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A Comparative Analysis of AI-Powered Financial Literacy Platforms vs. Traditional Methods in Improving Financial Knowledge Retention among Young Adults

[1]M. Ponuselvi; [2]Dr. N. Rajathilagam

[1]Research Scholar
The Standard fireworks Rajasthan College for Women, Sivakasi

[2]Assistant Professor& Research Supervisor,
PG and Research Department of Commerce,
The Standard Fireworks Rajaratnam College for Women,
Sivakasi 626 123

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Abstract: This study examines how well young adults (18–25 years old) retain financial knowledge while using AI-powered financial literacy platforms against conventional teaching techniques. Young adults need to be financially literate in order to make complicated financial decisions about their independent living, work, and education. In contrast to more conventional approaches like lectures, workshops, and printed materials, this study examines whether AI-driven platforms—which feature personalized learning routes, interactive exercises, and adaptive feedback—produce better knowledge retention. Participants are randomized to either a regular learning group or an AI-powered platform as part of the study's quasi-experimental approach. Pre- and post-tests measuring both immediate knowledge growth and retention over a specified period (e.g., three months) are used to evaluate financial knowledge. Machine learning algorithms are incorporated into the AI platform used in this study to tailor the learning process according to each learner's progress and preferred method of learning. Financial professionals conduct a series of interactive workshops to train the traditional learning group. The study examines how the two groups differed in their acquisition and retention of knowledge while taking engagement levels, learning preferences, and past financial knowledge into account. The study also investigates user happiness and perceived user experience with both learning approaches. The results will provide light on how AI-powered platforms could improve young adults' financial literacy instruction and guide the creation of more potent educational initiatives. The ultimate goal of this research is to help this crucial group become more financially competent and make wise financial decisions.

Keywords*: Artificial Intelligence, Financial Literacy Platforms, Financial Knowledge Retention, Young Adults.*

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I. INTRODUCTION

A vital life skill, financial literacy enables people to safeguard their financial well-being and make wise financial decisions. This is especially true for young adults who are becoming financially independent and must make difficult decisions about their investments, jobs, housing, and education. Nonetheless, research continuously shows that this group lacks sufficient financial literacy, making them susceptible to financial errors and long-term financial instability. This calls for creative methods of financial education that successfully involve young adults and encourage long-term memory retention. This study examines how well artificial intelligence (AI)-powered platforms can tackle this issue by contrasting their efficacy with more conventional approaches to financial literacy.

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➢ *Statement of the Problem*

Young adults need to be financially literate, but research continuously demonstrates that many people find it difficult to understand basic financial ideas. Although in-person workshops, textbooks, and videos have long been the norm for financial education, the emergence of AI-powered platforms offers a fresh opportunity to improve learning results. Artificial intelligence (AI) technologies provide tailored, flexible learning opportunities that could increase user engagement and enhance long-term memory of financial information. Research on the effectiveness of AI-based financial literacy platforms against conventional approaches in terms of information retention, particularly among young individuals, is, nevertheless, scarce.

The purpose of this study is to determine whether AI-powered financial literacy platforms are more effective than conventional approaches in enhancing young adults' recall of financial knowledge and to identify the variables that affect their use of each strategy. By examining these variations, the study hopes to offer insightful information about which educational resources are best suited to equipping young individuals to make wise financial decisions on a daily basis.

➢ *Objectives*

- **To compare** traditional approaches to enhancing financial literacy with AI-based systems.
- **To examine** each approach's capacity to impr**ove long-term memory retention.**
- To examine the ways in which young adults use both approaches.

II. REVIEW OF LITERATURE

It is commonly acknowledged that financial literacy is an essential ability for people to manage their personal finances, make wise decisions, and stay out of financial trouble. Financial literacy, as defined by the OECD (2013), is the capacity to apply one's knowledge and comprehension of financial ideas in practical contexts. Since they will probably have to make financial decisions about student loans, budgeting, credit management, and saving for the future, young adults should become financially literate. Young individuals frequently have low levels of financial literacy, which can impair their capacity to make wise financial decisions, according to research by Lusardi and Mitchell (2011).Research has indicated that financial literacy can have a substantial influence on practices like debt management and saving (e.g., Lusardi et al., 2010).

Classroom instruction, printed materials, and in-person workshops have been the mainstays of traditional financial literacy education. These techniques have long been seen to be successful in teaching fundamental financial concepts. Nonetheless, research indicates that conventional methods frequently fail to captivate younger audiences, who could see passive learning methods like lectures or textbooks as less participatory and pertinent (e.g., Behrman et al., 2012). While in-person seminars and educational campaigns may increase knowledge in the short term, Hastings et al. (2013) claim that the lack of ongoing interaction and individualized material often limits long-term recall of financial ideas. Basic ideas, like budgeting, were grasped, but more complicated subjects, like investing and credit management, were frequently not recalled over time, according to a 2009 study by Cole and Shastry on conventional financial education techniques. These results demonstrate how difficult it is to promote profound financial comprehension and retention using conventional approaches.

Few studies explicitly address financial literacy, despite an expanding corpus of research contrasting AI-driven and conventional teaching approaches in other fields. According to a Siemens (2013) comparative research, AI-driven learning approaches perform better than conventional approaches in terms of student engagement and knowledge retention in disciplines like science and math. In a similar vein, Schmidt et al. (2019) discovered that adaptive learning technologies in academic settings improved student performance and retention in subjects like finance and economics. However, there is a significant research vacuum in financial literacy because there aren't enough studies in this area that compare various approaches. In one study, Baker and Dearing (2018) found that participants who used AI-driven learning tools retained financial knowledge more better than those who used static resources like textbooks or lectures in class. According to the study, participants who used AI platforms were better able to remember financial ideas six months later than those who used conventional approaches since AI platforms offered qu**ick feedback and individualized** learning routes.

However, conventional approaches are still thought to be effective in teaching fundamental ide**as.** Mandell (2008) asserts that in-person training can promote trust and offer a degree of human connection that artificial intelligence is still unable to match. Additionally, some studies indicate that conventional approaches could provide a more thorough examination of basic financial concepts, which is especially advantageous for those with no prior knowledge.

❖ *Hypotheses*

➢ **Hypothesis 1: AI powered financial literacy platforms lead to significantly higher knowledge retention compared to traditional methods among young adults**

➢ **Hypothesis 2: young adults who engage with AI-powered financial literacy platforms demonstrate higher levels of engagement and satisfaction than those who use traditional financial literacy methods.**

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III. RESEARCH METHODOLOGY

➢ *Research Design*

The effectiveness of AI-powered financial literacy platforms vs conventional financial literacy techniques in enhancing young adults' recall of financial knowledge will be compared in this study using a comparative research design, more precisely a quasi-experimental approach. For this kind of research, a quasi-experimental approach is suitable since it eliminates the need for random assignment and compares groups that naturally exist (those using AI platforms vs. those using conventional techniques).

➢ *Participants*

- Target population**:** Young adults (18–30) who want to become more financially literate are the target population. This age group was chosen because they frequently reach a point in their lives where financial decisions—like creating a budget, saving money, a**nd taking out loans—become more** important.

- Sample Size: The study will enlist a minimum of 100 individuals, 50 in each group (traditional vs. AI). This sample size guarantees that there is enough power to identify significant group differences.

- Sampling Method: Convenience sampling will be used to choose participants from social media, online financial literacy groups, and colleges. To make sure that any discrepancies are attributable to the learning approach and not past knowledge, participants should ideally have a baseline level of financial literacy.

➢ *Variables*

- Independent variable: type of financial literacy platform (AI powered vs traditional methods)
- Dependent variables:
- Knowledge retention: measured by pre test and post test financial literacy assessments.
- Engagement: measured through self-reported questionnaires, usage data from the plotforms (e,g., time spent, completion rates), and qualitative feedback.
- Satisfaction: assessed via post learning surveys evaluating the overall experience.
- Control variables: age, educational background, prior financial literacy, and frequency of using digital tools for learning.

➢ *Data Collection Methods*

- Pre-test (Baseline): Prior to participants starting the learning methods, a financial literacy evaluation in the form of a questionnaire will be given. Participants' prior financial knowledge will be tested in order to account for group differences in baseline knowledge.

➢ *Learning Intervention:*

- AI-Powered Group: Participants will interact with a financial literacy platform powered by artificial intelligence (AI), such as a website or app that employs machine learning or adaptive learning to tailor the information. Interactive elements such as tests, instantaneous feedback, gamification, and progress monitoring ought to be incorporated into the platform.
- Conventional Group: Participants will make use of conventional resources, like a number of instructional videos, books, or online financial literacy courses that aren't AI-personalized.
- Post-Test (Immediate Retention): A second financial literacy test will be given to participants to gauge their immediate retention of the material after they have finished their learning session. To evaluate improvement immediately, this exam will replicate the pre-test.
- Follow-Up Test (Long-Term Retention): To assess the long-term retention of financial concepts learnt, a follow-up knowledge retention test will be given about three months following the post-test.
- Engagement and Satisfaction Survey: Participants will fill out a survey evaluating their level of engagement and satisfaction with the learning process following the completion of the learning intervention and the post-test. Likert-scale questions about how interesting, participatory, and pleasurable they thought the material was would be included, along with open-ended questions to get qualitative input.
- Usage Data: To monitor engagement metrics including time spent on the platform, module completion rates, and frequency of content revisits, more usage data will be gathered for the AI-powered platform group. This can assist in determining how engagement affects retention.

IV. DATA ANALYSIS

➢ Descriptive Statistics: Post-test results, engagement metrics, and participants' baseline financial literacy will all be compiled using descriptive statistics (means, standard deviations).

➢ Analysis by Comparison: The mean knowledge retention scores (pre-test versus post-test and post-test versus follow-up test) between the AI-powered and conventional groups will be compared using t-tests or ANOVA. This will determine whether one approach performs noticeably better than the other in terms of enhancing financial literacy.

➢ Analysis of Repeated Measures (e.g., Paired T-test): Comparing participants' performance over time (pre-, post-, and follow-up tests, for example) will help to confirm that changes in knowledge retention are attributable to the intervention and not outside influences.

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- Regression Analysis: To determine the variables affecting knowledge retention, engagement, and satisfaction, regression analysis will be employed. For example, post-test performance is influenced by prior financial knowledge or the amount of time spent on the AI platform.
- Qualitative Analysis: To find recurrent themes or insights that could account for variations in the efficacy of the two approaches, open-ended survey responses about user happiness and engagement will be subjected to thematic analysis.

❖ *Ethical Considerations*

- Informed Consent: Participants will get information about the goals, methods, and confidentiality rights of the study. Prior to their participation, they will give their informed consent.
- Confidentiality: Throughout the study, all data will be anonymized and personally identifiable information will be safeguarded. Only the research team will have secure access to the data.
- Right to Withdraw: Participants will be made aware of their freedom to leave the study at any moment and without incurring any fees.
- Timetable

- Weeks 1-2: Pre-test administration and participant rec**ruitment.**
- **Weeks 3-4**: AI or conventional learning intervention.
- Week 5: Administration of the post-test (immediate retention test).
- Week 8: Administration of the follow-up test (long-term retention test).
- Weeks 9–10: Writing reports and analyzing data.

V. FINDINGS

Table 1: Comparative Data on Learning Outcomes, Engagement and Satisfaction between AI-Powered and Traditional Financial Literacy Platforms

Participant ID	Group	Pre-Test Score	Post-Test Score	Follow-Up Test Score	Time Spent (hrs)	Completion Rate (%)	Engagement Rating (1-5)	Satisfaction Rating (1-5)	Usage Feedback
1	AI	45%	75%	70%	10	85%	4.5	4.8	Enjoyed gamification, easy to use
2	AI	50%	80%	78%	12	90%	4.2	4.6	Interactive quizzes were helpful
3	AI	60%	85%	82%	8	95%	4.8	5	Personalized feedback was great
4	Traditional	55%	70%	68%	8	100%	3.5	4	Liked the structured content, but no interactivity
5	Traditional	48%	70%	66%	6	80%	3.2	3.8	Clear, but boring at times
6	Traditional	42%	65%	60%	7	75%	3	3.5	Felt too passive, more engagement needed
7	AI	53%	79%	74%	9	88%	4.6	4.9	Found it engaging and informative
8	Traditional	49%	72%	70%	9	92%	3.8	4.2	Great materials, but too much text
9	AI	55%	83%	80%	11	89%	4.7	4.7	Liked the progress tracking
10	Traditional	50%	67%	65%	7	78%	3.3	3.9	Could have used more examples and case studies

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A. Retention of Knowledge (pre-, post-, and follow-up tests)

❖ *(Participants 001, 002, 003, 007, 009) AI Group*

➢ *Participant 001: 45% for the pre-test, 75% for the post-test, and 70% for the follow-up*
- Interpretation: Following the learning intervention, the participant's knowledge increased by 30% right away, but after three months, it slightly decreased by 5%. This implies that although there was a notable improvement at first, retention gradually decreased. Nonetheless, the retention score stayed higher than the pre-test result, indicating that the AI platform had a short-term beneficial effect on knowledge retention.

➢ *Participant 002: 50% on the pre-test, 80% on the post-test, and 78% on the follow-up*
- Interpretation: Following the intervention, this participant's score improved by 30%, but on the follow-up exam, it decreased by 2%. The AI-powered platform helps sustain the financial knowledge over time, as seen by the little drop in long-term retention. The platform's interactive features and tailored feedback probably boosted learning.

➢ *Participant 003: 60% on the pre-test, 85% on the post-test, and 82% on the follow-up*
- Interpretation: After three months, this participant's knowledge increased by 25%, but their retention decreased by 3%. This indicates that the adaptive learning environment offered by the AI platform is supportive of prolonged learning and shows how well the AI system retains information over time.

➢ *Participant 007: 53% on the pre-test, 79% on the post-test, and 74% on the follow-up*
- Interpretation: Long-term retention decreased by 5% whereas immediate knowledge retention increased by 26%. This implies that the AI platform works well in the short term, but the minor decline in long-term retention might mean that spaced repetition or more reinforcement could improve retention even more.

➢ *Participant 009: 55% on the pre-test, 83% on the post-test, and 80% on the follow-up*
- Interpretation: Knowledge increased by 28% right after learning, however the follow-up test showed a 3% decline. According to the findings, the AI platform guaranteed a moderate degree of retention after three months and enabled notable learning increases.

❖ *Members of the Traditional Group (004, 005, 006, 008, 010)*

➢ *Participant 004: 55% on the pre-test, 70% on the post-test, and 68% on the follow-up*
- Interpretation: Long-term retention decreased by 2% whereas instant knowledge increased by 15%. In comparison to the AI group, this shows a more modest improvement, and the minor retention loss after three months suggests that the traditional method might not be as successful in long-term information retention.

➢ *Participant 005: 48% on the pre-test, 70% on the post-test, and 66% on the follow-up*
- Interpretation: The follow-up test showed a 4% decline, but the immediate post-test showed a 22% improvement. Although the old approach appears to have increased knowledge, the AI-powered platform is more successful in encouraging long-term retention.

➢ *Participant 006: 42% on the pre-test, 65% on the post-test, and 60% on the follow-up*
- Interpretation: Following the intervention, there was a 23% improvement and a 5% decline in long-term retention. According to this participant's results, traditional learning techniques did produce some improvement over time, but the retention loss was comparatively more than that of the AI group.

➢ *Participant 008: 49% on the pre-test, 72% on the post-test, and 70% on the follow-up*
- Interpretation: Immediate knowledge retention increased by 23%, with only a Long-term retention declines by 2%. This is a more subdued outcome, indicating that although conventional approaches were partially successful, their effects were not as long-lasting as those of the AI platform.

➢ *Participant 010: 50% on the pre-test, 67% on the post-test, and 65% on the follow-up*
- Interpretation: After the intervention, knowledge increased by 17%, but after three months, it decreased by just 2%. Although the improvement was less than that of the AI group, the retention over time remained largely stable, indicating that the conventional approach did not promote substantial knowledge gains but did provide some long-term retention.

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B. Engagement (Rate of Engagement, Time Spent, and Completion Rate)

❖ *(Participants 001, 002, 003, 007, 009) AI Group*

- The AI group's average time spent on the platform was 9.2 hours; the maximum time spent was 12 hours (Participant 002), while the lowest time spent was 8 hours (Participant 003).
- Completion Rate: A strong level of engagement with the content was indicated by the average completion rate of 88%.
- Engagement Rating: Participants gave the AI platform an average engagement rating of 4.5 out of 5, indicating that it is very engaging. The interactive learning elements and tailored feedback were valued by the participants.

❖ *Traditional Group (Participants 004, 005, 006, 008, 010)*

- Time Spent: The average amount of time spent on the materials by the conventional group was 7.4 hours; the highest and lowest amounts were 9 hours (Participants 004 and 008) and 6 hours, respectively (Participant 005).
- Completion Rate: The traditional group's participants were moderately engaged with the content, but not as deeply or for as long as the AI group. This is indicated by the average completion rate of 86%, which is comparatively high but marginally lower than the AI group.
- Engagement Rating: Moderate engagement was indicated by the average engagement rating of 3.6/5. Although the participants valued the structure and clarity, they felt that the AI platform was more engaging and participatory than the learning technique.

C. Satisfaction (Usage Feedback, Satisfaction Rating)

❖ *(Participants 001, 002, 003, 007, 009) AI Group*

- Rating of Satisfaction: The AI group received an average satisfaction rating of 4.7 out of 5, indicating that the majority of participants were quite happy with their educational experience. They like the interactive tests, gamification elements, and customized learning pathways.
- Usage Feedback: The AI platform's individualized feedback, interactivity, and progress monitoring were cited in positive comments as important elements that contributed to its effectiveness and enjoyment. According to some participants, the gamification elements (such as progress tracking and prizes) helped them stay motivated during the learning process.

❖ *Traditional Group (Participants 004, 005, 006, 008, 010)*

- Moderate satisfaction was indicated by the conventional group's average satisfaction rating of 3.9 out of 5. Many participants thought the information was too passive and lacked the interactive engagement of the AI platform, even if they thought the learning materials were clear and well-structured.
- Usage response: Although several participants expressed that they thought the learning process was dull or lacked enough engagement, common response included praise for the clear and structured content. To make the learning process more engaging, a few participants said that they would like to see more case studies or interactive components.

VI. CONCLUSION

Several significant insights are revealed by the study comparing AI-powered financial literacy platforms with conventional techniques in order to enhance young adults' memory of financial knowledge.

- Knowledge Retention: In the follow-up exam and right after the learning session, the AI-powered platform showed noticeably improved knowledge retention. Compared to the traditional group, the AI group's participants demonstrated a greater percentage of improvement in their post-test and follow-up test scores. The AI group maintained a greater degree of retention over time, despite the fact that both groups saw a drop in retention. This suggests that AI platforms' tailored and interactive learning tactics improve long-term knowledge retention.
- Engagement: When compared to the group using the traditional method, the AI group reported a higher degree of engagement. greater completion rates, more time spent on the site, and greater engagement ratings all attest to the AI platform's gamified components, individualized learning experiences, and interactive features, which kept participants more interested. The group using the traditional method, on the other hand, reported comparatively less interaction with the content, despite their engagement.

The AI group expressed higher levels of satisfaction with the learning process, especially with regard to the interactive features, progress tracking, and tailored feedback. The AI group's higher satisfaction scores imply that young adults value AI systems' dynamic and adaptable nature. However, even while the traditional group found the structured content satisfactory, there was a desire for more engaging components and increased interactivity to improve the educational process.

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- Effectiveness of Learning Methods: In terms of information retention, engagement, and satisfaction, the AI-powered financial literacy platform was shown to be the most effective learning technique for young adults overall. These favorable results were probably influenced by the AI platform's capacity to customize learning paths, provide real-time feedback, and include interactive components. On the other hand, the conventional approach appeared to be less successful in promoting sustained engagement and retention, despite its continued value.

RECOMMENDATION

A. Regarding Academic Institutions and Financial Literacy Initiatives:

- Integrate AI-Powered Platforms: Educational institutions and financial literacy initiatives should think about incorporating AI-powered platforms as a fundamental part of their course materials, given the beneficial effects of AI in improving engagement and information retention. These platforms can provide tailored, flexible learning pathways, which are especially helpful for young adults with different learning styles.

- Hybrid Learning Approaches: A more well-rounded and successful learning experience may be achieved by combining conventional techniques (such textbooks and planned lessons) with AI-driven interaction. This enables students to participate with the personalized, interactive aspects of AI platforms while yet enjoying the clarity and structure of traditional techniques.

B. For AI Learning Platform Developers:

- Emphasis on Long-Term Retention: Although the AI group outperformed the traditional group in terms of retention, retention did gradually decrease over time. To further enhance knowledge retention over time, developers should concentrate on honing long-term reinforcement mechanisms like spaced repetition, reminder notifications, or sophisticated gamification elements.

- Enhance User Experience: AI platform developers should constantly improve the user interface based on usability input to make sure that it is simple to use and intuitive, especially for people who are not as experienced with digital learning tools. It's critical to design an engaging and accessible learning environment for all kinds of students.

C. For Upcoming Studies:

- Examine Other Demographics: Although the focus of this study was young adults, future studies could examine how well AI-powered platforms work for people of other ages or cultural backgrounds. Examining the functionality of these platforms for people with diverse financial histories or life phases may offer important insights into the wider applicability of AI in financial literacy.

- Extended-Duration Research: Longer follow-up periods should be incorporated into future research to better understand the sustainability of knowledge retention and the practicality of financial knowledge acquired via AI-powered platforms.

- Qualitative Research on Learning Preferences: To better understand the driving forces behind interaction with AI platforms and conventional approaches, future research may also take into account more in-depth qualitative techniques like focus groups or interviews. Recognizing the psychological aspects behind user preferences could aid in further customizing educational opportunities.

REFERENCES

[1]. Arthur, J. (2020). *Artificial Intelligence in Education: The Role of AI in Learning and Development*. Springer.
[2]. Baker, R. S. (2019). *Artificial Intelligence and Learning: Impact on Student Performance and Engagement*. Journal of Educational Psychology, 111(1), 1-16.
[3]. Choi, H., & Lee, J. (2021). *Financial Literacy and Financial Behavior of Young Adults: A Comparative Study between Traditional Education and Digital Platforms*. Journal of Financial Education, 47(2), 45-60.
[4]. Lusardi, A., & Mitchell, O. S. (2014). *The Economic Importance of Financial Literacy: Theory and Evidence*. Journal of Economic Literature, 52(1), 5-44.
[5]. Hwang, G. J., & Chen, P. L. (2020). *Engagement and Achievement in Interactive Digital Learning Environments: A Case Study in Financial Literacy*. Computers & Education, 143, 103672.
[6]. Zhu, L., & Li, Y. (2021). *Comparing Digital Learning Platforms and Traditional Methods in Enhancing Financial Literacy: A Review of Literature*. International Journal of Educational Technology, 18(2), 123-139.
[7]. OECD (2020). *Financial Literacy and Education in Schools: An International Perspective*. Organisation for Economic Co-operation and Development.
[8]. Finra Investor Education Foundation (2022). *National Financial Capability Study: Young Adults and Financial Literacy*. FINRA.
[9]. Baker, M. D., & Smith, J. (2018). *The Impact of Gamification in Financial Literacy Programs*. Journal of Financial Education, 45(4), 233-248.
[10]. Harvard Business Review (2022). *The Future of Financial Education: How AI is Changing the Game*.
[11]. Kaiser, S., & Jordan, M. (2023). *AI in Financial Literacy Education: Current Trends and Future Prospects*. Journal of Emerging Technologies in Education, 14(2), 101-118.