

Behavioral Economics in the Classroom: Teaching Students to Address Cognitive Biases in Financial Decision-Making, An Insight From Enugu, Nigeria

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ABSTRACT

Financial education that transmits technical knowledge without confronting the cognitive architecture of choice leaves students exposed to predictable errors. This quasi-experimental study examined whether a six-week classroom module in behavioral economics reduces susceptibility to cognitive biases and improves the quality of financial decisions among undergraduates in Enugu, Nigeria. A purposive sample of 384 students from the University of Nigeria Enugu Campus and Enugu State University of Science and Technology was assigned to a behavioral-economics treatment ($n = 192$) or a conventional financial-literacy control ($n = 192$). After attrition, 362 complete cases were analyzed (treatment = 181; control = 181). Instruments measuring bias awareness, present bias, loss aversion, overconfidence, financial literacy, and financial-decision quality demonstrated acceptable internal consistency (Cronbach's $\alpha = .79-.88$). Analysis of covariance controlling for pretest scores showed that the treatment produced large gains in bias awareness ($F(1, 359) = 94.17, p < .001, \eta^2 = .208$, Cohen's $d = 1.26$) and financial-decision quality ($F(1, 359) = 61.48, p < .001, \eta^2 = .146, d = 0.98$), and medium-to-large reductions in present bias ($d = 0.74$) and overconfidence ($d = 0.69$). Hierarchical regression indicated that posttest bias awareness and present-bias reduction jointly explained an additional 18.4% of the variance in decision quality beyond financial literacy and demographics ($\Delta R^2 = .184, p < .001$). The findings support embedding dual-process and prospect-theory content in Nigerian university finance curricula.

Keywords: *behavioral economics, cognitive bias, financial decision-making, financial literacy, classroom intervention, Enugu, Nigeria*

INTRODUCTION

Present bias is the overweighting of immediate costs and benefits relative to delayed ones. On a Nigerian campus it appears when a student draws down a mobile-credit balance for airtime the same afternoon a departmental levy falls due. Loss aversion is the tendency to feel a loss

more strongly than an equivalent gain; it keeps students inside a failing side hustle because the fees already paid feel like a reason to continue. Overconfidence is the gap between subjective and objective accuracy; it produces under-diversified savings and casual acceptance of app-based loan terms. Dual-process theory (Kahneman, 2011) locates these errors in fast, associative System 1 reasoning that runs unless a slower System 2 check is taught and practised.

Nigerian studies have shown that workshop-style literacy instruction can raise test scores without shifting subsequent money attitudes (Ajayi et al., 2022) and that digital-credit uptake among semi-urban residents tracks literacy only weakly once product design is taken into account (Akinyede et al., 2025). International classroom trials of brief bias-awareness videos report small-to-medium corrections in student judgement (Baruh et al., 2025). What has been missing in the Enugu tertiary setting is a test of a multi-week, credit-bearing module against an equal-duration literacy control, with decision quality, not only knowledge, as the distal outcome.

The present study therefore asked three research questions. RQ1: Does a six-week behavioral-economics module raise bias awareness and financial-decision quality relative to conventional financial-literacy instruction? RQ2: Does the same module reduce present bias, loss aversion, and overconfidence? RQ3: Do posttest bias awareness and present bias explain variance in decision quality beyond financial literacy and demographics?

Young adults in Nigeria enter consumer-credit and mobile-money markets that combine high fees, aggressive marketing, and thin consumer protection. Conventional campus financial-education programmes transmit compound-interest formulas and budgeting templates but rarely address the cognitive biases that distort how those tools are used. Present bias, loss aversion, and overconfidence systematically undermine the very decisions that financial-literacy curricula claim to improve (Kahneman, 2011; Thaler & Sunstein, 2008).

The Central Bank of Nigeria's National Financial Literacy Framework (Central Bank of Nigeria, 2015) treats knowledge as the principal lever of sound choice. Evidence from Nigerian campuses is mixed: literacy scores rise after instruction, yet borrowing, savings, and digital-credit behaviour often do not (Ajayi et al., 2022; Akinyede & Owolabi, 2017). Behavioral economics supplies a missing mechanism. If students can recognise a bias as it arises, they can interrupt it. This study therefore tested a six-week classroom module that

taught dual-process reasoning and selected biases against a conventional financial-literacy control of equal duration.

Three hypotheses guided the analysis. H1: After controlling for pretest scores, treatment students will report higher bias awareness and financial-decision quality than control students. H2: Treatment students will report lower present bias, loss aversion, and overconfidence. H3: Posttest bias awareness and present bias will explain incremental variance in decision quality beyond financial literacy and demographics.

What the Enugu study adds is a joint test of awareness, three named biases, literacy, and decision quality in one pretest–posttest frame. That combination is what allows the claim that literacy is not enough to be stated as a coefficient rather than as an editorial preference.

Cognitive-bias pedagogy has a shorter Nigerian trail and a longer international one. Kahneman (2011) and Thaler and Sunstein (2008) supply the teaching objects: two-system reasoning, present bias, loss aversion, overconfidence, and the value of defaults and commitment devices. Baruh et al. (2025) found that a brief video intervention reduced selected judgement errors in a higher-education sample, with effects in the small-to-medium range. The present module is longer, credit-adjacent, and tested against an active literacy control so that any decision-quality gain cannot be attributed merely to extra contact with money topics.

The CBN National Financial Literacy Framework (2015) remains the policy spine. It treats information, skills, and confidence as jointly necessary for capability. In practice, campus programmes operationalise the first of those three and hope the others follow. Digital-credit markets have since changed the payoff to that hope. Akinyede et al. (2025) show that among semi-urban residents of Osun State, product design and prompt availability predict uptake more strongly than literacy scores. Students in Enugu face the same product set on their phones.

Financial literacy research in Nigeria has concentrated on knowledge deficits. Akinyede and Owolabi (2017) found that tertiary students in Osun State could define interest and inflation yet still ran persistent airtime and food-credit balances. Ajayi et al. (2022) raised literacy and money-attitude scores with a rational-emotive coaching package, but the design had no behavioral-economics arm and no scenario-based decision-quality measure. Abitoye

et al. (2023) reviewed classroom methods and concluded that demonstration and practice outperform lecture, without specifying which cognitive errors the practice should target.

Literature Review

Method

Assignment was by intact lecture group rather than individual randomisation, which is why the design is quasi-experimental. Both campuses contributed treatment and control groups. Facilitators used a common slide deck and a printed student workbook; fidelity checks on four unannounced visits confirmed that bias content did not leak into control sessions. Missing item rates were below 2% and were handled by person-mean substitution within scale where at least 80% of items were present. Cases missing a full wave were dropped ($n = 22$, balanced across arms).

Decision quality was scored from 12 short scenarios covering prepaid-fee sunk costs, payday-style digital loans, savings commitment accounts, and peer-investment pitches. Two independent raters scored a 20% subsample (Cohen's $\kappa = .84$). Financial literacy used a 12-item multiple-choice test adapted from standard adult items to campus fee, airtime, and transfer contexts ($KR-20 = .84$ at posttest).

A pretest–posttest quasi-experimental design compared a behavioral-economics treatment with a matched financial-literacy control. Participants were 200- and 300-level undergraduates in economics, accounting, and business education at UNEC and ESUT. Of 384 assigned students, 362 provided complete pretest and posttest data. Arms did not differ at baseline on gender, institution, level, age, or recent digital-credit use (all $p > .50$).

The treatment module (12 contact hours over six weeks) covered System 1/System 2 reasoning, present bias and commitment devices, loss aversion and sunk-cost thinking, overconfidence and calibration, and a capstone case on digital-credit choice. The control module covered interest calculations, budgeting, savings products, and consumer-credit contracts without bias content. Six scales were administered at both waves: bias awareness (10 items), present bias (8), loss aversion (7), overconfidence (8), financial literacy (12-item $KR-20$ test), and financial-decision quality (12 scored scenarios). Posttest alphas ranged from .79 to .88. Ethics approval was obtained from the host colleges; participation was voluntary and anonymised. ANCOVA with the corresponding pretest as covariate tested H1 and H2. Hierarchical OLS regression tested H3.

RESULTS

Baseline equivalence held on every construct (all pretest $p > .40$). Within-arm gains showed that the control group improved literacy and, modestly, decision quality, as a well-run literacy course should. The treatment group improved on every construct, and the ANCOVA contrasts in Table 1 isolate the incremental effect of the bias content. Supplementary checks found no treatment-by-gender or treatment-by-institution interaction on decision quality, so the headline effects are not confined to one campus or to one sex.

Table 1

ANCOVA of Posttest Outcomes Controlling for Pretest Scores ($N = 362$)

Outcome	F(1, 359)	p	ηp^2	Adj. T M	Adj. C M	d
Bias awareness	94.17	<.001	.208	3.95	3.21	1.26
Present bias	48.62	<.001	.119	2.80	3.26	0.74
Loss aversion	26.14	<.001	.068	2.93	3.23	0.54
Overconfidence	42.07	<.001	.105	2.93	3.37	0.69
Financial literacy	7.88	.005	.021	8.42	7.85	0.29
Decision quality	61.48	<.001	.146	16.91	13.58	0.98

Posttest correlations were consistent with the theoretical model: bias awareness correlated with decision quality at $r = .54$, and present bias at $r = -.49$. Hierarchical regression (Table 2) showed that financial literacy and demographics explained 13.1% of the variance in decision quality. Adding bias awareness and present bias raised R^2 by .184 ($p < .001$). In the final model, bias awareness ($\beta = .34$) and present bias ($\beta = -.29$) were the dominant predictors; literacy remained significant but smaller ($\beta = .17$).

Table 2

Hierarchical Regression Predicting Posttest Decision Quality ($N = 362$)

Predictor	B	SE	β	p
Step 1: Financial literacy	0.62	0.09	.33	<.001
Step 2: Financial literacy	0.31	0.09	.17	<.001
Step 2: Bias awareness	1.84	0.28	.34	<.001
Step 2: Present bias	-1.61	0.27	-.29	<.001

Note. Step 1 $R^2 = .131$; Step 2 $\Delta R^2 = .184$, $p < .001$. Gender, age, and institution were included in both steps and were nonsignificant.

DISCUSSION

The pattern matches dual-process teaching rather than a general Hawthorne effect. Literacy rose in both arms; biases and decision quality moved substantially only in the arm that named the biases. That dissociation is what justifies adding contact hours rather than simply lengthening the existing literacy course.

Three implications follow for Enugu and comparable Nigerian campuses. First, economics-education and business-education departments can host the module without new staff if they are given a workbook and a short facilitator brief. Second, the CBN National Financial Literacy Framework's emphasis on capability rather than recall is empirically supported here: knowledge predicted decisions until bias awareness entered the model, after which its coefficient halved. Third, digital-credit providers who market on campus are exploiting precisely the present-bias and overconfidence channels this module targets; pairing classroom work with a cooling-off default on student-facing loan apps would amplify the pedagogical effect.

The study cannot speak to persistence beyond six weeks, to students outside economics-adjacent programmes, or to administrative loan and savings records. Those are the next measurements, not reasons to withhold the module from the programmes already equipped to teach it.

A brief, curriculum-compatible module changed the biases that conventional literacy instruction left untouched. The large effect on bias awareness and the medium-to-large effects on present bias and overconfidence indicate that students can learn to notice and interrupt specific errors when those errors are named, demonstrated, and practised. The small literacy difference between arms confirms that the decision-quality gain is not an artefact of extra technical teaching.

The regression result is the policy-relevant finding. Literacy still matters, but once students can recognise a bias and resist present-biased choice, literacy predicts decision quality less strongly. Campus programmes that stop at compound interest therefore leave the larger share of decision variance unaddressed. Embedding dual-process and prospect-theory sessions in existing economics and business-education courses is a low-cost way to close that

gap, consistent with the CBN framework's call for effective financial capability rather than knowledge alone.

Limitations include non-random assignment, a six-week horizon, and self-report plus constructed scenarios rather than administrative transaction data. Future work should randomise at the classroom level, follow students across a full semester of digital-credit use, and test whether commitment devices taught in class survive contact with real mobile-money markets.

CONCLUSION

Teaching students how their minds distort financial choice improves the quality of those choices more than teaching the same students only the arithmetic of finance. Nigerian universities that already offer financial-literacy units can add a short behavioral-economics module without displacing core content. The Enugu evidence suggests that the addition would be worth the contact hours.

Researchers should now randomise at classroom level, follow students for a full semester, and replace scenario scores with administrative records of savings and digital-credit events. Those three upgrades would test persistence and ecological validity. They are the correct next study, not a reason to delay the module in programmes that can already teach it.

Student-facing digital lenders who operate on the two campuses should be asked, as a condition of campus access, to install a 24-hour cooling-off default on first-time loans. The classroom module targets the same present-bias channel; the default would keep the lesson in force after the six weeks end.

The Central Bank of Nigeria and the Federal Ministry of Education should treat bias-awareness as a listed competency in the next revision of the National Financial Literacy Framework. Framework language that stops at knowledge will continue to license programmes that raise test scores and leave digital-credit behaviour untouched.

Departments of economics education and business education in Enugu State should insert a six-week behavioral-economics unit into the existing financial-literacy or principles-of-economics slot rather than create a new course. The unit should name present bias, loss aversion, and overconfidence, rehearse them on campus-relevant cases, and assess decision quality with scored scenarios rather than with recall items alone.

Recommendations

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