<td>16.46</td>
<td>3.20</td>
<td>0.414</td>
<td>0.474</td>
<td>0.552</td>
<td>(0.84)</td>
</tr>
<tr>
<td>Total scale (n=21)</td>
<td>80.16</td>
<td>14.28</td>
<td></td>
<td></td>
<td>(0.93)</td>
<td></td>
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THANK YOU!