BRIDGING GENERATIONS THROUGH DIGITAL FINANCIAL EDUCATION: AN INTERACTIVE LEARNING MODEL

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Abstract

This study examines an interactive learning model that connects generations through digital financial education. By integrating problem-based learning (PBL), cooperative learning, experiential learning, and a dual-instructor approach, the research aims to improve financial literacy, student engagement, and intergenerational knowledge exchange. The curriculum, focused on securities investment analysis, guides students through fundamental concepts, collaborative material development, hands-on experiences, and final knowledge-sharing sessions.

The study implements a multi-faceted instructional framework that includes lectures, practical reports, industry expert sessions, and digital collaborations with older generations. Findings indicate that this interactive, cross-generational approach significantly enhances students' financial understanding, critical thinking, and communication skills. Moreover, interactions with senior participants foster social responsibility and promote digital inclusion for older adults. The study also highlights the importance of integrating financial technology tools, enabling students to explore modern investment platforms while helping seniors adapt to digital financial services. Additionally, the research identifies key motivational factors that enhance student participation, such as real-world application, peer collaboration, and mentorship from industry professionals. The integration of financial technology tools and digital learning resources ensures that students develop practical financial decision-making abilities while reinforcing cross-generational engagement. The study emphasizes that an inclusive learning environment benefits both younger learners and senior participants, creating a sustainable framework for continuous education.

The research underscores that combining theoretical instruction with hands-on application enhances financial education's impact and sustainability. The study's findings reveal that students not only acquire financial decision-making skills but also contribute to bridging the digital divide by assisting older adults. The model offers valuable insights for improving financial education through cross-generational learning, emphasizing the role of digital financial literacy in fostering independence, critical thinking, and lifelong learning. By addressing the challenges of financial education in the digital age, this research contributes to the development of effective teaching strategies that prepare students for real-world financial decision-making while promoting intergenerational collaboration. The study underscores the broader societal benefits of such an approach, advocating for educational models that integrate financial technology, intergenerational exchange, and experiential learning. Ultimately, the findings highlight digital financial education as a key driver of financial empowerment, social responsibility, and knowledge transfer across generations.

Keywords

1. Introduction

The evolving educational landscape presents significant challenges at multiple levels—societal, financial, institutional, and individual. Rapid advancements in digital finance, coupled with demographic shifts such as an aging population and declining birth rates, have intensified the need for innovative financial education strategies. Taiwan, for instance, is projected to become one of the fastest-aging nations in Asia, with the proportion of the population aged 85 and above expected to rise from 10.5% in 2021 to 27.4% by 2027. As older generations struggle to keep pace with digital financial tools, a widening gap emerges between technological advancements and financial literacy among different age groups.

Simultaneously, the financial industry faces structural shifts due to the digital transformation. Many senior professionals encounter difficulties adapting to evolving financial technologies, while the retirement of the baby boomer generation creates a growing talent gap. Younger individuals, despite their digital proficiency, often lack practical financial knowledge and investment decision-making skills. These challenges highlight the pressing need for an interactive, cross-generational learning model that fosters financial literacy and digital inclusion.

Educational institutions also grapple with student disengagement, often caused by smartphone addiction, social anxiety, and diminished self-confidence. Traditional lecture-based financial education methods frequently fail to address these motivational challenges, resulting in lower engagement and limited knowledge retention. To bridge these gaps, this study introduces an interactive learning model that integrates problem-based learning (PBL), cooperative learning, experiential learning, and digital financial education within an intergenerational framework.

This research proposes a Cross-Generational Digital Learning Model, where students engage in interactive learning activities with older adults to enhance both financial literacy and digital skills. By incorporating industry professionals and real-world financial applications, this model offers a holistic and practice-oriented approach to financial education. Through reciprocal teaching, students not only gain hands-on experience in financial decision-making but also contribute to bridging the digital divide by assisting older generations in navigating financial technologies.

Thus, the primary objectives of this study are as follows:

(1) To develop an interactive financial education model that enhances student engagement and real-world applicability.
(2) To foster intergenerational learning by facilitating knowledge exchange between students and older adults.
(3) To promote digital financial literacy across different age groups, addressing the digital divide.
(4) To assess the impact of problem-based, cooperative, and experiential learning methods in financial education.

By integrating digital finance with intergenerational learning, this research aims to create a sustainable educational framework that enhances financial literacy, encourages social responsibility, and strengthens digital inclusion. The findings contribute to the development of more effective financial education strategies and provide insights into the broader implications of cross-generational learning in an increasingly digital world.

2. Literature Review

This study integrates multiple teaching methodologies—including problem-based learning (PBL), cooperative learning, experiential learning, and digital financial education—within an intergenerational learning framework. These approaches aim to enhance student engagement, improve financial literacy, and foster knowledge exchange between generations. The following literature review examines the theoretical foundations and practical applications of these methods, highlighting their relevance to contemporary financial education.

2.1 Problem-Based Learning (PBL) in Financial Education
Problem-based learning (PBL) is a student-centered instructional approach that fosters critical thinking, problem-solving abilities, and self-directed learning. Initially developed by Barrows (1986) for medical education, PBL has since been widely adopted across various disciplines. Hmelo-Silver (2004) emphasizes that PBL encourages students to actively engage with real-world problems, enhancing their ability to apply theoretical knowledge in practical scenarios.

In financial education, PBL has been utilized to simulate investment decision-making processes, allowing students to experience real-world financial challenges in a controlled learning environment (Clark & Mayer, 2016). Research indicates that PBL enhances financial literacy by encouraging active exploration, analytical thinking, and collaborative problem-solving (Hung, Jonassen, & Liu, 2008). In this study, PBL serves as a core strategy to help students navigate financial complexities while also engaging with older generations to address cross-generational financial literacy gaps.

2.2 Cooperative Learning and Knowledge Sharing
Cooperative learning is an instructional strategy that promotes teamwork, shared responsibility, and mutual support among students. Johnson, Johnson, and Smith (1998) highlight that cooperative learning fosters deeper comprehension, improves social skills, and enhances student motivation. Slavin (1995) further argues that structured group interactions lead to higher academic achievement and knowledge retention compared to individual learning models.

In an intergenerational context, cooperative learning facilitates reciprocal teaching, where students and older adults exchange financial knowledge and digital skills. Research by Sánchez, Kaplan, and Bradley (2015) suggests that intergenerational programs encourage empathy, communication, and collaborative problem-solving. In this study, cooperative learning is employed to enhance both financial literacy and digital competency by

enabling students to assist older adults in navigating digital financial platforms while learning from their investment experiences.

2.3 Experiential Learning and Real-World Application

Experiential learning, as conceptualized by Kolb (1984), is a process in which knowledge is acquired through direct experience, reflection, and application. Dewey (1938) similarly argues that learning is most effective when students engage in meaningful, real-world activities rather than passive knowledge absorption.

In financial education, experiential learning has been shown to significantly enhance students' understanding of investment strategies, risk management, and market analysis (Lusardi & Mitchell, 2014). Hands-on investment simulations, interactive fieldwork, and financial planning exercises contribute to deeper engagement and knowledge retention (Brown, Collins, & Duguid, 1989). In this study, experiential learning is implemented through interactive investment simulations and digital learning activities with older adults, ensuring that students apply theoretical financial concepts in practical scenarios.

2.4 Digital Financial Education and Intergenerational Learning

With the increasing digitalization of financial services, financial literacy education must integrate modern technology to remain relevant. Research indicates that digital learning platforms significantly enhance engagement and comprehension in financial education (Clark & Mayer, 2016; Lusardi & Mitchell, 2014). However, older generations often face challenges in adapting to these technologies, creating a digital financial divide (Charness & Boot, 2009).

Intergenerational learning has been identified as an effective strategy to bridge this digital divide by fostering reciprocal learning between younger and older participants (Kaplan, 2002). Studies show that younger individuals gain valuable insights into financial decision-making from experienced investors, while older adults benefit from digital skill development (Fingerman et al., 2021). This study leverages digital financial education as a means to facilitate knowledge transfer, empowering both students and older adults with essential financial skills.

2.5 The Role of Industry Collaboration in Financial Education

The integration of industry experts in financial education has been shown to enhance students' practical knowledge and career readiness (Murawski & Swanson, 2001). Guest lectures, mentorship programs, and real-world investment case studies help bridge the gap between academic learning and industry practice. Research suggests that students who engage with financial professionals develop a deeper understanding of market dynamics, risk assessment, and investment strategies (Friend & Cook, 2007).

This study incorporates industry collaboration through guest lectures, expert mentorship, and industry case studies, ensuring that students receive real-world insights while applying financial theories in practice. By combining academic learning with industry engagement, the study strengthens students' financial competencies and prepares them for future challenges in the financial sector.

2.6 Summary and Research Contribution

By integrating problem-based learning, cooperative learning, experiential learning, digital financial education, and industry collaboration, this study establishes an innovative interactive learning model that enhances financial literacy and fosters cross-generational knowledge exchange. Prior research supports the effectiveness of these methodologies, yet limited studies have explored their integration within an intergenerational digital financial education framework.

This study aims to fill this gap by developing and evaluating a Cross-Generational Digital Learning Model, demonstrating its impact on student engagement, financial literacy, and digital inclusion. The findings contribute to the development of sustainable financial education strategies and highlight the broader societal benefits of intergenerational learning in an increasingly digital world.

3. Research Design

This study employs an action research approach to develop and implement a Cross-Generational Digital Learning Model that enhances financial education through interactive, practice-oriented teaching methods. The primary objectives are to improve teaching effectiveness, strengthen student engagement, and facilitate knowledge exchange between generations. The study is conducted within a Securities Investment Analysis course at a university of technology, targeting students who face challenges such as low motivation, smartphone addiction, and social anxiety. The learning environment integrates both classroom-based financial education and real-world intergenerational interactions in public spaces, parks, and communities.

To bridge theoretical knowledge with practical application, this study incorporates financial industry professionals as co-instructors, enabling students to engage in experiential learning while contributing to digital financial literacy among older adults.

3.1 Research Methods

This study employs a mixed-method approach to collect both qualitative and quantitative data, ensuring a comprehensive evaluation of teaching strategies and student outcomes. The key research methods include:

(1) Pre- and Post-Learning Surveys: Assess changes in student engagement, financial literacy, and perceptions of intergenerational interactions.
(2) Student Reflections and Feedback: Gather qualitative insights from students on their learning experiences and challenges.
(3) Interviews with Senior Participants: Understand older adults' perspectives on digital finance and their learning experiences.
(4) Industry Expert Evaluations: Assess the effectiveness of integrating financial professionals into the teaching process.
(5) Classroom Observations: Document student participation, interaction quality, and teaching effectiveness.

The study follows a structured five-stage implementation process:

(1) Preliminary Stage – Conducts pre-tests to analyze financial literacy levels, social structures, and industry trends. Teaching materials and strategies are designed based on these insights.
(2) Teaching Implementation – Applies problem-based learning (PBL), cooperative learning, and experiential learning, integrating corporate executives into intergenerational activities.
(3) Data Collection – Uses surveys, interviews, and course evaluations to assess student progress and teaching effectiveness.
(4) Analysis and Reflection – Examines collected data to evaluate the impact of teaching improvements and identify areas for refinement.
(5) Refinement and Improvement – Adjusts teaching strategies based on findings, ensuring continuous enhancement of the learning experience.

This systematic approach is designed to improve student motivation, financial decision-making skills, and communication abilities, while fostering intergenerational understanding and sustainable learning practices.

3.2 Curriculum Planning and Implementation

The Securities Investment Analysis course, conducted from February to June 2023, implemented the Interactive Learning Model. Designed for 58 second-year students from the Department of Finance and Banking at a certain University of Science and Technology, the curriculum followed a structured approach, seamlessly integrating financial theory with practical applications to enhance student learning and engagement.

(1) Fundamental Concept Building

Before engaging in problem-based learning, students must first develop a solid foundation in: securities investment theories, fundamental and technical analysis and financial platforms and trading software. This ensures they can effectively apply their knowledge in simulated investment scenarios and intergenerational learning activities.

(2) Problem-Based Learning (PBL) Implementation

The course emphasizes real-world financial applications and **intergenerational digital co-learning**. By collaborating with corporate executives as mentors, students gain firsthand insights into: i**nvestment decision-making, risk management, and market analysis and industry best practices**

(3) Development of Intergenerational Learning Materials

Students develop financial literacy materials tailored to different groups of senior citizens:

(i) **Experienced investors familiar with digital platforms** – Advanced investment strategies and risk assessment.
(ii) **Experienced investors unfamiliar with digital tools** – Introduction to online trading platforms and digital finance tools.
(iii) **New investors requiring financial guidance** – Basics of investment planning, risk diversification, and market analysis.

Students collaborate to design structured lessons, refine content through feedback, and adapt materials to suit the needs of senior learners.

(4) Course Discussion and Refinement

(i)　　　Group discussions and expert reviews ensure the effectiveness of the teaching approach.

(ii)　　　Corporate mentors provide real-time feedback, helping students improve their instructional materials and teaching techniques.

(5) Field Practice and Documentation

Each student team conducts at least one intergenerational learning session with a senior citizen (aged 60+). The process is documented through videos, photos, or audio recordings (with participant consent). Student reflections and participant feedback are collected to assess the learning impact.

(6) Final Presentation and Peer Review

Students deliver a 10-minute presentation summarizing their learning experiences. Assessment criteria include: content quality, presentation skills, and creativity and contribution to intergenerational learning. Peer reviews and instructor feedback guide students in refining their learning strategies.

3.3 Course Implementation Phases

The course follows a six-phase learning cycle to ensure progressive knowledge acquisition and practical application.

(1)　　**Foundation Building**
- (i)　　　Introduction to securities investment principles, financial trading software (e.g., XQ), and financial platforms.
- (ii)　　　Preliminary survey to assess seniors' investment habits and digital literacy.

(2)　　**Survey Analysis and Strategy Formulation**
- (i)　　　Students analyze collected data and develop investment strategies and teaching plans.
- (ii)　　　Instructors provide feedback to refine strategies before implementation.

(3)　　**Preliminary Presentations and Expert Feedback**
- (i)　　　Students present their teaching materials.
- (ii)　　　Corporate mentors review content, provide industry insights, and suggest improvements.

(4)　　**Experiential Learning**
- (i)　　　Students engage in **real-world financial discussions** with senior participants.
- (ii)　　　Weekly reflection sessions allow students to analyze their teaching effectiveness and refine their approach.

(5)　　**Final Report and Presentation**
- (i)　　　Students submit a **comprehensive multimedia report** summarizing their experiences, insights, and outcomes.
- (ii)　　　Evaluation includes **teacher assessments, peer reviews, and corporate expert feedback**.

(6)　　**Comprehensive Review and Conclusion**
- (i)　　　**Corporate executives and instructors** provide final assessments.
- (ii)　　　Students reflect on their growth in confidence, financial decision-making, and intergenerational communication.

3.4 Research Significance and Expected Impact

This research design ensures that students gain theoretical knowledge, practical financial skills, and valuable intergenerational teaching experience**.** By integrating PBL, cooperative learning, experiential learning, and digital financial education, the study:

(1) Enhances student engagement and financial literacy – Encourages active learning and financial decision-making skills.

(2) Bridges generational gaps through digital knowledge sharing – Promotes intergenerational collaboration and mutual learning.

(3) Develops students' critical thinking and problem-solving skills – Students analyze financial data and adapt strategies in real-world contexts.

(4) Promotes lifelong learning and financial inclusion for older adults – Empowers both students and seniors with digital financial skills.

　　　By evaluating the Cross-Generational Digital Learning Model, this study contributes to the development of sustainable and inclusive financial education strategies, providing insights for future curriculum design and intergenerational learning initiatives.

4.Research Results

This section presents the key findings of the study, focusing on the design and implementation of teaching programs, the impact of intergenerational learning, student feedback, and the overall effectiveness of the Cross-Generational Digital Learning Model. The results highlight how integrating problem-based learning (PBL), cooperative learning, experiential learning, and digital financial education enhances student engagement, financial literacy, and cross-generational knowledge transfer.

The Securities Investment Analysis course was conducted from February to June 2023, implementing the Interactive Learning Model. The course was attended by 58 third-year students from the Department of Finance and Banking at a certain University of Science and Technology. After implementing the Interactive Learning Model, students were assessed on Satisfaction with the Learning Model (Pre-learning vs. Post-learning), Paired-Sample t-Test Results about Satisfaction with the Learning Model, and Student Feedback on Industry Collaboration. Additionally, two student-led case studies were conducted. The results are discussed in the following sections.

4.1 Implementation of the Interactive Learning Model
The study successfully developed and implemented an innovative financial education program that integrates PBL, cooperative learning, and experiential learning. The curriculum was designed to be interactive, practice-oriented, and socially impactful. Findings indicate that:

(1) Students exhibited higher motivation and engagement due to the real-world applicability of the learning activities.
(2) PBL-based teaching strategies encouraged critical thinking and problem-solving, leading to deeper knowledge retention.
(3) Intergenerational interactions fostered reciprocal learning, benefiting both students and senior participants.

Through structured learning activities, students gained hands-on experience in investment decision-making, while senior participants improved their understanding of digital financial tools.

4.2 Impact of Intergenerational Learning on Students
To evaluate the impact of intergenerational learning, pre- and post-learning surveys were conducted. Statistical analysis revealed significant improvements in students' financial literacy, digital finance skills, and ability to communicate complex financial concepts to non-experts. The study also demonstrated that intergenerational interactions fostered students' adaptability and social responsibility, preparing them for real-world financial challenges. Key findings include:

(1) Improved Financial Knowledge and Analytical Skills
    (i)   Understanding of investment concepts increased by 28.5% compared to pre-learning levels.
    (ii)   Ability to analyze financial trends improved by over 30%, demonstrating enhanced market awareness.
    (iii)   Students showed a 49.5% increase in their appreciation of cross-generational investment perspectives.
    (iv)   65% of students reported feeling more confident in making financial decisions after engaging in the intergenerational learning experience.

(2) Increased Student Engagement and Learning Satisfaction
The results indicate a significant improvement in student perceptions of the learning experience, particularly in understanding investment concepts, engaging in financial trend analysis, and appreciating intergenerational investment perspectives. The results from Table 1 suggest that students gained deeper financial knowledge, improved their investment decision-making confidence, and acquired valuable insights into generational differences in financial behavior. Additionally, 70% of students reported that this learning approach made them more proactive in financial planning, further strengthening their readiness for future investment decisions.

Table 1 Satisfaction with the Learning Model (Pre-learning vs. Post-learning)
(5-point scale: 5 - Strongly Agree; 1 - Strongly Disagree)

Survey Question	Pre-Learning (Strongly Agree %)	Post-Learning (Strongly Agree %)	Improvement (%)
Improved understanding of investment concepts	46%	74.5%	+28.5%
Engaged in analyzing financial trends	47%	77%	+30%
Digital and experiential learning enhanced comprehension	48.5%	72%	+23.5%
Compared to traditional learning, this method was more engaging	47%	72.3%	+25.3%
Gained new insights, inspiration, and a sense of achievement	49%	68%	+19.0%
Applied new approaches to investment learning	47%	72.5%	+25.5%
Developed a better understanding of intergenerational investment strategies	45%	72%	+49.5%
Discovered generational differences in risk preferences and returns	49%	72%	+23%
Analyzed market trends from multiple perspectives	47%	72%	+25%

Note：Survey Question revised from Chu, H. C., Hwang, G. J., Tsai, C. C., & Tseng, Judy C. R. (2010).

A paired-sample t-test was conducted to examine the statistical significance of the observed improvements. The results are presented in Table 2.

Table 2: Paired-Sample t-Test Results about Satisfaction with Learning Model

Pre-learning Average Score	Post-learning Average Score	Difference	t-value	p-value
47.28	72.48	25.2	23.41	1.18×10^{-8}***

Note * represent statistical significance levels of 1%.**

T The t-test results confirm that the differences between pre-learning and post-learning scores are statistically significant ($p < 0.001$), demonstrating the effectiveness of the interactive learning model in improving financial education outcomes.

In addition to pre- and post-learning evaluations, students provided feedback on their overall course experience. Key findings include:

(i)   Over 72% of students strongly agreed that the course was well-structured and that assessments were fair.
(ii)   77% of students felt that the instructor's teaching methods significantly enhanced their knowledge and skills.
(iii)   A majority of students expressed willingness to enroll in future courses led by the same instructor.

These findings indicate that the course effectively met student expectations and facilitated meaningful learning experiences through an innovative educational approach. The empirical results support the effectiveness of the interactive learning model in enhancing financial literacy and promoting intergenerational knowledge exchange. The integration of digital tools, problem-based learning, and experiential learning significantly improved student engagement and comprehension. Moreover, cross-generational interactions fostered a sense of social responsibility while enhancing digital inclusion among older adults. These findings highlight the potential of digital financial education as a means of bridging generational gaps and fostering sustainable learning experiences.

4.3 Industry Collaboration and Practical Learning Outcomes
To bridge the gap between academic learning and industry practice, financial professionals were incorporated into the course as co-instructors. Guest lectures and industry mentorship programs provided students with firsthand exposure to market trends, investment strategies, and financial decision-making processes. The program also included simulated investment exercises, allowing students to apply theoretical concepts to real-world financial scenarios. Student feedback on industry collaboration (5-point scale, 5 = Strongly Agree) showed high satisfaction levels as presented in Table 3.

Table 3 Student Feedback on Industry Collaboration

Assessment Criteria	Industry experts 1	Industry experts 2
Encouraged student interaction and questions	4.667	4.808
Managed classroom atmosphere effectively	4.615	4.731
Demonstrated strong professionalism and teaching skills	4.641	4.692
Provided insightful answers to student questions	4.718	4.808
Course content aligned with student learning needs	4.718	4.769
Industry integration enhanced course quality	4.641	4.731
Overall satisfaction with teaching methods	4.667	4.731
Improved ability to apply professional skills	4.667	4.654
Enhanced understanding of financial industry	4.667	4.769
Overall impact on practical learning	4.641	4.769

Note：Collaborative Teaching Assessment Questions (5-Point Scale, Strongly Agree :5, Agree:4, Neutral:3, Disagree:2, Strongly Disagree:1)

These findings confirm that industry collaboration significantly enhanced student engagement, connected theoretical knowledge with real-world applications, and improved financial literacy and professional readiness. Moreover, 80% of students found that interacting with industry professionals helped them better understand the complexities of financial decision-making. The integration of financial practitioners also provided valuable networking opportunities for students, potentially benefiting their future careers. The study highlights that collaboration between academia and industry is essential for equipping students with the practical skills and insights necessary to thrive in the financial sector. Furthermore, the inclusion of industry experts as co-instructors helped bridge the knowledge gap between traditional financial theories and contemporary industry practices, reinforcing students' ability to adapt to the evolving financial landscape.

4.4 Case Studies: Success and Challenges in Intergenerational Learning
In this section, students' reflections and feedback on their group project experiences during the course are presented. After completing assigned tasks, students shared their insights on the learning process, challenges encountered, and key takeaways. The following two case studies illustrate both the successes and difficulties faced in intergenerational learning.

Case 1: Successful Knowledge Transfer at Park
  (i) Senior Participant: Mr. Yan, 60 years old, retired truck driver.
  (ii) Issue: Limited knowledge of investment strategies and digital trading platforms.
  (iii) Solution: Students guided him through the basics of stock trading, introduced stable investment options such as Hon Hai (Foxconn) and TSMC, and provided digital finance tutorials, including an overview of low-risk, dividend-paying funds.
  (iv) Outcome: Mr. Yan gained confidence in using online investment tools and expanded his understanding of financial planning. He appreciated learning about alternatives beyond stocks and expressed gratitude for the personalized guidance.
  (v) Student Reflections: Despite facing initial skepticism from several elderly individuals, students persisted in their outreach efforts. The interaction with Mr. Yan reinforced the value of patience, clear communication, and practical financial education. The sense of accomplishment from seeing tangible improvements in Mr. Yan's financial confidence further motivated the students.

Case 2: Challenges in Engaging Senior Learners
  (i) Issue: Many elderly individuals were reluctant to engage due to skepticism about financial education, discomfort with technology, or concerns about scams.
  (ii) Challenge: Some participants were unwilling to be recorded or photographed, limiting documentation opportunities. Additionally, unfavorable weather conditions made it difficult to find willing interviewees.
  (iii) Unexpected Experience: One elderly gentleman with 40 years of investment experience engaged in a conversation but did not require guidance. Instead, he shared insights from his own investment journey, highlighting how stock trading has evolved from manual transactions to digital platforms. Although students could not offer him financial education, they gained valuable industry knowledge from his experiences.
  (iv) Reflection: Students had to develop more effective communication strategies and build trust with older participants before engaging in financial discussions. They also learned the importance of adaptability— adjusting their approach depending on the participant's experience level and receptiveness.

These case studies highlight both the successes and limitations of intergenerational learning. While many participants benefited from the program, some required longer-term engagement and tailored teaching approaches to overcome skepticism and digital hesitancy. Additionally, the students' perseverance in overcoming rejection and refining their communication skills proved essential for meaningful interactions. The findings emphasize that building trust and demonstrating patience are key factors in fostering successful cross-generational knowledge exchange.

4.5 Development of the Cross-Generational Digital Learning Model

One of the study's key contributions is the development of a sustainable intergenerational learning model, integrating:

(1) Financial literacy education for senior citizens
(2) Digital skill-building for older learners
(3) Knowledge transfer and mentorship between generations
(4) Industry collaboration for practical financial education

By incorporating Environmental, Social, and Governance (ESG) principles, the model also emphasizes financial inclusion, ethical investing, and sustainable economic decision-making.

4.6 Summary of Research Impact

The overall effectiveness of the Cross-Generational Digital Learning Model was assessed through quantitative and qualitative data analysis. Key outcomes include:

(1) Enhanced financial literacy – Students demonstrated stronger investment analysis skills and a better understanding of market dynamics.
(2) Bridging the digital divide – Older adults improved their digital finance skills through intergenerational collaboration.
(3) Strengthened student motivation and self-efficacy – The interactive, problem-based approach increased student confidence and proactive learning.
(4) Integration of theory and practice – The combination of academic learning, industry collaboration, and real-world applications deepened financial comprehension.

Additionally, the study highlights the broader social implications of cross-generational education, including increased awareness of financial inclusion and digital accessibility. By engaging both students and older adults in meaningful learning experiences, the research fosters a culture of continuous knowledge-sharing and social responsibility. The findings demonstrate that intergenerational financial education is not only effective in improving financial literacy but also instrumental in promoting social cohesion and sustainable learning practices. This study contributes to the development of scalable, adaptable financial education strategies that can be implemented across diverse learning communities, ensuring long-term benefits for future generations.

5. Conclusion

The primary goal of this study is to improve the quality of finance-related education, foster students' holistic professional development, and encourage intergenerational exchange and knowledge transfer. By incorporating problem-based learning, collaborative learning, and experiential learning strategies, this study seeks to create a more interactive and hands-on teaching model.

The results strongly support the enhancement of finance education and provide valuable insights that can be applied to improve teaching methods across various disciplines. This approach not only enriches students' learning experiences and elevates teaching quality but also addresses challenges faced by society, industry, and educational institutions. Moreover, it facilitates the integration of digital technology into senior education, encouraging mutual learning and collective growth. The study highlights how students develop essential financial competencies, gain exposure to real-world investment scenarios, and refine their ability to communicate complex financial concepts effectively.

Through the Intergenerational Digital Co-Learning Journey, this study establishes a positive feedback loop of teaching → sharing → feedback → achievement. Ultimately, it ignites students' passion for learning, strengthens their confidence, nurtures a sense of responsibility toward the elderly, and contributes to the goal of sustainable coexistence. Furthermore, the study reinforces the importance of lifelong learning and financial inclusion, demonstrating that cross-generational education can serve as a meaningful strategy for bridging knowledge gaps, enhancing digital literacy, and fostering a more financially literate society.

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