Digital financial literacy and microfinancing among underprivileged communities in Cambodia

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Abstract: This research uses an exploratory approach to evaluate digital financial literacy education and its impact on financial knowledge and financial behavior of rural residents. The villages in Siem Reap province were selected for this analysis, both for the provision of digital financial literacy education and for themeasurement of digital financial literacy with the purpose of determining their impact on reducing poverty. This study reveals that access to financial inclusion services has extended and the low levels of literacy and financial literacy of the people in the selected villages have contributed to their unsustainable financial habits and in the end, they led to overindebtedness. A new approach to digital institutional economics was introduced as a tool for the evaluation of microfinancing. The institutionalization of financial inclusion strategies to incorporate financial literacy and the adherence to the laws of financial markets and the commercialization of operations are in order to pave the way for individual financial well-being, institutional growth, and sustainable economic development.

Keywords: financial literacy, financial inclusion, microfinance, poverty, sustainability.

Alfabetizare financiară digitală și microfinanțare în rândul comunităților defavorizate din Cambodgia

Rezumat: Această cercetare adoptă o abordare exploratorie pentru a evalua educația privind alfabetizarea financiară digitală și impactul acesteia asupra cunoștințelor financiare și comportamentului financiar al locuitorilor din mediul rural. S-au selectat satele din provincia Siem Reap pentru furnizarea educației financiare digitale și măsurarea alfabetizării financiare digitale pentru a determina impactul pe care îl au asupra reducerii sărăciei. Acest studiu arată că accesul la servicii de incluziune financiară s-a răspândit, iar nivelurile scăzute de alfabetizare și alfabetizarea financiară scăzută a indivizilor din satele selectate au contribuit la dezvoltarea obiceiurilor lor financiare nesustenabile, iar în final au condus la supraîndatorare. A fost introdusă o nouă abordare a economiei instituționale digitale ca instrument de evaluare a microfinanțării. Sunt evaluate instituționalizarea strategiilor de incluziune financiară pentru a încorpora alfabetizarea financiară și aderarea la legile piețelor financiare și comercializarea operațiunilor pentru a deschide calea spre bunăstarea financiară individuală, creșterea instituțională și dezvoltarea economică sustenabilă.

Cuvinte cheie: alfabetizare financiară digitală, incluziune financiară, microfinanțare, sărăcie, sustenabilitate.

1. Introduction

The learning systems have undergone changes recently (Iordache & Barbu, 2021). The fight against poverty is not to be addressed by financial resources. They are important, but they do not explicitly define the success of escaping leaving poverty or explain the reason an individual remains poor (Payne, 2013). The poverty reduction has always been the goal of developing countries, of which Cambodia is no exception. The 2030 Sustainable Development Goals of the United Nations outline zero poverty as a goal to be achieved by 2030. The use of nonfinancial resources in fighting poverty, as, for example, the promotion of financial literacy has been very limited, which created an unpleasant situation of indebted citizens who are also in poverty (Engelbrecht, 2008; Lusardi et al., 2010; Lusardi & Mitchell, 2014; Esowe et al., 2017). The availability of several suitable low-cost financial products has created a demand for micro loans within rural communities in Cambodia. As a result, the number of microfinance companies has mushroomed, given the comfortable returns acquired from the predominantly rural clientele (Chandarot & Liv, 2013). The endemic poverty cycle has made people largely dependent on

https://doi.org/10.33436/v32i4y202207

microfinance institutions which have continuously reaped profits. In fighting poverty, the aim is to reduce its impact, promote better livelihoods, and ultimately ensure financial independence. The Royal Government of Cambodia is on the verge of introducing the National Financial Literacy Framework in accordance with a recommendation from the Asia Development Bank (Yoshino, Morgan & Wignaraja, 2015). Financial literacy has become an essential tool in the eradication of poverty because it provides a way for migrating out of poverty (Engelbrecht, 2008). In the current period, a lot of financial transfers are being made. Education for this area should be strengthened (Șcheau et al., 2020). The consequences of poverty have a long bearing on the domestic economy and financial system of a country (Esowe et al., 2017). Empirical evidence has shown that in poor households, financial illiteracy is a major problem that affects their decision making towards basic human needs (Lusardi & Mitchell, 2006).

The country Cambodia, after the Millennium Development Goals, ascended to become a low-middle-income country (2015) with a life expectancy improved by 15.7 years between the years 1990 and 2017 showing that efforts to reduce poverty had improved livelihood (CPPSR, 2016; UNDP, 2018). Cambodia is predominantly rural (85%, 2015) and its economy is agricultural, relying on rice farming, which is exported mainly to Europe. Income is seasonal in most households which constantly exposes them to poverty with frequentpoverty entries and exits. Income shocks caused by price volatility and climate change factors create an unstable financial situation for farming families. This vulnerability affects household consumption (education, health and assets), planning and ability to manage risk (inflation, loss of a breadwinner, crop failure and political instability). Credit (microfinance) becomes the remedy through which a household can cope with demands and expectations. The working poor access credit more favorably than the unemployed poor both in the formal and informal money market. As is common with credit, it is acquired in an emergency and the lack of financial literacy leads to its unplanned use. Insufficient planning leads to insufficient savings which generates overwhelming debts on poor households (Engelbrecht, 2008; Vannak et al., 2008; Yoshino & Morgan, 2016).

Microfinance has grown in leaps and bounds in Cambodia, it has given underprivileged people a cushion against bad agricultural seasons, recurring health conditions, educational demands and societal commitments. Between 2010 and 2020, 18% of Cambodians have been alleviated from poverty however the level of indebtedness has also increased to worrisome levels (Liv, 2013). Lusardi & Mitchell (2013) elucidated that for individuals and households to cope with the complexity of products and services in the financial market, financial literacy is important especially in the management of debt, wealth, pensions, and budgets. An aspect of financial literacy that is important is financial planning, both in the short and long term. As the demand for microfinance products increases, it is imperative to have financial literacy tied together with microfinance in Cambodia. Consumers need to be more financially literate to improve decision-making (Zakaria & Sabri, 2013; Engelbrecht, 2008; Warue & Wanjira, 2013). Blockchain technology is an opportunity for adaptation in Malaysia (Nazim et al., 2021; Sahayaraj & Sannasy, 2022).

In this study aims to determinethe impact of digital financial literacy on poverty reduction by assessing the financial behavior of participants. These participants had no financial knowledge at the time of starting the study. Previous studies have alluded to the correlation that exists between financial literacy and poverty reduction, a phenomenon investigated in this study for the case of rural communities in Cambodia. The researchers are aware of the dominance of the microfinance market in Cambodia and reach in rural communities, this study takes note of the over-indebtedness situation and assesses the issues in the implementation of microfinance. The New Institutional Economics Approach is used as an instrument that is best suited to evaluate regulation, governance, and institutional structures (Sharma, 2016; Abrar & Javid, 2015). This paper then provides a framework in which digital financial literacy can be used effectively in the implementation of microfinance to ensure better debt repayment by consumers. Second, it also contributes to the implementation of the National Financial Literacy Framework suitable for the Cambodian population. The research will also fill the knowledge gap on financial literacy for underprivileged communities to mitigate poverty. The outlined research objectives of this study are:

a) To measure the effectiveness of digital financial literacy education among underprivileged communities in Cambodia.

b) To explore the issues surrounding the implementation of financial literacy in these communities.

c) To identify the weaknesses in the implementation of micro-finance in these communities.

2. The concept of Digital Financial Literacy

Digital Financial Literacy has become an area of focus in developing countries, it is seen as an instrument that could improve the socioeconomic well-being of people (Refera et al., 2016). Yoshino, Morgan & Wignaraja (2015) as cited by ADB Institute (2015) indicate that in Asia digital financial literacy is still a new subject for research and policy. Developed countries have formulated policies and frameworks on the implementation of financial literacy, especially after the financial crisis that occurred (Miller et al., 2009). Financial ignorance carries significant costs to the consumer in the presence of complex financial products. People are not as financially literate as they are assumed to be; this weakens their capability to make sound financial decisions and, in turn makes them vulnerable. Lusardi & Mitchell (2014) define financial literacy as the ability to process economic information and make informed decisions about financial planning, wealth accumulation, debt, and pensions. Without an understanding of financial concepts, people are not equipped to make decisions related to financial management (Klapper et al., 2014).

Cole et al. (2011) in their study concluded that people in rural communities have the lowest levels of financial knowledge. The limited financial literacy they exhibit impacts on their investments, debt and saving behavior. It is highly likely that they have low or unstable income and are more vulnerable to economic shocks, for them financial literacy is of essence to their survival.

2.1. Poverty reduction and digital financial literacy

Poor people and low-income earners are the targeted group when it comes to poverty reduction strategies. They constitute the most vulnerable group in society and are welfare-dependent because of their lack of resources. The debate on poverty reduction programs that are effective for this constituency is an ongoing battle of philosophies, the majority of programs have yielded results overtime but there still remains a significant population that is in poverty (Abrar & Javid, 2015). Strategies aimed at reducing poverty have been focused on monetary, aid and welfare enhancement acting in isolation from non-financial methods. Digital financial literacy allows individuals to better manage their assets and liability. Engelbrecht (2008) gives evidence that the lack of digital financial literacy in poverty reduction strategies has affected the intended results of eradicating poverty. The promotion of financial education is key in improving the digital financial literacy levels of individuals (ADB Institute, 2015). General literacy does not necessarily translate into financial literacy as it can be seen in the review of studies done by Central Connecticut State University where some of the countries which ranked high in literacy did not have a corresponding high score in the World Bank Financial Literacy review (Klapper et al. 2014). The status quo is due to the uncoordinated approach to financial literacy initiatives and academic curricula that do not support financial education. Yoshino et al. (2015) argue that financial education can be viewed as a capacity building process throughout an individual’s lifetime, which results in improved financial literacy and well-being. Atakora (2013) found that a higher financial literacy ensures that an individual is aware of psychological biases that exist in the promotion of financial products and services sold by agents. For low-income earners who frequently purchase financial products, financial literacy becomes important so that they can be informed and equipped (Lusardi & Mitchell, 2014).

2.2. Financial literacy and financial behavior

The variety and complex nature of financial products and services makes it hard for consumers to navigate the markets, compare products and understand the risk component. The initial concept of financial literacy is transcending to incorporate behavioral change (Socol, 2014). Refera et al. (2016) point out that financial literacy and financial capability improve personal financial management, which manifests in better financial behavior and financial outcomes.

Empirical studies have identified that financial literacy contributes to improving the financial behavior of individuals (Atakora, 2013; Lusardi & Mitchell, 2013). The challenges faced daily in making financial decisions require instantaneous responses and reactions which manifest themselves in financial behavior. In developing countries where income is unstable or low, these decisions impact the wellbeing of the individual. Applied financial literacy will allow an individual to choose one financial product instead of another, determine the timing for the purchase of a service and plan in advance to settle financial commitments. Past studies on financial literacy in developed countries found that households with low levels of financial literacy acquire few assets (Lusardi & Mitchell, 2006), are unbanked and participate less in the loans at higher interest rates (Lusardi & Tufano, 2009) and do not plan for retirement. There are greater challenges for people who are not financially literate because they lack the traits of a proper financial behavior such as timely payment of bills, avoidance of over indebtedness, budgeting, diversifying investments and management of unexpected financial constraints. Financially literate consumers increase the demand for the use of financial services, which contributes to reducing poverty and to the sustainability of the household economy.

2.3. Poverty reduction and microfinance

Microfinance was born out of the failure of donor aid in reducing poverty. The World Bank at its inception targeted poverty reduction through the channelling of aid and financial assistance to poor people around the world (Abrar & Javid, 2015). Poor people were more dependent on aid and paralyzed with this approach to poverty alleviation until the introduction of micro loans by donor organizations. As the concept of microfinance grew, it became an integral part of development policies and the fight against poverty. Poverty eradication is a priority as outlined in the UN Sustainable Development Goals, and the dual use of digital financial literacy and financial inclusion is bound to result in greater success in reducing poverty. The exclusion of individuals from the financial system is largely involuntary in developing countries and it is linked with low levels of financial literacy. Yunus (2008) stated that availability of credit to the poor creates economic power to lift them out of poverty. In the provision of financial inclusion products, the poor are awarded the opportunity to engage in entrepreneurial activities that will support demands they were unable to afford. This approach proves to be sustainable because those who receive micro loans are able to generate income and depend less on aid which gradually improves their livelihoods. The poor require access to financial services as a solution to alleviating poverty. The rural poor are marginalized from traditional banking and credit facilities, which in practice affects the rate at which poverty reduction takes place (Dercon, 2009). The provision of aid by welfare organizations and the various poverty reduction programs play a significant part towards the alleviation of poverty. Microfinance however is a solution that is initiated by the benefactor as opposed to other poverty reduction programs. In the presence of banking and credit facilities the rural poor can access finance and utilize it rather than wait for donor organizations and government to provide support. Digital financial literacy is a step towards financial inclusion (Sayinzoga et al., 2014), as in studies done in Africa where a supply of financial services did not translate into the expected demand due to the poorly educated and financially illiterate consumers. Continued exposure to financial literacy is important given the innovation of the financial market. This is essential in developing economies where experience with the financial system is significantly new making the optimal utilization of financial services minimal (Mahdzan & Tabiani, 2013). Poverty reduction is accelerated by growth in the credit market. Most microfinance efforts encourage entrepreneurship which supports the agricultural economy and opens up other areas of businesses to the poor (Dercon, 2009). Credit market interventions that facilitate the financial inclusion of the rural poor are effective in reducing poverty.

3. Research methodology

This study used quantitative and qualitative research methods to achieve greater robustness in the conclusions of the findings. The design of the methodological framework for this analysis shows how the variables identified to affect poverty reduction are disintegrated into the actual components which are being tested and analysed, as it can be seen in Figure 1.

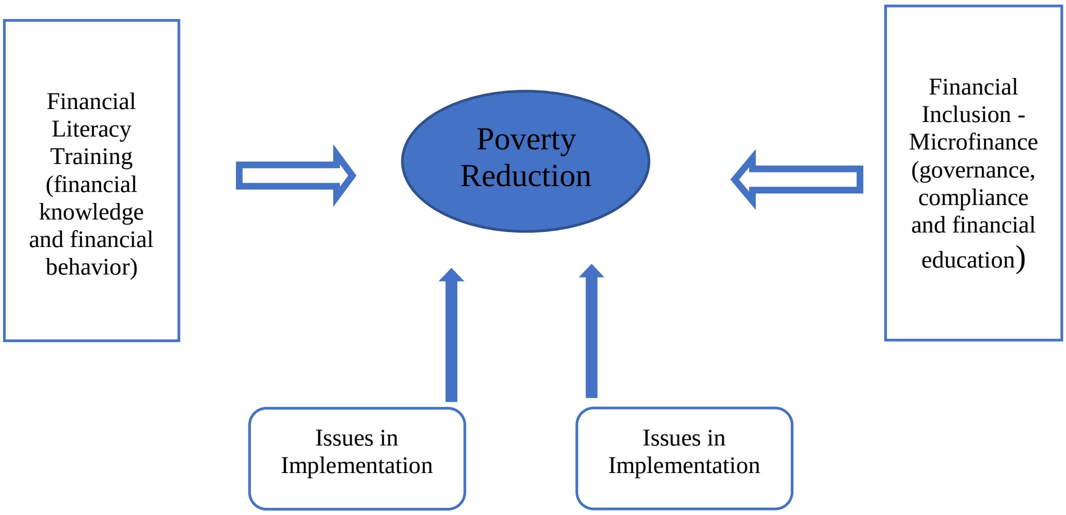

Figure 1. Methodological Framework: Reducing poverty through financial literacy among underprivileged communities in Cambodia – New Institutional Economics Approach

The Financial Literacy project used in this research study was conducted in two parts by Journeys Within Our Community (JWOC), an American registered development organization that operates in 13 villages in Siem Reap province (2020). The results presented in this study have not been used in another article. As part of this research, two trainings were carried out on the basis of which certain data was collected. The data used in the quantitative evaluation, SPSS, was collected from the first training, and the data for the qualitative evaluation was collected from the second training. The data analysis for this research was done using SPSS as an analytical tool for quantitative output and NVIVO for qualitative output.

3.1. Methodological framework, research design and data collection

To understand the governance practices and issues affecting microfinancing, institutions which were current lenders were chosen for the analysed sample. This was possible through an assessment of the loan holdings for this sample and of the geographical distribution (Siem Reap) of the respective financial institutions' network and operations. Therefore, the analysed sample consisted of 4 banking institutions out of the 10 Microfinance Institutions (MFIs) targeted for this study. Some of the chosen institutions did not have branches in Siem Reap and the frequency of loans was very low for the chosen sample. This sample includes one commercial bank that had a high uptake of microfinance loans. The sample size for MFIs was meant to allow the assessment of the related governance matters affecting microfinancing to see if there was a correlation between them. Information on the distribution of MFIs was gathered from the National Bank of Cambodia and Cambodia Microfinance Association. The market share for those particular MFIs was also considered on the presumption that the analysed sample had a current loan from them. Using this approach the size of the analysed sample represents 30% of the market, without including the commercial bank. This criterion helped because the sample had multiple loans and by identifying MFIs with a proportional share of the market one could directly match the behavioral aspects of our sample and the governance structures in distributing microfinance. This information on market share was obtained from the National Bank of Cambodia.

The data collection involved both primary and secondary datain order to corroborate the findings obtained and eliminate the margin of error. This also helped to design a comprehensive financial literacy program that would address the elements of saving, budgeting, and financial knowledge, which in this research, could help address indebtedness as a solution for nonperforming loans. Interviews were conducted with management representatives of the sample microfinancing institutions (including the commercial bank) which made it possibleto understand their governance and related issues. A standard questionnaire was used for each MFI selected for this study and responses were derived either through a face-to-face arrangement or by phone. The documents related to policies as applied by the chosen institutions were also viewed and verified with their consent. As secondary data one obtained audited financial statements and annual reports for the year 2020 of the respective samples selected for this study. These statements were assessed guided by the regulatory reporting frameworks in Cambodia as prescribed by the Ministry of Finance, National Accounting Council of Cambodia, and National Bank of Cambodia. Reference is also made toMF Transparency and sources of data from the International Monetary Fund and the World Bank.

The digital financial literacy training workshops were conducted in villages within Siem Reap province where this international development organization is based. The first training taught principles of spending and saving with a practical task of recording of expenses. The objective was to increase household knowledge about budgeting and decrease its vulnerability to debt. Training was delivered through interactive means considering the low literacy levels of the participants. At the end of the training, participants were tested with regard to their knowledge and understanding, which were measured against data collected during the preproject design. All participants at the training were offered financial advisory assistance that would help them on call, and they were invited to the second part of the training.

The second part of the training was rather extensive, it was conducted for four to six months after the initial training for each sample size. The focus of the second training was enrichment and investment using the specific, measurable, achievable, realistic, and timely (SMART) objectives strategy. In this training the participants were applying knowledge acquired in the previous training into discussing investment ideas and ways to financially enrich their livelihood. This was meant to equip them when it comes to enterprise and sustainable finance. The participants were presented a case study where they had to apply financial knowledge. Their approach and strategy in dealing with the case study was collected as data for this study.

The sample size included 120 participants spread over 3 villages and 6 financial literacy training workshops conducted in Siem Reap province in 2020. A post-training survey was conducted for us to understand whether participants had changed financial behaviors and whether their financial situation had changed after 12 months. Corroborative secondary data was acquired from the website of the National Institute of Statistics (NIS, 2022).

Microfinance Analysis

This analysis of microfinance institutions only looked at registered MFIs licensed by the National Bank of Cambodia (NBC) and registered with the Cambodia Microfinance Association. Data used in the analysis at sector level was extracted from the NBC published sources, reports on MFIs in Cambodia for the year 2020. This analysis helped to address the research questions raised in this study. In essence the question on governance systems was addressed.

H1 "What are the weaknesses in the current governance system of microfinancing institutions in Cambodia?",

drawing from the regulatory development of the corporate governance in this sector is an aspect that gives confidence to all stakeholders. Therefore, here matters to do with the various Prakas and regulatory frameworks were assessed to find if there were any inherent weaknesses that could possibly be reversing the poverty reduction thrust of micro financing.

Microfinance Institutions

With regard to the first two research questions usedused as part of this analysis, the above question on corporate governance was further broken down through interviews with selected MFIs. The interviews were conducted in a professional manner and were highly private and confidential as the information shared was sensitive. The interview was 45-minute long and included a cover page with an abstract, guidelines for answering the questions, and ethical rules applied by the researcher throughout data collection to publication of the research paper. Initially, communications for arranging the interview were done by email where details of the research were forwarded to allow management to make an informed decision with regard to the participation in the research. Interviews were conducted with senior management officials by the researcher. Senior management was better positioned to provide credible information and objectively answer the questions. The interviews addressed our second research question,

H2 “What are the issues in the implementation of microfinancing facilities in underprivileged communities in Cambodia?”

The researcher interviewed credit officers involved in the disbursement of loans to understand the routine processes and procedures in order to verify if there were issues emanating from there. The design and development of the questionnaire was done with reference to statutory regulations affecting banks, MFIs, and other Financial Institutions. The researcher also made reference to previous studies on financial inclusion and in particular microfinance (Abrar & Javid, 2015). In addition, documents and materials were received for this review in line with the research as part of answering the above questions. Other secondary data sources used for analyzing MFIs were annual reports and audited financial statements obtained from the respective institutions that were interviewed. The participating institutions are kept anonymous.

Financial literacy

The research seeks to understand the effectiveness of financial literacy in rural communities in Cambodia as such, financial literacy education training workshops were designed that equipped participants with knowledge on managing finances and practical application of the knowledge through case studies. The trainings were designed from an understanding of the problems that existed in the analydes population. A survey was carried out in villages in Siem Reap province where the most common household problems were poverty, debt, managing expenses, and inability to meet emergencies. The proposed solution to address the problems became financial literacy, as microcredit penetration was not a tenable solution but in part a cause of the problems. The research question,

H3 “How effective is financial education among rural communities in increasing financial knowledge towards managing expenses?”,

gives insight on the role of financial literacy. Through observations during trainings and post-training surveys, the primary data collected assists in understanding whether there is a correlation in this regard.

Another objective of the financial literacy trainings that is translated as a sub question in this study is debt vulnerability. The aim was to understand the reasons behind accessing debt in the form of loans and in effect enable the participants to desist from dependence on debt as cases of multiple loans were common. This is what prompted the research to include a dual study that investigated weaknesses in microfinancing. Further questions that were addressed in the analysis involving the collected data concernthe implementation of financial literacy,

H4 “What are the issues faced in implementing financial literacy among rural communities in Cambodia?”

Studies and material on financial literacy have largely focused on urban population, students, and high-income individuals and were centered on developed countries. Therefore, this particular study on rural communities who have low literacy levels provided new dimensions on understanding issues faced when implementing and assessing financial literacy. The collected data on financial literacywas obtained through surveys and observations made based on Journeys Within Our Community Financial Literacy Education Training program, and respondents were kept anonymous. Secondary data was extracted from the National Institution of Statistics reports (NIS, 2022); this was for us to understand household expenses through the Consumer Price Indices at the same time when trainings and primary data were collected from the analysed sample.

3.2. The research model

The model used in this research is:

$$\text{Poverty Reduction} = \alpha+\beta_1\text{FINANCIAL BEHAVIOUR}+\beta_2\text{FINANCIAL KNOWLEDGE}+\mathcal{E} \quad (1)$$

whereby α is a constant term, β_n are the coefficients to be determined and $\mathcal{E}$ is the error term.

In this analysis of issues in financial literacy and financial inclusion, this model was highlighted:

$$PR = \alpha + FL\ [(\beta_1\text{FINANCIAL BEHAVIOUR} + \beta_2\text{FINANCIAL KNOWLEDGE}) + (Þ_1\text{Age} + Þ_2\text{Gender} + Þ_3\text{Health} + Þ_5\text{Employment} + Þ_6\text{Education} + Þ_7\text{Income} + Þ_8\text{Debt})] + FI\ [(\text{MICRO LOAN}) +(Þ_1\text{Governance} + Þ_2\text{Compliance} + Þ_3\text{Financial Education})] + \mathcal{E} \quad (2)$$

whereby $\mathbf{Þ_n}$ are the coefficients to be determined.

3.3. Research findings and discussion

Financial literacy education trainings involved 120 respondents, based on gender 90% of them were female and 10% were male, as it can be seen in Table 1. This skewed representation was due to the fact that most male members of the community were engaged in work activities during the time at which trainings were conducted and corresponding surveys were done. Most of them were employed in the rural economy (Chandarot & Liv, 2013), where they were engaged in hard labor work that made them unavailable during the time of the research. 65% of the respondents had the husband as the breadwinner of the family.

Table 1. Demographic Descriptive Features

Gender	Frequency	Percentage
Male	12	10%
Female	108	90%
Monthly Income US$	Frequency	Percentage
$50 or less	24.24	20.20%
$50 - $100	45.12	37.60%
$100 - $150	19.8	16.50%
$150 - $200	12.12	10.10%
$200 and above	18.72	15.60%

Most of the participants in the analysed sample had no formal education, that is 39.9%, the most common level of education was primary education for 39% and those with university education accounted for 10.6%. The low level of education is similar to that of the total Cambodian population. Regarding occupation, 38% were self-employed, 27% unemployed (housewives) and 35% employed in the following categories: seasonally employed, unstable employment and gainfully employed. As it can be found in empirical studies, in developed countries, a considerable number of people are self-employed or have an unstable job which explains the low- and unstable-income phenomena. The most common monthly household income bracket was US$50.00 – US$100.00 as indicated by 37.6% of the respondents. Health care was another significant descriptive feature of the respondents, 40% indicated to have regular health care costs due to recurring illnesses and ongoing treatments.18.5% could afford these recurring costs. The effects of poverty and low income on the health of the household were recorded of 71% by the respondents.

Financial Knowledge

The respondents underwent financial literacy training workshops, 30% attended both trainings. There were case study scenarios and questions at the end of each training that tested the financial knowledge of the participants, in numeracy, time value of money, credit and loan finance, budgeting and investment. The analyseddata collection after six months indicated that 80% of the respondents showed that their financial knowledge increased and they were now aware of the basic principles of finance. From the first training they acquired an understanding of financial management practices. Financial knowledge helped them address financial issues such as differentiating needs and wants, managing household expenditures and income, acquiring and repaying credit and budgeting. The acquisition of financial knowledge through financial literacy education is therefore effective in improving the financial knowledge of rural communities as discussed by the authors Jappelli & Padula (2011). The desire to acquire financial knowledge is high in individuals who intend to increase their return on investments (Becker, 1975). Entrepreneurship is high in developing countries where the formal labor market is still developing, however in the rural economy there are very few entrepreneurs except for subsistence farmers who account for 76% of the economy. In the second financial literacy education training attendants were taught about investment and making use of SMART objectives, which are relevant for people who intend to gain a reward from improved financial knowledge.

Financial Behavior

Different aspects of digital financial behavior were assessed in the findings of this study. Financial behavior relates to habits applied by individuals when making financial decisions. These habits are influenced by understanding and knowledge of financial literacy acquired by the individual. To evaluate the impact of digital financial literacy on financial behavior, data was collectedfrom the respondents before the financial literacy education trainings, which showed that 100% of the respondents had a loan from public and private national institutions and 67% were indebted to at private institutions, in a situation where they were unable to repay the loan or loans because of the multiple loan situation common to the sample population. Debt therefore is a financial behavior that was found to be prevalent. Therefore, the financial literacy education trainings equipped the participants with knowledge on managing their expenses, planning their money management, and debt repayment issues.

After six months when the data collection for this study was done through survey questionnaires, 20% of the respondents indicated that they had not taken a new loan as a solution to their financial issues. Acquisition of micro loans remains a source of finance for the underprivileged communities because of unstable income and low household income but through application of financial literacy concepts and knowledge 20% of the respondents desisted from acquiring a loan which agrees with Jacob et al. (2000) who stated that adequate financial education improves financial literacy and amends financial behavior for the better. Socol (2014) stated that financial literacy leads to better outcomes in financial decisions because of behavioral change in managing finances. In this research, 26.4% of the respondents indicated that they had started budgeting for their household income and expenses. The challenges in budgeting emanated from the patriarchal system prevalent in Cambodian households where the husband is the breadwinner and does not disclose his income to allow proper budgeting. In tthis study, very few men attended the above-mentioned financial literacy trainings which posed a challenge if the wife would have wanted to champion a budgeting culture in the family.

Respondents showed an understanding of budgeting which was tested through a case study scenario, but in practice only a quarter of them budgeted their income and expenses. Pearson's Correlation Coefficient was $r = -0.98$ showing a negative correlation between financial knowledge and financial behavior which is similar to a finding inthe study by Lusardi & Mitchell (2014). Financial behavior in terms of saving behavior was typical of 20% of respondent. According to the findings were that digital financial literacy does not instantly result in individuals saving. Saving is affected by other factors such as wealth, income, and employment. This study pointed out that individuals who claimed that they were saving money wanted to buy an asset in the form of a tractor, motorbike or house. This then agrees with previous studies which found that saving is influenced by wealth accumulation, not directly by financial literacy (Lusardi & Mitchell, 2013). Saving behavior is affected by low and unstable income. During months of celebrations and festivities such as weddings, Khmer New Year celebrations, Pchum Ben etc. individuals are less likely to save. Unplanned expenditure is high because of social commitments, it derails plans to save and also adds on the need to borrow. Studies on financial literacy and savings carried out in developing countries like Ukraine also found that low income reduced the need for individuals to save money (Kharchenko, 2011).

Issues in implementing digital financial literacy

In the pilot study for the analysis on digital financial literacy, an ‘expense tracker’ booklet was introduced to be used to translate theory into practice. The ‘expense tracker’ would enable the participants to effectively manage their expenses and the whole process would be monitoredafter the training workshops until the time for data collection. However, there was little interest in signing up for the use of the expense tracker model because of privacy concerns, busy agricultural seasons, migration due to employment, and financial dependency. In the modern world, the use of a mobile application would have been sufficient for the study, but low penetration of smart phones and poverty levels were hindrances to accessing smart phone devices. This limited the study in measuring the real practice and the impact of financial literacy education.

Illiteracy is also a challenge encountered in designing digital financial literacy initiatives in rural communities due to the people`s low levels of education. Education improves the ability of an individual to make balanced decisions, especially financial education (Dinu, 2021), because it allows the person to do a risk-benefit analysis and respond rationally (Ghosh, 2012; Kefela, 2010). In this study, the financial literacy education material was designed to be relatable and understandable to illiterate individuals for them to be able to grasp financial concepts and knowledge. Past studies centered on developed countries were used as references, but could not be adapted to the Cambodia case. The financial market’s landscape is different compared to that of developed nations and the socio-economic environment is unique. According to surveys from the pilot 96% highlighted that the financial literacy education materials and training were relevant to their lives.

The impact and awareness of financial literacy is limited by the number of financially literate individuals. Through the Journeys Within Our Community financial literacy program, the university students were taughtfinancial literacy and in their turn they were the team that went to train the villagers on financial literacy. This approach provided more trainers who would be ready to assist respondents with financial information and help them make decisions. There was a great need for financial literacy advisors after the training and this also helped to ensure appropriate practice of financial literacy. Within the rural community individuals such as teachers and entrepreneurs who grasped financial literacy education became advisors who could assist their community. Financial literacy does not result in a tangible financial reward in the short term, and this discourages individuals. People with little or no income and wealth have no reason to be interested in financial literacy.Their immediate need is to have physical rewards such as food, money or aid of some sort as opposed to knowledge and educational material. There is an opportunity issue where a person has to forgo spending a day in the field or at work for being in a financial literacy training workshop for four hours. At the end of the training, the persons must determine whether they benefited from the training, and firstly, the benefit has to be tangible. This is a limitation, but, the aim of getting the targeted participants to attend these trainings was reached..

Financial Inclusion - Microfinance

Cambodia is a developing country that stagnated during the Khmer Rouge era and the post Khmer Rouge period of 1970-1990. The socioeconomic structure of the nation was destroyed during this time and a mono-banking system operated in the country. As stability was achieved, the banking system became a two-tier system with commercial banks taking other banking functions from the National Bank of Cambodia, which led to the development of the banking sector. Following a bank restructuring program necessitated by the introduction of banking regulations (Prakas) and legislation (Law on Banking and Financial Institutions) at the turn of the millennium, also after the Asian financial crisis, the number of commercial banks was reduced significantly.

This restructuring also gave the National Bank of Cambodia supervisory and regulatory authority over organizations providing microfinance in the country.

As a norm, the reach of commercial banks in a developing country like Cambodia was limited to the small percentage of employed middle-income earners, government workers and returning Cambodians from the diaspora. Most Cambodians living in poverty relied on donors to assist them with aid but the philosophy surrounding development assistance evolved from being dependency driven to empowering people living in poverty by financing development. Microfinance became one of the manifestations of this empowering ideology in the fight against poverty. Development organizations such as the Group de Recherche et d'Echanges Technologiques (GRET), Catholic Relief Services (CRS), Agence Française de Développement (AFD), United States Agency for International Development (USAID) and World Vision took the first steps in providing and funding microcredit. In the provision of rural development programs, the organizations also introduced microfinance programs. This allowed subsistence farmers to acquire farming inputs and machinery, it allowed communities to start income generating projects and households to send their children to school. People no longer waited for aid but had access to development finance through donor organizations.

The microfinance sector grew in the late 1990s both in terms of investment and reach, so there was a need to systemize operations to protect investments and reduce risk for microfinance providers. The Rural Development Bank was created by the government to channel rural finance and promote microfinance in Cambodia (Lusardi & Mitchell, 2014). The regulations introduced in 2000 for microfinance stipulated that MFIs with a portfolio over KHR 100 million must be registered with the National Bank of Cambodia, while MFIs with a portfolio over KHR 1 billion must be licensed, as a limited liability company or as a cooperative.

In 2008 there were 17 licensed MFIs and 25 registered microloan enterprises, this is compared to 76 registered MFIs with 7 of them being microfinance deposit taking institutions (MDIs) in 2017. The growth of this sector has been required by government's commitment to rural finance and the clear design of a financial sector development strategy. This has attracted foreign direct investment into the microfinance industry due to the guaranteed security of investments. Foreign investments into the industry are significant, for MDIs the investment in terms of shareholding is 98% with the MDIs owning 46% of the microfinance financial market.

According to the UNDP poverty in Cambodia has decreased to 35% in 2020 from 53% in 2010. Microfinance has contributed to this decrease and as outlined in the United Nations Sustainability Development Goal Number 1 'no poverty' will soon be achievable in Cambodia. Households account for 33.8% of total loans distributed in 2020 followed by agriculture which has 25.5% of loan uptake in the microfinance economy. Trading and commerce are the third largest absorber of microfinance loans with 18.8% of the total loans distributed in 2020. Loans have helped households improve their standard of living, ensured productivity of the agricultural sector, and supported the development of small to medium enterprises in the country.

The net profit after tax for the microfinance industry for 2020 was KHR 550 million. The commercialization of the industry did not show positive financial statements for all institutions because 27 MFIs had losses after profit for the same year. At the same time non-performing loans have continued to increase, in 2015 to KHR 87,964 million, in 2016 to KHR 182,116 million and in 2020 to KHR271,630 million. The non-performing loans ratios were 0.9%, 1.4% and 1.6% respectively for the same years. Household debt is increasing and in the study 67% of microfinance beneficiaries were currently indebted. A new paradigm has been created where the people in poverty are also in debtor those out of poverty are indebted to microfinance institutions.

Issues in implementing microfinance

For understanding the implementation of microfinance, researcher-administered questionnaires were applied for microfinance banks' officials, the branch manager or manager responsible for loan portfolios at national level. It was important to target officials who had an understanding and oversight of the loan process in order to be able to identify issues surrounding microfinance.

Compliance

The National Bank of Cambodia has oversight over microfinance institutions in Cambodia through the Law on Banking and Financial Institutions (1999) and Regulations (Prakas). The central bank as the enforcing agent in the financial, money and capital markets has been timely in introducing regulations that strengthen confidence and credibility in these markets. In the questionnaire survey implemented to MFIs questions were asked to understand whether those institutions were applying the regulations in compliance with their license to operate.

The MFIs surveyed were more compliant with the regulations effected by the central bank:

Prakas on the Licensing of MFIs
Prakas on Internal Control of Banks Financial Institutions
Prakas on the Calculation of Interest Rate on MFIs
Prakas on the Maintenance of Reserve Requirement for MFIs
Prakas on Reporting requirement for registered NGOs and MFIs
Prakas on Liquidity Ratio Applicable to Licensed MFIs
Prakas on Governance in Banks and Financial Institutions
Prakas on Registration and Licensing of MFIs
Prakas on Loan Classification and Provisioning Applicable to Specialized Banks for Rural Credit and Licensed MFIs
Prakas on Microfinance Institutions Solvency Ratio
Prakas on Adoption and Implementation of Chart of Accounts for MFIs

In the aforementioned survey questionnaire the MFIs could not fully disclose information pertaining to their internal controls and reporting as they considered it sensitive. Further on, annual reports and audited financial statements of the selected institutions were used for these surveys, and it was found that they were compliant with the regulations on internal controls for banks and financial institutions and regulations on reporting requirement for NGOs and financial institutions.

Governance and financial education

In this analysis of corporate governance, the regulations on governance in banks and financial institutions are considered as the core reference source. These regulations require microfinance institutions to have a board of directors as the governing body of the institution. The board of directors will be composed of qualified, active and independent board members. In addition, the board will establish audit, risk, remuneration and nomination committees. The regulation on internal controls for banks and financial institutions provides for the establishment of other dedicated committees with the aim of prudent risk taking and risk management of the institution where deemed appropriate other than those in the regulation on governance in banks and financial institutions. The respondents did not give satisfactory answers on the qualification of board members and on the independence of the board. For financial institutions, directors with an enhanced understanding of financial issues and accounting knowledge will be more prudent in shaping financial planning, committed to sound internal controls, and resourceful when it comes to risk management and contingency planning. Secondary data from MFI annual reports and audited financial statements was further analysed, which enabled a better view of the board of directors' structure in relation to qualifications an it was found that at least 3 directors in each MFI met the qualification criteria of being knowledgeable in finance and accounting. The financial education is not offered as a separate service by MFIs in Cambodia to enhance their financial inclusion strategies, which have expanded widely to include micro insurances, micro pensions, money transfers, mobile banking, and deposits.

4. Conclusion

This study assesses the impact of digital financial literacy on underprivileged communities in Cambodia by evaluating the financial knowledge and financial behavior of the respondents. The results of the study help policy makers in developing countries prioritize financial literacy as an instrument for inclusive sustainable growth. Also the Cambodian situation was unique especially on the indebted part of the respondents and the structural issues regarding microcredit and microfinancing. Financial inclusion is a driver of economic growth, this study provides policy and institutional issues that the government of Cambodia must address to combat the level of indebtedness and achieve the effective reduction of poverty. Microfinance has various dimensions, and it is evident from empirical results that penetration and absorption of financial services and products leads to poverty reduction. The establishment of financial literacy centers and the promotion of financial literacy advisors will contribute to the understanding of the benefits of microfinanceamong underprivileged communities. A cross-country analysis that is comparative with the analysis carried out for Cambodia will give an understanding of the impact of financial literacy on underprivileged communities in developing countries which could add to the literature and allow for a cohesive approach in implementing financial literacy. This study was limited by geographic confinement in Siem Reap, a broader analysis of other rural communities in Cambodia will give a better understanding of the impact of financial literacy on poverty reduction in the country. Fundamentally the components of financial behavior and financial knowledge will remain focus areas in understanding financial literacy.

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