

Youth Debt Literacy in Subscription-Oriented Economies

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Abstract

The expansion of subscription-based consumption has created a distinctive financial environment for young consumers. Entertainment platforms, software applications, cloud services, gaming memberships, educational resources, fitness services, communication products, and other recurring-payment arrangements can make consumption convenient, but they also transform isolated purchases into continuing financial commitments. Subscription expenditure should not itself be classified as debt. Debt exposure emerges when recurring obligations are financed through revolving credit, overdrafts, installment borrowing, or other mechanisms that defer payment beyond the consumption period. This paper develops the concept of subscription-oriented debt literacy, defined as the ability to identify recurring obligations, calculate cumulative and annualized subscription expenditure, monitor automatic renewal, distinguish payment convenience from borrowing, understand interest-bearing balances, and evaluate the affordability of new recurring commitments in relation to income and existing debt.

The study integrates research on youth financial literacy, debt literacy, payment salience, automatic contracts, tariff-choice biases, financial education, and financial well-being. Because no verified primary dataset was supplied, the analytical component is explicitly simulation-based. A synthetic population of 240 hypothetical young adults is classified into four debt-literacy levels: Low, Emerging, Applied, and Advanced. Simulated unplanned auto-renewal exposure declines from 68.3% in the Low Literacy group to 15.0% among Advanced Literacy participants, while subscription-related debt stress declines from 45.0% to 13.3%. Subscription-inventory accuracy rises from 58.0% to 94.5%. These values illustrate an analytical framework and must not be interpreted as empirical prevalence estimates.

The study concludes that effective youth debt education in subscription-oriented economies should connect conventional borrowing knowledge with practical recurring-cost visibility, renewal control, credit-cost recognition, and decision-proximate budgeting tools. Consumer capability and responsible product design should operate together so that young people are not expected to compensate through financial literacy for avoidably opaque recurring-payment environments.

Keywords: youth debt literacy; subscription economy; recurring payments; automatic renewal; financial literacy; consumer debt; payment salience; financial capability

1. Introduction

Young consumers increasingly make financial decisions within environments characterized by recurring digital payments rather than isolated purchases. Entertainment subscriptions, software licenses, online learning platforms, gaming services, communication packages, cloud-storage accounts, fitness

memberships, and digitally delivered services can all generate continuing financial obligations after the initial purchase decision. This development matters because financial management becomes partly a problem of maintaining visibility over a portfolio of commitments. A subscription priced at a modest monthly amount may appear economically insignificant in isolation, while several overlapping commitments can materially affect disposable income. Behavioral research conducted well before the present expansion of digital subscriptions already demonstrated that payment mechanisms can influence how strongly previous expenditures remain mentally available during subsequent decisions. Soman showed that spending responses differ according to payment rehearsal and immediacy, suggesting that less salient payment mechanisms can weaken the behavioral influence of earlier expenditure.

Recurring payment should nevertheless be distinguished carefully from debt. A subscription that is paid in full from available funds each billing period remains a consumption commitment rather than borrowed money. The financial problem changes when the recurring charge is placed on a credit account that is not repaid in full, contributes to an overdraft, is incorporated into installment borrowing, or otherwise becomes part of an interest-bearing balance. Lusardi and Tufano's debt-literacy research demonstrates why this distinction is important: knowledge of borrowing costs and debt mechanics varies considerably, and lower debt literacy is associated with more costly financial experiences and greater difficulty with indebtedness. Subscription-oriented debt literacy must therefore reconnect four stages that can otherwise become psychologically separated: consumption, recurring contractual commitment, payment mechanism, and eventual repayment.

The issue is especially relevant to younger consumers because basic financial literacy is not uniformly established before independent financial responsibilities begin. Lusardi, Mitchell, and Curto found substantial weaknesses in fundamental financial knowledge among young adults, including concepts involving interest rates, inflation, and risk. OECD's PISA framework likewise treats financial literacy as the capacity to apply financial knowledge and skills to real-life decisions, while the PISA 2018 financial-literacy results emphasize the importance of preparing younger people for responsible and informed financial choices. The contemporary challenge is therefore not only teaching what debt is, but helping young people recognize how apparently ordinary digital consumption can interact with credit, renewal, and cumulative budgeting.

Subscription arrangements also introduce behavioral characteristics that conventional debt education may not fully address. DellaVigna and Malmendier's study of health-club contracts found that consumers frequently selected monthly contracts that were costly relative to their eventual usage and documented delays in cancellation under automatically renewable arrangements. Lambrecht and Skiera similarly identified persistent tariff-choice biases, showing that consumers do not always choose the least expensive pricing structure given actual usage. These studies do not imply that subscription contracts are intrinsically harmful. They demonstrate, however, that recurring contracts can interact with inaccurate expectations, convenience preferences, under-monitoring, and delayed cancellation. Debt literacy becomes particularly relevant when these behavioral frictions coexist with easy access to digital credit.

This study develops a fresh analytical framework for Youth Debt Literacy in Subscription-Oriented Economies. It conceptualizes debt literacy as an applied financial capability involving subscription inventory accuracy, annualized-cost recognition, automatic-renewal monitoring,

understanding of credit-financed recurring expenditure, and capacity to integrate new subscriptions with wider repayment obligations. The study intentionally does not present invented participants as real respondents. Instead, reproducible simulated data are used to show how a future empirical investigation could test the relationship between debt literacy and recurring-payment risk. The central argument is that financial education and consumer protection should complement one another: knowledgeable consumers need clear information and usable controls, while responsible digital markets should not rely on consumer education as a substitute for intelligible recurring-payment design.

2. Objectives of the Study

2.1 To Develop a Subscription-Oriented Debt Literacy Construct

The first objective is to develop a debt-literacy construct suitable for recurring-payment environments. Conventional debt literacy appropriately emphasizes compound interest, borrowing costs, repayment obligations, and the consequences of carrying balances. Subscription-oriented debt literacy retains those competencies but adds recurring-cost inventory, annualization of monthly commitments, renewal-date awareness, payment-method recognition, and evaluation of whether a new recurring obligation can be funded without creating additional debt.

This expanded approach distinguishes factual knowledge from applied financial capability. Allgood and Walstad found that actual and perceived financial literacy can relate differently to financial behavior, which indicates that knowing a concept and applying it consistently should not be treated as identical outcomes. The present study therefore measures not only a simulated literacy score but also subscription-inventory accuracy, unplanned renewal exposure, credit-financed recurring spending, and subscription-related debt stress.

2.2 To Examine Whether Higher Debt Literacy Corresponds With Lower Subscription-Related Financial Risk

The second objective is to compare recurring-payment outcomes across four simulated literacy levels. The proposed relationship is not that financially literate individuals will avoid subscriptions or credit entirely. Credit can be used strategically, and subscription contracts can provide genuine value. Rather, stronger literacy should be associated with greater awareness of cumulative obligations, fewer unintended renewals, more deliberate use of credit, and lower probability that recurring commitments contribute to repayment difficulties.

This distinction is important because financial behavior should ultimately be evaluated through financial well-being rather than simple product avoidance. The CFPB's financial-well-being framework treats control over finances, capacity to absorb shocks, progress toward financial goals, and freedom of financial choice as central outcomes. Accordingly, subscription-oriented debt literacy should help consumers preserve financial control while retaining the ability to purchase services they genuinely value.

3. Review of Literature

3.1 Youth Financial Literacy and Debt Capability

Lusardi, Mitchell, and Curto's research established that financial knowledge among young adults can be limited even when individuals are already approaching or experiencing major financial decisions. Their study reported that fewer than one-third of young adults demonstrated knowledge across several core financial-literacy concepts. This finding provides a strong foundation for studying recurring-payment environments because young people can enter complex digital consumer markets before receiving comprehensive instruction in interest calculations, credit costs, budgeting, or financial-product evaluation.

Lusardi and Tufano extended this discussion specifically to debt. Their debt-literacy framework emphasizes understanding of borrowing mechanics and identifies an association between lower debt knowledge and costly financial experiences. Brown, Grigsby, van der Klaauw, Wen, and Zafar later examined financial education and debt behavior among young adults, reinforcing the importance of analyzing actual credit outcomes rather than assuming that general exposure to financial instruction automatically produces optimal debt management. These studies suggest that youth debt capability should be assessed through behaviorally relevant outcomes as well as conceptual questions.

A further qualification comes from Fernandes, Lynch, and Netemeyer's meta-analysis. Their review of 201 prior studies concluded that conventional financial-education interventions explained only a small proportion of variation in downstream financial behaviors, with effects weakening over time after instruction. The implication is not that financial education is useless. Instead, education may be more effective when it is closely connected to the financial decisions consumers are actually making. Subscription-oriented education could therefore be embedded around renewal dates, credit-card statements, subscription dashboards, or moments when a new recurring commitment is created.

3.2 Payment Salience, Recurring Contracts, and Automatic Renewal

Soman's experimental research demonstrates that payment mechanisms can change how past expenses influence future consumption. When payments involve stronger rehearsal or more immediate depletion of resources, previous expenditure remains more behaviorally salient. This finding is relevant to digitally automated payments because subscription charges may be initiated without an active purchase decision each month. The economic cost remains real, but the consumer may not repeatedly experience the decision in the same way as an active cash or manually initiated payment.

DellaVigna and Malmendier's analysis of 7,752 health-club members provides especially relevant evidence concerning recurring contracts. Consumers selecting monthly membership contracts often paid substantially more per expected visit than available alternatives, and the researchers documented delayed cancellation behavior among automatically renewed memberships. Their interpretation emphasizes inaccurate expectations regarding future behavior and cancellation. Although contemporary digital subscriptions differ substantially from gym memberships, the behavioral mechanism is useful: recurring contractual cost can persist even after the consumer's actual usage or valuation has declined.

Lambrecht and Skiera's tariff-choice research adds a second behavioral mechanism. They found persistent flat-rate bias, including situations in which consumers paid considerably more than they would

have paid under alternative tariffs given actual use. Their work identified several explanations, including convenience, perceived insurance against uncertain usage, and overestimation. Subscription literacy should therefore involve more than remembering cancellation dates. Consumers must periodically compare actual usage and value against the chosen recurring tariff.

3.3 Digital Financial Inclusion, Education, and Consumer Protection

OECD's 2020 report on digital financial inclusion for youth emphasizes that younger users increasingly participate in digitally mediated financial environments and recommends combining access with appropriate consumer protection and financial education. This policy position is directly relevant to subscription-oriented debt literacy because digital payment convenience can expand access to services while simultaneously increasing the number of recurring commitments a consumer can maintain.

The PISA 2018 financial-literacy framework defines financial literacy in terms of knowledge, skills, motivation, and confidence applied to financial contexts rather than memorization alone. PISA 2018 results further emphasize the relationship between financial literacy and young people's ability to make informed decisions in increasingly uncertain financial environments. Subscription management fits naturally within this applied perspective because the relevant competence involves translating knowledge into ongoing monitoring and repayment decisions.

Consumer protection remains necessary because individual literacy has practical limits. If renewal conditions, cancellation procedures, financing consequences, or subscription pricing are unnecessarily difficult to understand, even financially knowledgeable consumers face avoidable cognitive costs. The appropriate policy approach is therefore complementary: financial education should strengthen consumers' decision-making capability, while product design should preserve price visibility, cancellation accessibility, and clarity concerning whether a recurring payment is being financed through debt.

4. Research Methodology

4.1 Research Design and Simulation Structure

This study adopts a conceptual-methodological design supported by reproducible simulation. It is not presented as a completed survey or experiment. No actual university students, young workers, subscribers, credit-card users, or financial institutions are represented by the generated dataset. Simulation is used because no verified primary observations were provided and because fabricating real respondents would violate basic standards of research transparency.

The analytical population consists of 240 hypothetical young adults, with sixty cases assigned to each of four debt-literacy categories: Low Literacy, Emerging Literacy, Applied Literacy, and Advanced Literacy. The categories are illustrative rather than validated thresholds. A future field study should construct debt-literacy categories using validated objective questions, exploratory and confirmatory factor analysis, item-response methods, or empirically justified score distributions.

The simulated model examines five variables: Debt Literacy Score, Unplanned Auto-Renewal, Subscription-Related Debt Stress, Credit-Financed Recurring Spending, and Subscription Inventory Accuracy. A fixed random seed is used so the demonstration can be reproduced. No inferential p -values

are reported because differences were generated through assumed distributions rather than observed independent sampling.

4.2 Measurement Framework and Proposed Questionnaire

Subscription Inventory Accuracy represents the participant's ability to identify active recurring services and approximate their total cost. Unplanned Auto-Renewal captures whether at least one subscription renews when the participant had intended or preferred to cancel it. Credit-Financed Recurring Spending indicates whether subscription charges are financed through a credit mechanism rather than fully settled from current funds. Subscription-Related Debt Stress represents an adverse outcome such as carrying recurring charges on an interest-bearing balance, missing a credit payment partly because of recurring commitments, or using additional borrowing to cover obligations.

Table 1: Proposed Measurement Instrument for Subscription-Oriented Debt Literacy

No.	Construct	Proposed Questionnaire Question	Measurement Purpose
1	Subscription Inventory Accuracy	“Can you identify all of your active paid subscriptions and state approximately how much they cost in total each month?”	Measures visibility of cumulative recurring commitments
2	Annualized-Cost Literacy	“Before accepting a subscription, do you normally calculate or consider how much the monthly price will cost over a full year?”	Measures ability to translate small monthly charges into longer-term commitments
3	Automatic-Renewal Control	“Do you regularly check renewal dates and cancel subscriptions that you no longer use or value?”	Measures active management of recurring contracts
4	Credit-Financing Recognition	“If subscription charges remain on an unpaid credit-card or overdraft balance, do you understand that interest can make the services cost more than their advertised prices?”	Measures recognition of the transition from recurring expense to debt
5	Debt-Affordability Integration	“Before adding another recurring service, do you consider your existing debt repayments, essential expenses, and other subscriptions?”	Measures integration of subscriptions into overall financial capacity

4.3 Analytical Procedure, Ethical Position, and Validation Requirements

The simulated categories are assigned progressively higher literacy-score centers and different probabilities of recurring-payment risk. The design intentionally allows some overlap across groups because literacy should not be interpreted deterministically. A highly knowledgeable young consumer can still forget a renewal, experience income loss, or carry debt for reasons unrelated to subscriptions. Conversely, an individual with limited formal financial knowledge may manage recurring commitments carefully through practical routines.

Future empirical research should combine self-reported data with verified behavioral information where participants provide informed consent. Subscription inventories could be reconciled with redacted financial statements or manually confirmed account records, while debt outcomes could be measured through participant-authorized credit information. Data collection should be limited to information

necessary for the research question, and participation should never require disclosure of unrelated personal purchases.

Construct validity would also require distinguishing subscription intensity from subscription mismanagement. A participant with ten affordable, frequently used subscriptions may be financially better managed than a participant with two subscriptions financed through persistent high-cost debt. Future models should therefore control for disposable income, employment status, existing indebtedness, credit limits, housing costs, family support, emergency expenses, and the number and type of subscriptions.

5. Analysis

5.1 Simulated Debt Literacy and Recurring-Commitment Visibility

The synthetic results demonstrate substantial differentiation in recurring-cost visibility across literacy levels. Mean simulated Debt Literacy Scores increase from 34.7 in the Low Literacy group to 49.8 for Emerging Literacy, 67.8 for Applied Literacy, and 84.0 for Advanced Literacy. Subscription Inventory Accuracy rises from 58.0% to 72.7%, 87.4%, and 94.5% across the same progression.

This pattern illustrates a central proposition of the paper: effective debt literacy in subscription-oriented markets involves awareness of liabilities and commitments before repayment difficulties occur. A consumer cannot meaningfully assess whether another subscription is affordable without knowing how many recurring charges are already active.

Table 2: Simulated Subscription-Oriented Debt-Literacy Outcomes

Debt-Literacy Level	Hypothetical Participants	Mean Debt Literacy Score	Unplanned Auto-Renewal	Subscription-Related Debt Stress	Credit-Financed Recurring Spending	Subscription Inventory Accuracy
Low Literacy	60	34.7	68.3%	45.0%	38.3%	58.0%
Emerging Literacy	60	49.8	31.7%	26.7%	26.7%	72.7%
Applied Literacy	60	67.8	23.3%	18.3%	18.3%	87.4%
Advanced Literacy	60	84.0	15.0%	13.3%	10.0%	94.5%
Total	240	—	—	—	—	—

The difference in inventory accuracy also demonstrates why subscription management should not be evaluated solely through debt balances. Risk begins earlier, when financial commitments become incomplete in the consumer's own mental budget. Better recurring-cost visibility can support later decisions concerning cancellation, saving, discretionary consumption, and debt repayment.

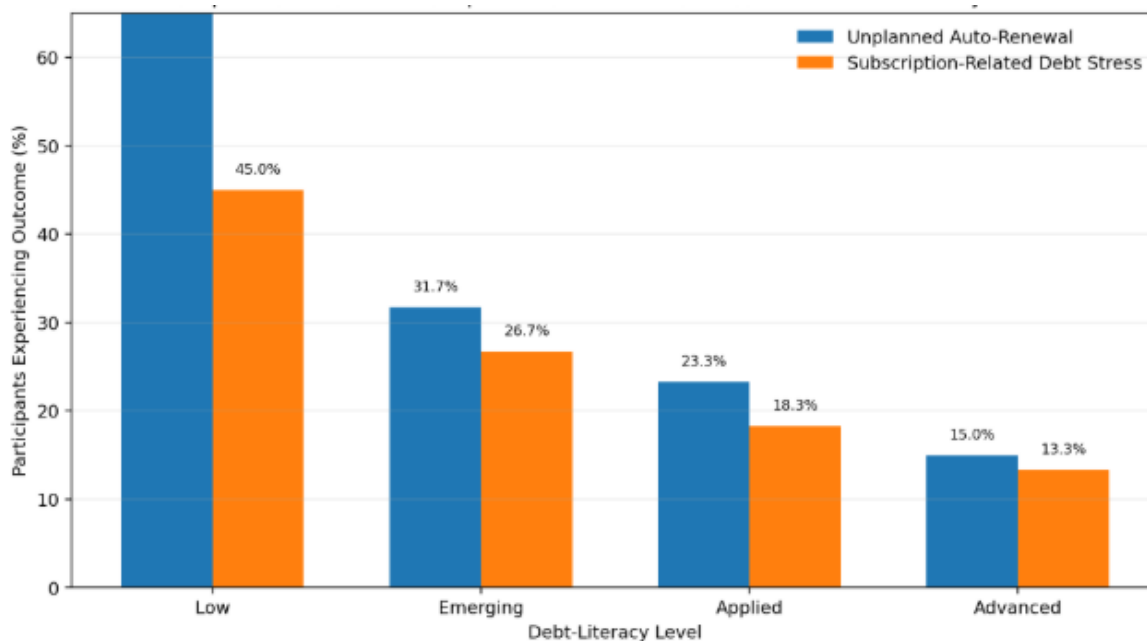
5.2 Unplanned Renewal and Subscription-Related Debt Stress

The Low Literacy group records the highest simulated unplanned auto-renewal rate, at 68.3%, compared with 31.7% among Emerging Literacy participants, 23.3% under Applied Literacy, and 15.0% among

Advanced Literacy participants. Subscription-related debt stress demonstrates a similar but less dramatic decline, moving from 45.0% to 13.3%.

The stronger decline in unintended renewal is conceptually important because debt stress depends on many factors beyond literacy. Income shocks, high housing costs, medical expenses, tuition obligations, existing debt, and unstable employment can all create repayment difficulties among financially knowledgeable individuals. Unplanned renewal is more directly connected with monitoring and subscription-management practices.

Graph 1: Simulated Subscription Risk Outcomes Across Youth Debt-Literacy Levels



Graph 1 shows that both modeled outcomes decrease as debt literacy increases, but they do not disappear even at the Advanced level. This is a desirable feature of the conceptual model because it avoids treating financial literacy as perfect protection. Individual knowledge can reduce preventable mistakes but cannot eliminate adverse economic circumstances or all behavioral errors.

5.3 Credit Use, Debt Use, and the Importance of Correct Classification

Credit-financed recurring spending falls from a simulated 38.3% in the Low Literacy group to 10.0% among Advanced Literacy participants. However, credit-financed subscription payments should not automatically be classified as harmful behavior. A customer may place recurring charges on a credit card for payment convenience, consumer protection, or recordkeeping and then repay the statement balance in full. In that case, credit is a payment channel but may generate no interest-bearing debt.

Debt-oriented research should therefore measure the repayment status of recurring charges rather than merely identifying the payment method. Lusardi and Tufano's work is relevant because the economic burden of debt depends upon understanding interest costs and repayment structures, not on the mere possession of a credit instrument. A future field study should distinguish fully repaid credit-card use, revolving balances, overdrafts, installment obligations, and delinquent debt.

The strongest analytical interpretation of Table 2 is consequently not that high-literacy consumers reject subscription services. Instead, they are modeled as having greater visibility over active commitments, fewer unintended renewals, and lower exposure to recurring obligations that contribute to debt stress. This distinction is more compatible with financial well-being than a simplistic objective of minimizing consumption.

6. Discussion

6.1 Debt Literacy Should Incorporate Commitment Visibility

The first implication is that debt literacy needs to begin before a formal borrowing problem occurs. Conventional debt education often focuses appropriately on interest, repayment, credit scores, and borrowing contracts, but recurring commitments can reduce available cash flow before the consumer recognizes that debt service has become difficult. Lusardi and Tufano demonstrate the importance of debt knowledge, while Lusardi, Mitchell, and Curto show that younger populations can enter adult financial markets with significant knowledge gaps. Subscription inventory should therefore be treated as part of preventive debt management.

Visibility also matters behaviorally. Soman's work shows that payment mechanisms influence recall and the impact of previous spending on later purchase decisions. Automatic recurring payment can weaken the repeated decision moment that would otherwise force a consumer to reconsider expenditure. A practical debt-literacy program should therefore teach young people to construct a recurring-commitment inventory and periodically compare total cost with actual usage and financial priorities. This approach differs from advising consumers to cancel all discretionary subscriptions. Some recurring services can support education, communication, productivity, health, or entertainment efficiently. Financial capability involves deliberate retention of valued services and deliberate removal of unwanted ones. The objective is control rather than austerity.

6.2 Automatic Renewal Creates a Monitoring Problem, Not Merely a Pricing Problem

DellaVigna and Malmendier's health-club evidence demonstrates that automatically renewable contracts can persist longer than consumer behavior might predict and that inaccurate expectations regarding future use and cancellation can create meaningful economic costs. Subscription-oriented debt literacy should therefore include renewal governance: knowing when a contract renews, understanding whether the price changes, recognizing free-trial conversion, and maintaining a low-cost method for terminating services that no longer provide value.

Lambrecht and Skiera's research demonstrates a related issue: consumers can persistently choose tariffs that are not least-cost relative to their actual use. This means that renewal monitoring should evaluate value as well as existence. A consumer might intentionally retain a subscription yet still benefit from changing plan level, billing frequency, or provider. Debt literacy thus overlaps with consumer capability because better contract management can increase disposable income available for debt repayment or saving.

These behavioral insights also have implications for providers. A business model should not rely excessively on forgotten renewals or unnecessarily difficult cancellation if long-term trust and consumer

welfare are important objectives. Financial education may make consumers more attentive, but transparent contractual design remains an institutional responsibility.

6.3 Education and Digital Consumer Protection Must Reinforce Each Other

The final discussion point concerns the limits of education. Fernandes and colleagues' meta-analysis shows that conventional financial-education interventions often have modest downstream behavioral effects, especially when considerable time separates instruction from the relevant decision. A subscription-oriented approach should therefore be more decision-proximate. Examples include showing annualized cost when a monthly plan is selected, providing a consolidated recurring-payment dashboard, or presenting renewal information before a contract extends.

OECD's youth digital-finclusion work similarly connects financial education with appropriate consumer protection rather than treating them as competing strategies. Young consumers should learn how credit, recurring payments, and repayment interact, but platforms and financial providers should also offer intelligible pricing, clear renewal information, and practical cancellation mechanisms. Requiring customers to become exceptionally sophisticated merely to avoid unwanted recurring charges would represent a poorly designed consumer environment.

The broader goal is financial well-being. The CFPB framework emphasizes control over day-to-day finances, resilience to shocks, progress toward goals, and freedom of financial choice. Subscription-oriented debt literacy should support these dimensions by helping young consumers maintain an accurate picture of recurring commitments and understand when those commitments begin to interfere with repayment capacity, saving, or essential consumption.

7. Conclusion

Subscription-oriented economies require an expansion of conventional youth debt literacy. The relevant challenge is not that every recurring payment represents borrowing. A subscription remains an expenditure when it is paid from available funds. Debt exposure arises when recurring consumption is financed through unpaid credit balances, overdrafts, installment borrowing, or other arrangements that defer payment and potentially add financing costs. Maintaining this distinction prevents the concept of debt literacy from becoming analytically imprecise.

The fresh simulation developed for this study demonstrates how the framework can be operationalized. Among 240 hypothetical young adults, simulated unplanned auto-renewal declines from 68.3% in the Low Literacy category to 15.0% at the Advanced level. Subscription-related debt stress falls from 45.0% to 13.3%, while subscription-inventory accuracy increases from 58.0% to 94.5%. These values are synthetic and should not be interpreted as actual estimates of youth financial behavior.

The study's principal contribution is the concept of commitment-aware debt literacy. Financially capable young consumers should be able to identify their recurring obligations, translate monthly prices into cumulative costs, monitor automatic renewal, distinguish payment instruments from interest-bearing debt, and assess new subscriptions against existing repayment responsibilities. These competencies connect conventional financial knowledge with the digital contractual environment in which contemporary consumption increasingly occurs.

Future empirical research should validate this framework using genuine youth samples, verified recurring-payment inventories, and longitudinal debt outcomes. Experimental research could test annualized-cost presentation, renewal reminders, subscription dashboards, decision-proximate financial education, and credit-cost disclosure. Researchers should also distinguish financial knowledge from structural financial hardship so that subscription-related debt difficulties are not incorrectly attributed entirely to individual literacy. The most useful policy and educational approach will combine stronger youth financial capability with clearer recurring-payment design, accessible cancellation, transparent credit costs, and practical tools for preserving visibility over cumulative financial commitments.

8. References

1. Lusardi, A., & Mitchell, O. S. (2014). The economic importance of financial literacy: Theory and evidence. *Journal of Economic Literature*, 52(1), 5–44.
2. Lusardi, A., Mitchell, O. S., & Curto, V. (2010). Financial literacy among the young. *Journal of Consumer Affairs*, 44(2), 358–380.
3. Mandell, L., & Klein, L. S. (2009). The impact of financial literacy education on subsequent financial behavior. *Journal of Financial Counseling and Planning*, 20(1), 15–24.
4. Shim, S., Barber, B. L., Card, N. A., Xiao, J. J., & Serido, J. (2010). Financial socialization of first-year college students: The roles of parents, work, and education. *Journal of Youth and Adolescence*, 39, 1457–1470.
5. Xiao, J. J., Tang, C., & Shim, S. (2009). Acting for happiness: Financial behavior and life satisfaction of college students. *Social Indicators Research*, 92, 53–68.
6. Robb, C. A., & Sharpe, D. L. (2009). Effect of personal financial knowledge on college students' credit card behavior. *Journal of Financial Counseling and Planning*, 20(1), 25–43.
7. Norvilitis, J. M., Szablicki, P. B., & Wilson, S. D. (2003). Factors influencing levels of credit-card debt in college students. *Journal of Applied Social Psychology*, 33(5), 935–947.
8. Lyons, A. C. (2004). A profile of financially at-risk college students. *Journal of Consumer Affairs*, 38(1), 56–80.
9. Hayhoe, C. R., Leach, L. J., Allen, M. W., & Edwards, R. (2005). Credit cards held by college students. *Financial Counseling and Planning*, 16(1), 1–10.
10. Joo, S., & Grable, J. E. (2004). An exploratory framework of the determinants of financial satisfaction. *Journal of Family and Economic Issues*, 25, 25–50.
11. Chen, H., & Volpe, R. P. (1998). An analysis of personal financial literacy among college students. *Financial Services Review*, 7(2), 107–128.
12. Danes, S. M., & Hira, T. K. (1987). Money management knowledge of college students. *Journal of Student Financial Aid*, 17(1), 4–16.
13. Perry, V. G. (2008). Is ignorance bliss? Consumer accuracy in judgments about credit ratings. *Journal of Consumer Affairs*, 42(2), 189–205.
14. Gathergood, J. (2012). Self-control, financial literacy and consumer over-indebtedness. *Journal of Economic Psychology*, 33(6), 590–602.
15. Disney, R., & Gathergood, J. (2013). Financial literacy and consumer credit portfolios. *Journal of Banking & Finance*, 37(7), 2246–2254.
16. Allgood, S., & Walstad, W. B. (2016). The effects of perceived and actual financial literacy on financial behaviors. *Economic Inquiry*, 54(1), 675–697.
17. Fernandes, D., Lynch, J. G., Jr., & Netemeyer, R. G. (2014). Financial literacy, financial education, and downstream financial behaviors. *Management Science*, 60(8), 1861–1883.



18. Lusardi, A., de Bassa Scheresberg, C., & Oggero, N. (2016). *Financial Literacy Among Millennials*. Global Financial Literacy Excellence Center.
19. Mottola, G. R. (2013). In our best interest: Women, financial literacy, and credit card behaviors. *Numeracy*, 6(2), Article 4.
20. Seounmi Y. & Xiao, J. J. (2015). Consumer debt and financial well-being among young adults. *Journal of Financial Counseling and Planning*, 26(2), 1–15.