

Technofinance for Youth: Enhancing Financial Literacy Through Basic Excel Financial Mathematics

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Abstrak

Rendahnya tingkat literasi keuangan pada generasi muda menjadi tantangan di era digital yang ditandai dengan semakin luasnya penggunaan teknologi dalam aktivitas keuangan. Kegiatan pengabdian kepada masyarakat ini bertujuan untuk meningkatkan literasi keuangan peserta melalui pendekatan Technofinance yang mengintegrasikan matematika keuangan dasar dengan penggunaan Microsoft Excel. Kegiatan dilaksanakan dengan melibatkan 32 peserta berusia 8–15 tahun yang berasal dari berbagai jenjang pendidikan. Metode pelaksanaan terdiri atas lima tahapan, yaitu persiapan, analisis kebutuhan, sosialisasi, pelatihan dan evaluasi. Materi pelatihan mencakup konsep dasar literasi keuangan seperti pengelolaan pendapatan dan pengeluaran, penyusunan anggaran, tabungan, keuntungan dan kerugian, serta penerapannya menggunakan Microsoft Excel. Hasil evaluasi menunjukkan adanya peningkatan pemahaman peserta yang signifikan, ditunjukkan oleh kenaikan nilai rata-rata dari 30,60 pada pre-test menjadi 89,37 pada post-test. Peningkatan tersebut setara dengan 192% dibandingkan kondisi awal. Selain meningkatkan

pemahaman keuangan, kegiatan ini juga berhasil mengembangkan keterampilan peserta dalam memanfaatkan teknologi sebagai alat bantu perhitungan dan pengelolaan keuangan sederhana. Dengan demikian, pendekatan Technofinance berbasis Microsoft Excel terbukti efektif dalam meningkatkan literasi keuangan generasi muda dan berpotensi untuk diterapkan pada kelompok sasaran yang lebih luas

Kata Kunci: Education, Financial Literacy, Microsoft Excel, Technofinance.

Abstract

The inadequate financial literacy of the younger generation is a difficulty in the digital age, characterised by the growing prevalence of technology in financial transactions. This community service initiative seeks to enhance participants' financial literacy by employing a technofinance methodology that combines fundamental financial mathematics with Microsoft Excel use. The activity included 32 individuals aged 8 to 15 years from diverse educational backgrounds. The implementation methodology had five phases: preparation, needs assessment, outreach, training, and evaluation. The training content encompassed fundamental financial literacy principles, including income and cost management, budgeting, saves, profit and loss and their implementation utilising Microsoft Excel. The evaluation results indicated a substantial enhancement in participants' comprehension, reflected by an average score rise from 30.60 in the pre-test to 89.37 in the post-test. This gain corresponds to 192% relative to the beginning level. This program enhanced financial comprehension and effectively cultivated participants' abilities to employ technology for basic financial calculations and administration. Consequently, the Microsoft Excel-based technofinance methodology has demonstrated efficacy in enhancing the financial literacy of the youth and possesses the potential for broader application.

Keywords : Education, Financial Literacy, Microsoft Excel, Technofinance.

I. BACKGROUND

The advancement of digital technology has significantly transformed several facets of individuals' life, including personal financial management (Alpiansah et al., 2025). The emergence of several technology-driven financial services, including digital wallets, mobile banking, online investment and electronic payment platforms, has established a financial ecosystem that is progressively accessible to multiple demographics (Choung et al., 2023). This has resulted in the birth of the idea of technofinance, which amalgamates technology with everyday financial activity. In light of this evolution, the public's comprehension of financial concepts is increasingly essential to ensure that financial technology yields optimal benefits and mitigates future threats (Kamble et al., 2024).

The younger generation is the demographic most intimately acquainted with the evolution of digital technology (Wen et al., 2024). They were raised in an environment replete with electronic devices and the internet, thereby demonstrating a significant adaptability to diverse technical advancements. Nonetheless, this elevated use of technology is not usually matched by sufficient financial literacy competencies. Numerous adolescents are familiar with diverse digital financial applications yet lack an understanding of fundamental financial management principles, including budgeting, profit calculation, savings management, and basic financial planning. This issue reveals a disparity between technological proficiency and comprehension of the fundamental financial elements (Almeida et al., 2024).

This behaviour was also observed among the children and teenagers involved in this community service initiative. Preliminary observations indicate that the majority of participants were adept at utilising cell phones and computers for entertainment, communication and social media. Nonetheless, the application of technology as a financial educational instrument is still somewhat restricted. Participants typically lack comprehension of how technology might facilitate basic financial computations, budgeting, or financial simulations pertinent to daily living. Consequently, the promise of technology as a financial education instrument has not been completely harnessed.

This topic is a considerable concern, as numerous surveys and studies reveal that financial literacy among Indonesians, especially within younger demographics, necessitates enhancement. A limited comprehension of financial principles can result in excessive spending, a deficient savings culture, inadequate income management abilities and a heightened likelihood of errors in financial decision-making. (Mishra et al., 2024) This syndrome can adversely affect an individual's well-being and their capacity to confront progressively intricate economic issues in the long term.

Numerous prior research have underscored the significance of financial literacy in cultivating sound financial practices. Research by (Lia Dwi Martika et al., 2024) and (Yang et al., 2023) indicates that persons possessing elevated financial literacy exhibit superior capabilities in managing savings, investments, and long-term financial planning. The research findings affirm that financial education is crucial in enhancing the quality of individuals' financial decision-making. Research from (Preston et al., 2024) indicated that school-based financial education programs markedly enhanced pupils' financial knowledge and awareness.

The study primarily examined the efficacy of formal financial education curriculum, excluding the incorporation of practical technology as the main learning medium.

Research by (Yadav and Banerji, 2023) and (Abdallah et al., 2025) indicates that digital financial technology can enhance the financial literacy of the younger generation by facilitating a better comprehension of contemporary financial products and services. This research primarily emphasises the utilisation of fintech applications and digital financial services. In the Indonesian context, several research on the financial literacy of teenagers and university students predominantly examine the impact of financial literacy on saving behaviour, investment choices and personal financial management, employing a survey methodology. The majority of this research has failed to present a practical learning model that amalgamates technology competencies with proficiency in fundamental financial mathematics ideas.

According to the analysis of prior studies, numerous research gaps remain to be addressed. Primarily, the majority of research address financial literacy and financial technology in isolation. Secondly, prior research has concentrated more on the utilisation of fintech applications rather than on reinforcing fundamental financial mathematics principles as a basis for financial literacy. Third, there remains a scarcity of educational and community service initiatives that amalgamate technofinance principles with Basic Excel Financial Mathematics teaching for youth and adolescents. Microsoft Excel is readily available software, extensively utilised in educational and professional settings, and possesses exceptional functionalities for aiding users in comprehending financial ideas in a practical and useful manner.

The necessity of this community service initiative is increasing with the imperative for the younger generation to concurrently cultivate financial and technology literacy. The Technofinance for Youth program enhances financial literacy by providing instruction in basic Excel financial mathematics, enabling participants to grasp fundamental financial ideas and acquire the skills necessary for executing numerous straightforward financial computations using Microsoft Excel. This strategy aims to connect technology utilisation with financial literacy, allowing participants to cultivate enhanced financial management abilities from a young age. This community service initiative aims to cultivate a financially educated, technologically adaptive young generation equipped to confront the economic problems of the digital age.

Financial Literacy

Financial literacy refers to an individual's capacity to comprehend, administer and use financial information for making informed economic choices (Sticha and Sekita, 2023). The Organization for Economic Co-operation and Development defines financial literacy as the knowledge, skills, attitudes, and behaviours required to make sound financial decisions for the attainment of financial well-being. Consequently, financial literacy emphasises not only the comprehension of financial principles but also the capacity to implement them in daily life.

Financial literacy is an essential skill for youth in the digital world. Individuals possessing a high degree of financial literacy are often more adept at managing income, formulating budgets, regulating

expenses and strategising for future financial requirements. In contrast, inadequate financial literacy may result in excessive consumption, challenges in personal finance management and a heightened likelihood of bad financial decision-making.

The major objective of this community service initiative is to enhance financial literacy through technology-driven teaching and training. Enhancing financial literacy is anticipated to cultivate more prudent financial practices among participants from a young age.

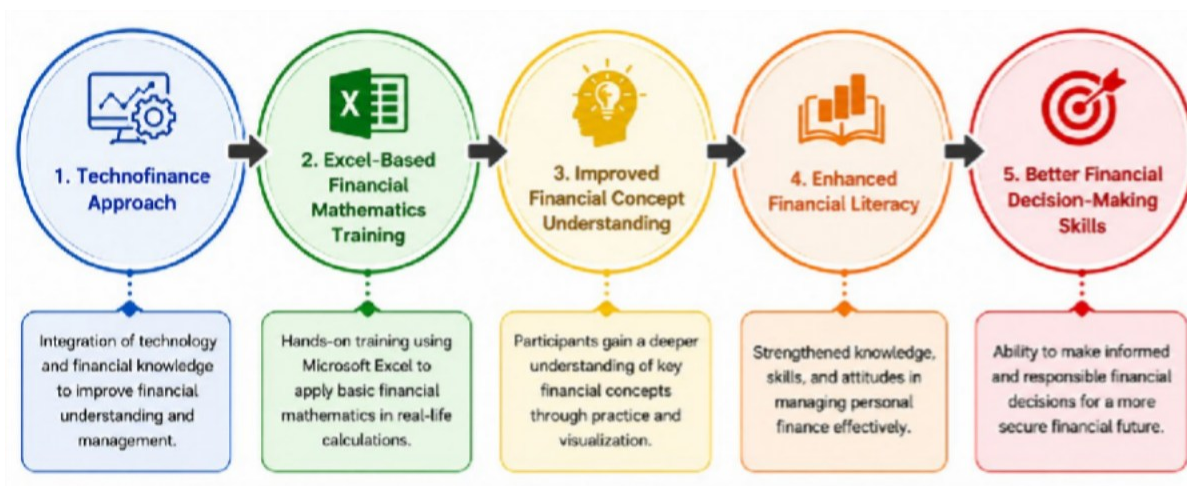


Figure 1. Major Activities of Community Service

Technofinance

Technofinance is a concept that amalgamates technology with financial operations to enhance the efficiency, precision, and quality of financial decision-making (Alpiansah et al., 2025). The advancement of digital technology has instigated substantial transformations in the financial sector, encompassing digital payment applications, electronic banking services, and technology-driven investing platforms. The Technofinance idea asserts that contemporary financial literacy requires more than just comprehension of financial theory. Individuals must also acquire the ability to employ technology as a tool for effective financial management. Consequently, technological literacy and financial literacy are two interdependent skills essential for navigating the evolution of the digital economy.

This community service program utilises Microsoft Excel as a medium for financial education in Technofinance. This method enables participants to comprehend financial ideas while acquiring technology skills pertinent to educational and occupational requirements.

Basic Financial Mathematics



Financial mathematics is a discipline that applies mathematical principles to address diverse financial issues (Mathematics, 2026). Fundamental financial mathematics includes basic calculations such as percentages, profit and loss, savings, simple interest, budgeting, and revenue and spending analysis.

Comprehending financial mathematics is essential, as the majority of economic selections necessitate precise calculating abilities. Individuals proficient in financial mathematics will find it simpler to assess financial alternatives, strategise resource allocation and gauge the effects of economic decisions on their financial circumstances. An early exposure to fundamental financial mathematics can cultivate logical and analytical thinking skills in the younger generation while addressing financial matters. Consequently, financial mathematics becomes a primary subject within this community service program.

Microsoft Excel as Financial Tools

Microsoft Excel is a data processing application extensively utilised in education, business, accounting, and finance. Excel has numerous capabilities, including formulas, mathematical functions, graphs, and tables, enabling users to execute computations swiftly and precisely (Yuliana et al., 2025).

In finance training, Excel helps transform abstract concepts into more tangible and comprehensible ideas. Participants can directly engage in many financial computations, including budgeting, profit assessments, and savings simulations, utilising the formulas provided in Excel (Suryani et al., 2024). Alongside enhancing comprehension of financial ideas, utilising Excel also offers the supplementary advantage of advancing information technology skills. These talents are very pertinent to the requirements of the contemporary industry, which necessitates computer-based data processing and analytical capabilities.

Community Based Financial Education

Community-based education is an instructional method that entails active involvement of the community in the dissemination of knowledge and skills (Alpriansah et al., 2023). This method enables participants to acquire knowledge through firsthand experience, collaborative conversations, and practical activities customised to their community's need.

A community-based approach to financial literacy is seen effective as it fosters a more engaged and relevant learning environment (Restu Alpriansah et al., 2025). Participants get theoretical information and have the opportunity to apply their acquired knowledge through diverse training and mentorship activities. Community service initiatives that integrate financial literacy and technology offer a more stimulating educational experience for the youth. Utilising participative training approaches, participants are anticipated to enhance their comprehension of financial concepts and implement them in their daily activities.

II. METHOD

This community service activity was implemented using a participatory training approach, aimed at improving the financial literacy of the younger generation through the application of Technofinance concepts and basic financial mathematics based on Microsoft Excel. The activity involved 32 participants

from various educational levels, aged 8–15. The activity was implemented through five stages: preparation, needs analysis, outreach, training and evaluation.

1. Preparation

The preparatory phase entailed assembling training resources, developing Microsoft Excel-based fundamental financial mathematics learning modules and collaborating with partners on the execution of the activities. Additionally, the community service team produced supplementary equipment, including laptops, practice sheets and presentation materials for use during the events.

2. Need Analysis

A needs assessment was performed by observation and preliminary interviews with participants and event coordinators. The investigation indicated that the majority of participants were adept at utilising digital devices, including smartphones and laptops, however possessed a fundamental deficiency in financial literacy and the application of technology to enhance financial education. Consequently, training is required that amalgamates financial literacy with technology competencies in a pragmatic and accessible manner.



Figure 2. The Flow Activity

3. Socialisation

The outreach phase seeks to provide a foundational comprehension of the significance of financial literacy in the digital world. In this phase, participants get acquainted with the concept of Technofinance, the advantages of prudent financial management and the significance of understanding technology to facilitate daily financial operations. The activity is executed via interactive presentations and discussions with participants.

4. Training

The training phase constitutes the essence of the community service initiatives. Participants receive materials on fundamental financial mathematics, encompassing revenue and spending calculations, budget preparation, savings, profit and loss analysis, and percentage calculations. Subsequently, pupils are instructed to implement these concepts utilising Microsoft Excel via a series of straightforward tasks and simulations. Experiential training techniques are employed to enhance participants' comprehension of the topic and augment their technological proficiency.

5. Evaluation

The assessment step was executed to gauge participants' comprehension following the session. The evaluation comprised a question-and-answer session, observations during the training and assessments of the outcomes of the exercises conducted with Microsoft Excel. Additionally, participant input was gathered to assess satisfaction levels and program efficacy, which can inform enhancements for future activities.

Table 1. Main Activities

Stage	Main Activities
Preparation	Developing training materials, preparing Microsoft Excel-based financial mathematics modules, coordinating with community partners, and preparing training facilities and equipment.
Need Analysis	Conducting observations and preliminary discussions to identify participants' financial literacy levels, technological competencies, and learning needs.
Socialisation	Introducing the objectives of the program, explaining the importance of financial literacy in the digital era, and presenting the concept of technofinance to participants.
Training	Delivering hands-on training on basic financial mathematics using Microsoft Excel, including budgeting, income and expenditure analysis, savings calculations, and profit and loss computations.
Evaluation	Assessing participants' understanding through practical exercises, observations, question-and-answer sessions, and collecting participant feedback regarding the effectiveness of the program.

Participant's Criteria

The community service activity was attended by 32 participants of diverse educational backgrounds, aged between 8 and 15 years. The participants included children and adolescents with diverse levels of technological proficiency; hence, the training was developed utilising a straightforward, participatory and experiential methodology. This method aims to ensure that participants acquire both a conceptual grasp of financial literacy and practical abilities in employing technology as a financial management tool from a young age.

III. RESULT AND DISCUSSION

The community service initiative dubbed “Technofinance for Youth: Enhancing Financial Literacy Through Fundamental Excel Financial Mathematics” engaged 32 individuals from diverse educational backgrounds, aged 8 to 15 years. This exercise seeks to enhance participants’ financial literacy through the use of Microsoft Excel as a tool for fundamental financial mathematics education. The complete set of events occurred interactively via a hands-on teaching method, enabling participants to comprehend financial ideas while concurrently enhancing technology skills.

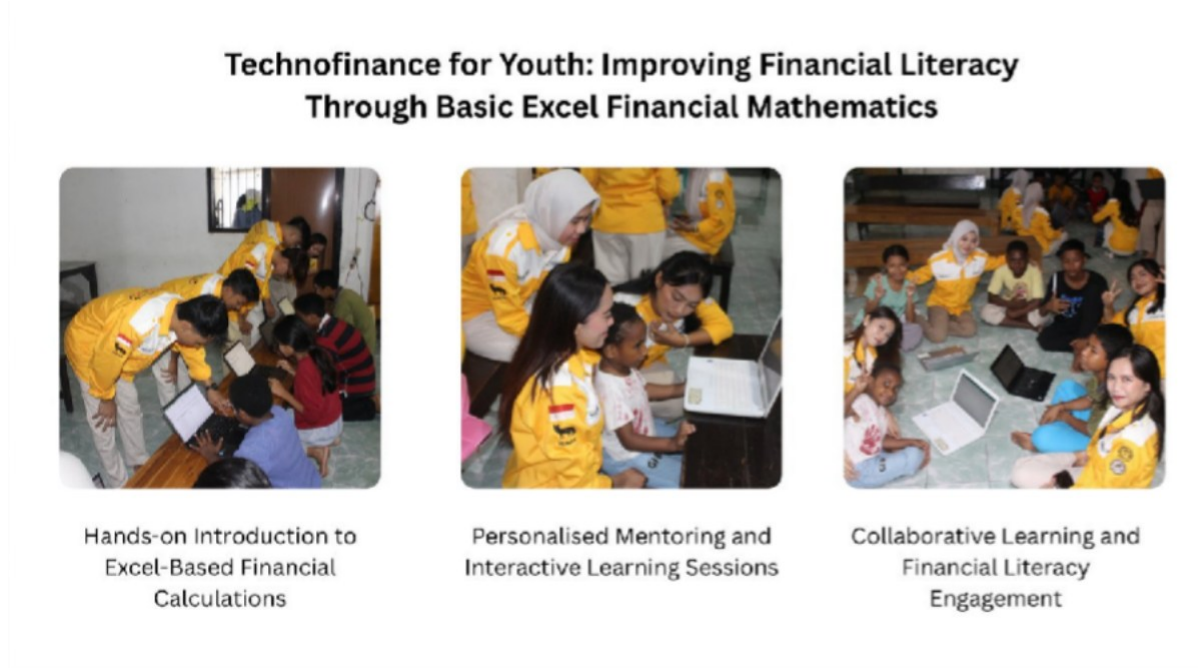


Figure 3. Activity in Location

During the preliminary phase of the program, participants were acquainted with fundamental financial literacy principles, encompassing income management, cost tracking, saves, profit and loss analysis and the need of early financial planning. Observations indicated that the majority of participants were adept at utilising digital devices, including cell phones and computers. Nonetheless, their comprehension of fundamental financial concepts remained rather inadequate. This situation reveals a disparity between their technology proficiency and their financial management capabilities, which is a primary emphasis of this community service initiative.

Subsequently, participants received training in utilising Microsoft Excel to perform different basic financial computations. The content encompassed the use of fundamental mathematics, percentage computations, basic budgeting and simulations for calculating profit and savings. The practice-oriented learning method enabled participants to immediately implement the concepts elucidated by the community service team. During the course, participants exhibited considerable enthusiasm and engaged fully in every practice session.

The mentorship process was conducted intensively, segmenting participants into small groups. This method sought to guarantee that every participant had sufficient guidance during the learning process. Observations demonstrated that the direct mentorship approach was beneficial in enhancing participants' comprehension of utilising Microsoft Excel as a financial computation instrument. Moreover, participants exhibited increased confidence in utilising the software and doing the designated tasks.

The efficacy of the training is evidenced by the evaluation results obtained from pre- and post-tests. Prior to engaging in the training, the mean score for participants was 30.60. This score signifies that participants' preliminary comprehension of financial literacy and its application remained comparatively low. Following engagement in the complete sequence of activities, the mean score for participants rose to 89.37. This enhancement signifies a substantial alteration in participants' comprehension of the material delivered.

Step	Average Score (32 Students)	Increasing
Pre-test	30.60	-
Post-test	89.37	192%

Tabel 2. Pre Test and Post Test

The computation findings indicate a 192% rise in scores relative to the pre-training level. This research demonstrates that the Technofinance strategy, which amalgamates financial literacy with Microsoft Excel utilisation, positively influences participants' comprehension. These findings correspond with numerous other studies indicating that technology use in the educational process enhances the efficacy of knowledge and skill transmission among students.

This practice not only enhanced cognitive abilities but also positively influenced participants' practical skills. Participants comprehended financial ideas theoretically and effectively applied them through diverse simulations utilising Microsoft Excel. This provided value as participants acquired practical experience utilising technology to address basic financial issues applicable in daily life. Consequently, this activity enhanced financial literacy while simultaneously bolstering participants' digital literacy.

The outcomes of the activity demonstrate that the Technofinance for Youth program effectively enhances the financial literacy of the younger generation. The amalgamation of fundamental financial mathematics and Microsoft Excel facilitated a more interesting, interactive, and comprehensible learning experience for participants. This training concept can be duplicated for a broader audience to enhance financial literacy and prepare the younger generation for future advancements in the digital economy.

IV. CONCLUSION

The community service initiative "Technofinance for Youth: Enhancing Financial Literacy Through Fundamental Excel Financial Mathematics" effectively augmented participants' financial literacy by employing a pedagogical method that combined technology with basic financial mathematics. The program, employing Microsoft Excel as a pedagogical tool, facilitated participants' comprehension of financial topics including income and cost management, budgeting, savings and profit calculations in a more accessible and practical manner. Moreover, the experiential, practice-oriented training approach fostered active participation among participants during the learning process.



The evaluation results indicated a substantial enhancement in comprehension following the course. The participants' mean score rose from 30.60 in the pre-test to 89.37 in the post-test, indicating a 192% improvement. The findings demonstrate that the Microsoft Excel-based technofinance methodology effectively enhances financial literacy and fortifies participants' technology competencies. This curriculum serves as a pertinent alternative educational model to equip the younger generation for the challenges posed by the expanding digital economy.

This pastime, however, possesses numerous limits. The participant count was relatively small, totalling only 32, hence the results cannot be broadly generalised. The evaluation was limited to the short term, rendering it unable to assess the sustainability of alterations in participants' financial behaviour post-training. Consequently, more research and community service initiatives are advised to engage a greater number of participants, encompass a broader geographic scope and implement a longitudinal evaluation framework to assess the program's influence on altering financial behaviour. Moreover, the advancement of materials derived from digital financial applications, artificial intelligence, and other interactive learning platforms may serve as a compelling innovative alternative to enhance the efficacy of financial literacy programs in the future.

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