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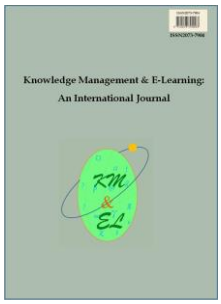

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Application of MOOCs for borrowers' financial education in microfinance

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Abstract: The main objective of this research was to explore current borrowers' financial education in microfinance and determine the possibilities of adopting massive open online courses (MOOCs) for such individuals. We adopted a semi-structured interview research strategy. A total of 25 employees and borrowers in BRAC's *(Bangladesh Rehabilitation Assistance Committee and then Bangladesh Rural Advancement Committee, currently, BRAC does not represent an acronym)* microfinance program were interviewed and the data were analyzed qualitatively. The results show that BRAC's microfinance program provides borrowers' financial education in terms of a pre-disbursement orientation and four-day training through the creation of a new role of customer service assistant. The results also reveal that edu-entertainment, easy understanding, and more borrower participation are the main possible opportunities for adopting MOOCs for borrowers' financial education. We identified infrastructure, Internet connection, and funding as possible hindrances to adopting MOOCs for financial education. Finally, we propose a framework for adopting MOOCs for borrowers' financial education in microfinance.

Keywords: Financial education; Microfinance; Massive open online courses; MOOCs; BRAC; Bangladesh

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Monirul Hoque received Bachelor of Education, Master of Education from University of Dhaka in 2011 and 2012. He started his career with the giant telecom company named Grameenphone (209-2013) as a Customer Service Manager. He also worked as a Research Associate in Aga Khan Foundation Bangladesh (2012-2013). Later he joined in BRAC Microfinance (2013) and currently working the Research and Development Unit. His areas of work include product design and development, service innovation, partnership management and operational expansion.

1. Research background

Microfinance is a well-established tool for alleviating poverty in developing countries, particularly among the population living on less than a dollar a day (Abed, 2009). Basically, it is the issuance of small, collateral-free, and unsecured loans to individuals or groups for the purpose of starting or expanding businesses (Khavul, 2010). People might think that microfinance only provides financial services to the poor, but it is actually a self-employment generation service for the poor (Siddike, Kohda, & Hoque, 2016). Social enterprises provide microfinance services to those who have already dropped out of the regular financial service system. Most microfinance borrowers are also illiterate. As a result, providing microfinance services to such individuals is risky for social enterprises. Therefore, BRAC *(Bangladesh Rehabilitation Assistance Committee and then Bangladesh Rural Advancement Committee, currently, BRAC does not represent an acronym)*, Bangladesh introduced "borrowers' financial education" in terms of a pre-disbursement orientation and four-day training for borrowers (Siddike et al., 2016). This will ultimately help to foster financial literacy of borrowers in terms of creating awareness of financial dealings, risk of taking multiple loans, and other aspects of their life. Finally, this financial literacy will also help borrowers as well as the general public to gain lifelong learning that will ultimately change their life through reducing poverty.

Educational technologies are well-developed. Higher educational institutions are using new sophisticated technologies for providing better education (Siddike, Kohda, & Haque, 2014), including courseware (Tane, Schmitz, Stumme, Staab, & Studer, 2003), knowledge grid-based intelligent tutoring (Weller, Pegler, & Mason, 2005), Moodle (Ali, Bilotta, Pantano, Servidio, & Talarico, 2007), social software and Web 2.0 (Mentis, 2008), Facebook as a learning management system (Siddike, Islam, & Banna, 2015), and massive open online courses (MOOCs) (Breslow et al., 2013). Massive open online courses are among the latest e-learning initiatives to attain widespread popularity (Hew &

Cheung, 2014). They are online courses aimed at unlimited participation and offer open access via the web. They also provide interactive user forums that help build community (Pappano, 2012; Lewin, 2013). Basically, this new technology is being used by higher educational institutions in developed countries. However, scholars such as Liyanagunawardena, Williams, and Adams (2013) and Warusavitarana, Lokuge Dona, Piyathilake, Epitawela, and Edirisinghe (2014) identified opportunities and problems in providing higher education through MOOCs in such countries. No research has yet been focused on providing education through MOOCs for illiterate individuals. In this paper, we attempt to explore the current financial education provided by BRAC, Bangladesh; second, we identify the possible opportunities and drawbacks to adopting MOOCs for the poor; and finally, we propose a framework on how MOOCs can be adopted to offer financial literacy to the poor.

The rest of the paper is organized as follows: In Section 2, we review related work on education technologies and how new technologies such as MOOCs can be implemented in different contexts. Section 3 describes the research objectives and questions. In Section 4, we describe the research design, data collection procedures, and data analysis strategies. In Section 5, we discuss the results of this research. In Section 6, we propose our framework for adopting MOOCs to provide financial literacy, and in Section 7, we conclude the paper with practical implications.

2. Literature review

We review the literature on education technologies, i.e., MOOCs as the latest trend in technologies in higher education, for developing countries, and possibilities for the poor in terms of providing financial education.

2.1. Technologies in education

e-Learning is a process of online teaching and learning using different means (Moodle, social networking sites, MySpace, YouTube and Flickr). It has been used in academia for the last two decades to reshape the nature of study environments worldwide (Guri-Rosenblit, 2005). Different types of technologies are used by higher educational institutions all over the world (Singh, 2001; Tane et al., 2003; Zhuge & Li, 2004; Weller et al., 2005; Ali et al., 2007; Bawden et al., 2007; Mentis, 2008; Yang, Gamble, & Tang, 2012; Siddike et al., 2015). Singh (2001) proposed a learning content management system as a tool for providing education. Similarly, Tane et al. (2003) developed a courseware watchdog system as an ontology-based learning system to retrieve information from the Web. Zhuge and Li (2004) proposed a knowledge-grid-based intelligent tutoring system (KGTutor) to better support the distributed, student-centered, and highly interactive learning approach. Weller et al. (2005) examined the use of four innovative technologies of blogging, audio conferencing, instant messaging, and Harvard's rotisserie system in one course in the UK's Open University. Similarly, blogs, wikis, podcasts and folksonomies of Web 2.0 and other social networking technologies are used in education (Mentis, 2008). More recently, Siddike et al. (2015) argued that Facebook can be used as a learning and management system at the International Islamic University of Malaysia.

2.2. MOOCs as latest trend in e-learning

Massive open online courses are among the latest e-learning initiatives to attain worldwide popularity (Breslow et al., 2013; Hew & Cheung, 2014). They are classes delivered in an online environment with several features (Alraimi, Zo, & Ciganek, 2015) and can call upon its large community of learners to support learning via discussions and to assess work based on peer review (Kay, Reimann, Diebold, & Kummerfeld, 2013). Breslow et al. (2013) claimed that almost four and half million enrollees use instructional resources, complete assessments, and engage in social interactions. Kay et al. (2013) stated that MOOCs provide a coherent learning sequence, with integrated learning materials and formative assessment, all created and managed by outstanding teachers from the world's top institutions. They also indicated that if a course is of high quality, free (open), and readily accessible (online), it follows that massive numbers of students will take the opportunity to get a first-rate education for free. People from different areas use MOOCs. For example, Volandes, Kennedy, Davis, Gillick, and Paasche-Orlow (2013) stated that MOOCs could be used to empower patients and doctors to significantly improve the delivery of care in an increasingly complex health care system. Al-Atabi and DeBoer (2014) suggested that a MOOC is a suitable platform for entrepreneurship as it provides tools to enable students' collaborative learning as well as improve individuals' affective key entrepreneurial aspects such opportunity recognition and resource acquisition. In addition, Overton and Dixon (2014) described the role of MOOCs in corporate training programs. Liang, Jia, Wu, Miao, and Wang (2014) found that learners' perceived the usefulness rather than ease of use of a MOOC, which positively influences learners' use of the system, and consequentially, the learning outcome.

2.3. MOOCs for developing countries

Massive open online courses have the potential to enhance online education in developing countries by facilitating collaboration between people, places, and technology (Boga & McGreal, 2014; Liyanagunawardena et al., 2013). In fact, Coursera, the prominent American MOOC platform provider, has recently partnered with the World Bank and the Tanzanian government to provide MOOCs to African students in an ICT education initiative (Boga & McGreal, 2014). Scholars stated that due to a "complicated set of conditions" (inadequate infrastructure, access to computers, technical expertise, online learning skills, and English language proficiency), MOOCs may not be a viable solution for education for a large proportion of people in developing countries (Liyanagunawardena et al., 2013; Warusavitarana et al., 2014; Boga & McGreal, 2014). However, Boga and McGreal (2014) argued that despite these challenges, MOOCs can be successful in the African context as long as MOOC instructors are able to adapt content and make use of available and appropriate technologies. Mobile phones are ubiquitous in the developing world, most people already know how to use them, and their use in education can be based not only on traditional pedagogies, but also on constructivist principles, which complement the connectivist principles upon which many MOOCs are based. Combining MOOCs with mobile phones can be a very powerful way to educate large numbers of people in the developing world.

2.4. Possibilities of MOOCs for borrowers' financial education

Our literature review shows that no research has yet been focused on how MOOCs could be used for people who are not well-educated or even cannot read and write. They are also not aware of financial dealings and the risks of taking multiple loans. However,

Siddike et al. (2014) proposed a framework of new social innovation in the field of education in Bangladesh where rural people can obtain education online. They also argued that the application of MOOCs to social innovation will enhance the online experiences and increase computer literacy skills of rural people. However, they did not give proper guidelines on how MOOCs can be applied in the financial education of microfinance. Recently, Siddike and Kohda (2016) proposed a design of a new social innovation through the application of MOOCs to teach financial literacy to the poor but they did not discuss how to apply MOOCs to providing financial education to the poor. Therefore, this research fills this gap by exploring the current financial education in microfinance as well as how MOOCs can be applied to provide financial education in microfinance.

3. Research objectives and questions

The main objective of this research was to explore current borrowers' education in microfinance. Other objectives of this research were:

- to explore the current financial education of BRAC's microfinance program;
- to investigate the perceptions of employees and borrowers for implementing new technologies in BRAC's financial education;
- to propose an adoption framework of MOOCs for financial education.

To attain the above research objectives, the following research questions (RQs) are posed:

RQ1*: What is the current financial education state in BRAC's microfinance program?*

RQ2*: What are the perceptions of employees and borrowers of BRAC's microfinance program for adopting MOOCs in financial education?*

RQ3*: How will MOOCs be implemented for financial education in BRAC's microfinance program?*

4. Research methodology

4.1. Research design

A qualitative case study method adopted in this research can be seen as an appropriate approach given the need to develop in-depth understanding of a relatively unexplored area (Yin, 2014). Case studies are well suited to create theoretical constructs, propositions and/or midrange theory (Eisenhardth & Graebner, 2007). Therefore, our research was geared toward the qualitative descriptive approach.

4.2. Case organization

This research was conducted at BRAC, Bangladesh, one of the most successful non-government organizations (NGOs) in the world. BRAC is a development organization that has been dedicated to alleviating poverty since 1972 by empowering the poor and helping them bring about positive changes in their lives by creating opportunities. BRAC provides different kind of services including microfinance, health, education, agriculture, legal aid, safe drinking water, sanitary latrines, livelihood training, support for safe

migration, and assistance during natural disasters (BRAC's Annual Report, 2013). In this research, we only focused on BRAC's microfinance services. BRAC's microfinance services started in 1974 and became one of the world's largest providers of financial services for the poor. BRAC's microfinance sector has two types of products, loans and savings. There are three types of loans, Dabi, Progoti, and Migration (under Progoti). In this research, the Dabi program was selected as the research target. The Dabi program was considered as a suitable case because only the clients of the program receive financial education as well as different types of social development training.

4.3. Data collection

This research was conducted through interviews to explore the current financial education in microfinance and how new technology can be adopted to provide financial education to borrowers of microfinance. The interviews were carried out using two sets of semi-structured interview protocols. One set was used for the employees of BRAC's microfinance program and the other for the clients or borrowers of BRAC's microfinance program. An e-mail was sent to the director of the microfinance program of BRAC for gaining access to the program in Bangladesh. One week later, the director assigned a small research team and the responsible person of this research team sent an e-mail requesting us to send the research proposal and other necessary procedures regarding a visitation plan. We then submitted all the necessary documents to the leader of the research team. After reviewing all our documents, they invited us to visit BRAC microfinance on 14th December 2014 for fixing the interview schedules. After having a fruitful discussion with the research team, they finalized the interviewees. We then started interviewing from 17th December 2014 and finished with a short presentation to BRAC's head office on 6th January 2015.

4.4. Interview participants

A total of 25 interviews were conducted for 11 employees of BRAC's microfinance program including the senior manager (SM), senior regional manager (SRM), manager (AM), senior branch manager (SBM), branch manager (BM) and program organizer (PO) and 14 borrowers of BRAC's Dabi program. The employees were selected after a discussion with the research team. The team selected the interviewees on the basis of the research objectives and interview protocols. In particular, they selected two people from the head office and nine from seven branches of BRAC. The 14 borrowers were from seven branches of BRAC. They were randomly selected after a discussion with the managers of the respective branches. As Eisenhardt and Graebner (2007) mention, interviews should be countered with highly knowledgeable informants. In addition, we participated in one village organization (VO) meeting in the Darshana branch, Rangpur for the purpose of observing their activities. We also observed pre-disbursement orientations at the Gabtoli, Nandigram, and Kaligonj branches to gain an understanding of their financial education systems. An e-mail invitation was sent by the coordinator of the research project of BRAC's microfinance program to the regional managers (RMs) of the selected areas. Face-to-face interviews were then conducted from 17th December 2014 to 29th December 2014 using semi-structured interview protocols. Each interview ran for an average of 50 minutes and were audio and video recorded using a Sony recorder and iPhone 5. All the interviews were conducted by the corresponding author at the respective BRAC branch offices. We interviewed two borrowers from each branch. The borrower interviews were also recorded using a Sony recorder and iPhone 5. The interviews ran for 25 to 30 minutes on average and were conducted by the corresponding author with the

help of the respective BM. To ensure the standards of "human subject research", we obtained consent from the interviewees using a consent form.

4.5. Data analysis

All the interview data were analyzed through a detailed systematic examination and interpretation using content analysis (Berg, 2009). Thematic analysis was conducted for the data cross cases, and coding was used as the basic analytic strategy. Thematic analysis is a search for themes that emerge as important to the description of the phenomenon (Daly, Kellehear, & Gliksman, 1997). The process involves the identification of themes through "careful reading and re-reading of the data", where emerging themes become the categories for analysis. According to Lapadat (2009), thematic analysis is widely used for its yielding insightful interpretations. The data analysis was done in several steps. First, we converted the recorded interviews into an Excel spreadsheet by listening and verifying the content of the recorded interviews several times to ensure that no important information was missed. Second, we read the textual data repeatedly to understand the themes within the data. We also printed out the data and read them. Third, we generated the key concepts for the categories. Corbin and Strauss (1990) identified three types of coding, i.e., open, axial, and selective. Open coding includes an initial pass through the data to come up with candidate concepts for categories. Axial coding includes combining categories into major categories (axial coding). Selective coding is the core category. We then combined the key categories into major categories (broad categories) and generated the core categories after a thorough scanning of the major categories. To ensure anonymity, P1, P2 …P11 codes were used for the BRAC employees and C1, C2 ….C14 codes were used for the borrowers.

5. Results and discussions

5.1. Current financial education in BRAC's microfinance program

Lack of financial education is not just an individual issue. It affects entire households and communities. BRAC's aim, therefore, is to raise awareness and build knowledge at many levels. Therefore, BRAC's approach in promoting financial education and client protection is not to only stress an increase in knowledge but also to enable people to adopt financial behaviors that facilitate their wellbeing (BRAC, 2015). As a result, BRAC continuously reinforces its key messages through frontline staff at BRAC's contact points including client service department, VO meetings, hotlines, and other community meetings. For providing financial education and client services, BRAC microfinance established the Financial Education and Client Protection Unit. BRAC piloted the financial education and client protection project in 2012 with the objective to enable borrowers to make better decisions, such as evaluating financial institutions and properly using financial services (BRAC, 2015). One SM stated that "*we are trying to make our borrowers aware of their rights and responsibilities, safe and unsafe institutions, importance of savings, risk of multiple borrowing, taking loans beyond the borrower's capacity, importance of record keepings in terms financial transactions, and BRACs grievance redress mechanism*" (P2). They appointed customer service assistants (CSAs) who are responsible for providing customized information and support to all clients who come for services. The CSA is also responsible for providing pre-disbursement orientation, four-day training, and listening to client complaints. Besides the CSA, one SM stated that "*we also disseminate key messages through our branch*

managers and program organizers when they visit VOs" (P2). Currently, there are mainly two types of financial education training, pre-disbursement orientation and four-day model-based training.

5.1.1. Pre-disbursement orientation

Every client needs to join the 30-minute pre-disbursement orientation session just before loan disbursement. In this pre-disbursement orientation, the CSA provides financial education using pictorial materials and entertainment-filled education combined with local stories and visual humor. Through this pre-disbursement orientation, clients become awareness of their basic financial literacy. This orientation program is for all new and repeating clients.

5.1.2. Four days training module

Every BRAC has another provision for vulnerable group members called "risk women" who are unaware of how to make the right decision and significantly lack financial awareness. BRAC also groups new and those with leadership capacity. Each training group has eight clients selected from two to three VOs. This training is about six hours (one and a half hours for two days in a week). During December-February, the training is one hour and fifteen minutes due to the winter season. On the first day, BRAC focuses on the issue of informed decision. Clients come to know what types of problems occur due to greed and how to identify safe and unsafe institutions. One client shared her experiences; "*I came to know through educational training to not take loans from multiple organizations, pay installments on time, and don't hand over passbook to others. Finally, through this training, I become more aware*" (C1).

On the second day, BRAC focuses on financial planning. One branch manager stated that "*if clients work according to their financial planning, they can reach their goals. If they don't work according to their financial plans, what will happen, it is also informed them*" (P3). On the third day, clients learn about the risks of taking to many loans. On the final day, it focuses on the previous three days' discussion and the client rights and grievance redress mechanism. In this regard, clients can directly express their complaints to BMs or the CSA or they can write their complaints and put them into the complaint boxes. Moreover, clients can directly call BRAC's hotline (16341) to share their complaints.

5.2. Possible advantages of adopting new technologies (MOOCs) for financial education

New technologies have plenty of possibilities in developing countries. Higher educational institutions in developing countries are using new sophisticated technologies such as MOOCs. There are also possibilities for informal or life-long learning. The possible advantages of adopting MOOCs for financial education are described below.

5.2.1. Edu-entertainment

Rural people have less opportunity for education and entertainment. Therefore, if current financial education in microfinance programs can offer through new technologies such as (MOOCs), it will help them provide Edu-entertainment. Rural people can enjoy be educated through entertainment. In this regard, one SRM asserted that "*technological*

intervention is the only possible solution to provide better education to borrowers. If current financial education can be provided through videos, borrowers will definitely enjoy the videos (P1). In addition, one BM added that "*sometimes borrowers do not take what we are currently providing seriously. Therefore, when education is delivered using new technology, they will enjoy it and it will help them remember. And the contents of the education will always be visible* (P3). Another BM expressed that "*if we can show popular theater (one kind of play) using video, it will definitely provide more entertainment*" (P6). Similarly, another BM revealed that "*if financial education can provide education through video, borrowers will think that they are at the cinema, which will certainly help them to remember more* (P8). Most of the interviewed borrowers showed very positive attitude towards edu-entertainment. Most asserted that by providing education through video, they will enjoy education. They will think that they at the cinema. One client added that "*if popular theater can be shown through technology, people will understand more and they will be more entertained. In addition, people will be more interested and their knowledge will increase* (C7).

5.2.2. Easy to understand

As most borrowers are not well educated and cannot read and write, "seeing is believing" is more effective. This means that if borrowers can receive financial education through video, there is a high possibility for easy understanding. In this regard, one BM expressed that "*if the financial education can be provided through technology, it will be easier for them to understand*" (P3). Another BM explained that "*if borrowers participate in the current financial education program, sometimes they cannot give full attention even though they can hear the full lectures. Furthermore, they sometimes miss some important parts of the lectures. In this case, hearing is not the same as seeing. I think that if education can be provided through technology, it will help them easily understand as well as remember*" (P10). For easy understanding, almost all interviewed borrowers had the same feeling that if education is provided through technology, it will help them easily to understand and remember. One client expressed her opinion that "*if education is provided through video, then it will be like we are enjoying movies and it will be very good for us and we will be able to understand more easily*" (C2). Another client expressed her feelings in the following way; "*if technology is used for providing financial education, we will learn more and more and people can learn together, which will be very easy for us to understand*" (C4). Another client expressed that "*as we are illiterate, it will be helpful and easy to understand if education is provided as if we were enjoying movies on television*" (C5).

5.2.3. More participation and more outreach

Every Providing financial education through new technology will attract more people and microfinance products and services will reach more people. Regarding popular theater (domestic plays), if education is provided through technology, there is high possibility of it reaching more people other than borrowers. In this regard, an AM stated that "*if we can provide popular theater (gono natok) through video, then people will be more attracted to learning. In this way, we can advertise our microfinance products and services to middle-class people since middle-class people think that NGO is equated with poor people. In addition, it will help our borrowers to become more aware of our services and products*" (P5). Similarly, another branch manager expressed that "*if we can provide our financial education through technology, we can attract people beyond our borrowers to our products and services*" (P8). Another BM revealed that "*if we can provide our*

financial education in the village, then many people will enjoy it and it will also be helpful for us to advertise our products and services" (P3).

5.3. Possible drawbacks for adoption of MOOCs in financial education of microfinance

Though new technologies provide great opportunities for the poor, infrastructure, financial, technical support, and Internet connection are the main possible hindrances to adopting MOOCs in financial education of microfinance. These possible drawbacks are discussed below.

5.3.1. Infrastructure problems

Infrastructure is the main problem for adopting MOOCs for financial education of microfinance. Every branch has computer facilities for accounting and administrative work; however, there are no computers for client service departments and education cannot be offered using computing technologies. One BM stated that "*we don't have computers for providing financial literacy to our clients. If we receive different types of support for this, we can provide financial education through technology. In this regard, senior management will justify the benefits of using technology for providing financial education*" (P3).

5.3.2. Financial problems

Finance is another important problem for providing financial education through the use of new technologies such as MOOCs. Acquiring educational technologies such as computers and projector, is costly. In this regard, one SM expressed that "*who will provide the money for acquiring computers and projectors and who will digitize the financial education content? If we obtain financial support for this purpose, then we can start a pilot program. If it works well, then senior management will decide whether we can scale up or not*" (P2). At the same time maintenance of these technologies is also important. The same person (SM) stated that "*say for example, if we think about television, we need to have people operate/maintain the Television. In addition, we have to take care regarding the misuse of video contents*" (P2).

5.3.3. Internet connection

Lack of Internet connection is also a serious problem to providing financial education through MOOCs. None of the branches are equipped with high-speed Internet connection. One SRM expressed that "*Internet connection is the problem for providing financial education through MOOCs. Though 3G mobile Internet connection is available everywhere in Bangladesh, I am not sure whether we can provide financial education through these mobile networks*" (P1). The same person also asserted that "*Internet is also needed for conducting online client surveys. If we can provide financial education through centralized digitized content, it will surely reduce possible miscommunication*" (P1).

6. Proposed framework for providing financial education through MOOCs

In this section, we discuss our proposed framework for providing financial education through the use of MOOCs where the CSA will play an important intermediary role for receiving feedback from clients. Before proposing the framework, we first need to know how financial education has been provided.

6.1. Current financial education system

Fig. 1 shows how BRAC's microfinance program has provided financial education to clients. Siddike et al. (2016) identified mainly three stakeholders, PO/BM, CSA, and clients play important roles in providing microfinance services as well as financial education. In this regard, services, such as microloans, are offered to clients through BRAC's unique platforms such as VOs, which consist of 15-30 members. Currently, the CSAs play an important role in providing financial education in terms of pre-disbursement orientation and four-day training for their clients though they also interact with the BM and/or PO.

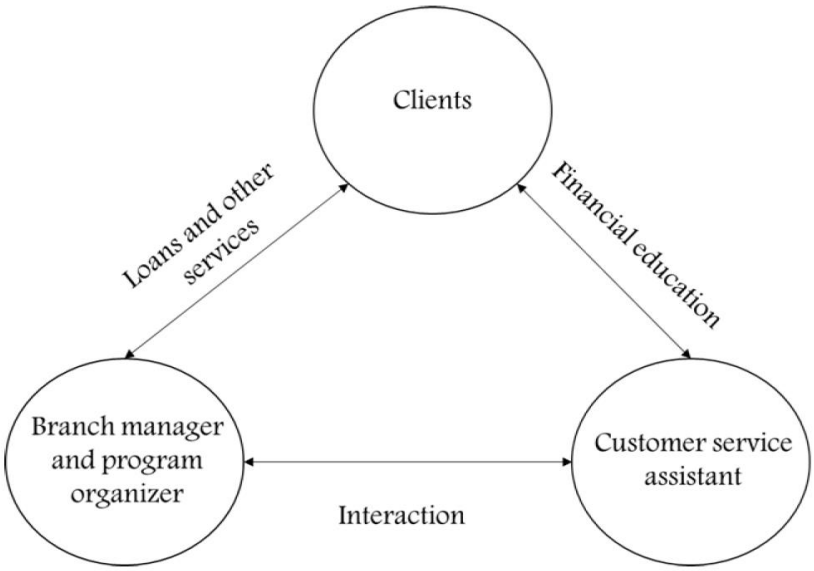

Fig. 1. Current microfinance education

6.2. Proposed framework for providing financial education through MOOCs

Fig. 2 shows our proposed framework for providing financial education through MOOCs. As a provider of microfinance services as well as financial education, BRAC's microfinance program will first develop MOOC content using existing content. BRAC's microfinance program will then upload the content to its website where anyone can use it and directly provide feedback. This will work for those clients who can use technology by themselves. Since most clients cannot use computers, the CSA will play an intermediary role in providing financial education through MOOCs. In this regard, the CSA will directly use the MOOCs content from BRAC's website and show it to the clients. All the feedback will be collected by the CSA and uploaded to the website for the

future reference and use. In this way, MOOCs can be adopted to provide financial education to microfinance borrowers.

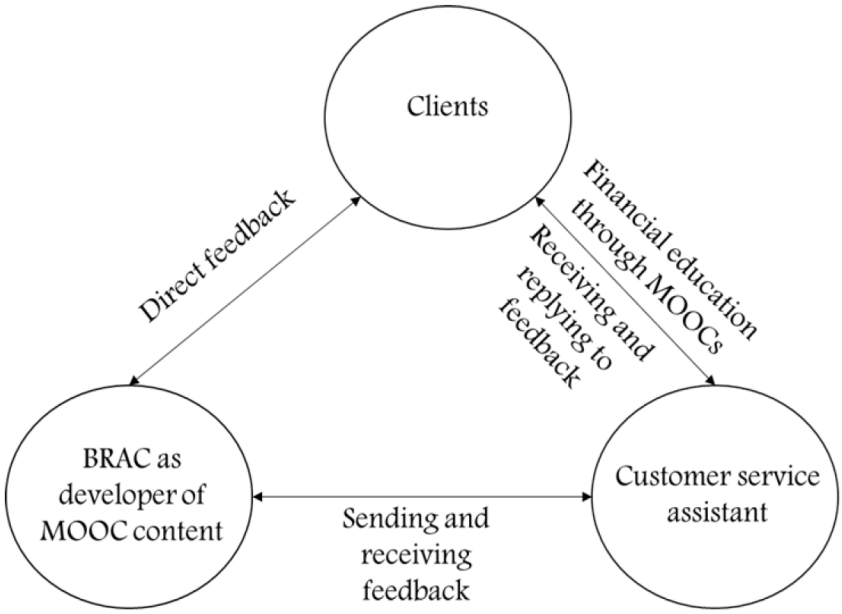

Fig. 2. Framework for providing financial education through MOOCs

6.3. Features of proposed MOOC framework

Massive open online courses are widely used and involve mass interactions through a community-based learning model, and digital educational content can be accessed anytime and anywhere. However, the proposed framework mainly involves video-based online education in which the CSA plays an intermediary role in receiving feedback from clients and uploading the feedback to the MOOCs platform. Since most clients are illiterate, the CSA will play an important intermediary role. In addition, clients can also enter the MOOCs platform and receive financial literacy education and provide feedback themselves. In some cases, the sons and daughters of clients are well-educated. In such cases, clients can receive help from their children in providing feedback.

There will be several features of the proposed MOOC framework for financial education of microfinance borrowers. First, it will be massive. All borrowers (domestic as well as international) of microfinance institutions will be able to access and use the MOOCs platform. For domestic clients, it will be initially easy for them as it will be developed in the local context. If the MOOC content supports multiple languages, then clients from other countries (where BRAC's microfinance program is available) will also be able to participate.

It will be open for everyone. Any client as well as the general public will be able to use it since it was designed to create awareness among clients as well as society in general. Specially, performing popular theater and pre-disbursement orientation will greatly impact the general public. We believe this will be cost effective for microfinance instructions; however, performing theater often and in different places is costly and

repetitive for microfinance institutions. If we can create MOOC content, then microfinance institutions will be able to update yearly or based on their situation.

There will not be any requirements to participate in this course. It may be mandatory for clients to participate in the courses; however, there will not be any specific requirements for the general public. They can participate anytime, anywhere.

Our proposed MOOC framework will be different from general video for awareness purposes. First, the platform of the proposed framework for borrowers' financial education will be the same as other MOOCs platforms. Second, the framework will be online so clients and the general public will be able to use it anywhere, anytime. Third, it will have a feedback system so that clients can share their ideas and learning with each other. The CSA will play an intermediary role for those clients who are not be able to use it and provide feedback. As a result, the proposed framework will be unique in the context of providing financial education for the poor.

6.4. Proposed MOOCs framework and design of MOOCs for borrowers' education

The proposed MOOC framework is specifically designed for the poor who are clients of BRAC's microfinance program as well as for the general public. From our analysis on financial education of microfinance, we found that there are mainly two types of education for borrowers namely: pre-disbursement orientation and four-day training. For designing MOOC content, microfinance institutions (namely BRAC) might consider a pre-disbursement orientation program. In this case, microfinance intuitions might design the content of the pre-disbursement orientation program on the MOOC platform. Second, microfinance intuitions will incorporate all possible features of MOOCs and initially pilot them for the clients of one or two branches.

Microfinance institutions might design and develop the content of MOOCs for a four-day training program. After incorporating all the possible features of MOOCs, microfinance institutions could again pilot it for the clients of one or two branches. If it becomes successful, then the microfinance institutions might gradually include the educational program in all their branches. Though it might initially be costly for microfinance institutions, it will be cost-effective if it is successfully used by borrowers as well as the community.

6.5. Feedback from clients

In this proposed educational MOOC framework, there will be two ways to provide feedback; either by the clients themselves or the CSA. Though most borrowers are illiterate, in some cases, their children are well-educated. In such cases, their children can help them provide feedback. Second, most CSAs are well-educated and using the latest technologies. Therefore, CSAs will listen to borrowers and provide their feedback to the MOOCs platform. In this way, borrowers can share their own experiences and learn from each other.

6.6. Implementation of proposed MOOC framework

We identified that Internet/bandwidth constraints is a major bottleneck for the implementation of the proposed MOOC framework. This problem can be solved in several ways. First, 3G Internet is available everywhere in Bangladesh. As a result,

individual clients who have access to 3G or broadband Internet connection will be able to easily access the MOOC content. In the same way, the general public will be also able access to the content. Second, most branches of microfinance institutions have Internet connection for sending accountings details to their head offices. In this case, the same connections can be used to provide financial education to borrowers in which the CSA can play an intermediary role in receiving feedback and sharing the feedback to other clients. Third, the financial educational programs of microfinance institutions do not have computers or laptops to provide education. In this case, such intuitions will initially pilot the proposed MOOC framework by purchasing computers or laptops, projectors, and other educational tools. They can evaluate the program, and if it is cost-effective, they can continue using the framework. We believe that providing education through the proposed MOOC framework will be beneficial for the long-term. In addition, microfinance institutions can apply for financial support from their governments as well as international organizations such as the Bill and Malinda Gates Foundation. Therefore, we believe our proposed MOOC framework will be beneficial.

6.7. Usefulness of proposed MOOC framework

The proposed MOOC framework for providing financial education to borrowers will be useful in several ways[1]. First, providing financial education through traditional methods is costly since microfinance intuitions have to hire employees to continue the financial education. Though our proposed framework will be initially costly for microfinance intuitions, after developing the infrastructure, it will be cost-effective. Second, it will save the lender's time and money; the value/workload will be reduced. Third, it will be easier for borrowers to understand and remember the education content. It will also help in providing consistent financial education or training to borrowers. It will not be costly for borrowers in general. Some responsibility will be shifted to certain borrowers. Some borrowers have Internet connection, which will be beneficial, and some of the workload of microfinance institutions will be shifted to these borrowers. Finally, it will not be a risk to the borrower having to skip education/training altogether since there will be both options initially. Therefore, the financial education of borrowers through MOOCs will be useful for them as well as for microfinance institutions.

7. Conclusion

The main purpose of this paper was to explore the current financial education in microfiannce and identify the possibilities to adopt new educational technology such as MOOCs, in financial education in microfinance. The findings from this study shows that BRAC's microfinance program currently provides borrowers' financial education in terms of pre-disbursement orientation and four-day training programs through the creation of the role of the CSA. We also revealed that edu-entertainment, easy understanding, and participation of more borrowers are the main opportunities for adoption of MOOCs for borrowers' financial education. In addition, we argued that infrastructure, Internet connection, and funding are possible hindrances to adopting MOOCs for financial education. Finally, we proposed a framework for adopting MOOCs

[1] In this paper, all the ideas and thoughts related to proposed MOOC framework and its application and usefulness are of the authors. BRAC is not responsible for such discussion. However, the authors are proposing it for BRAC as well as other microfinance institutions.

to provide borrowers financial education in microfinance to borrowers in which the CSA will play an intermediary role in receiving feedback from clients. Practically, social enterprises might think that adoption of new technologies might not be cost-effective for them, but in the near future it would be more beneficial for them in terms advertising and promoting microfinance services. This will not only enhance the lifelong learning of clients but also provide opportunities for the general public to increase their lifelong learning. Another possible application of MOOCs might be for employees of social enterprises since they are well-educated and receive different types of training including capacity development, leadership development, and quality development training. In this regard, there are different types of courses on capacity development and leadership development in different MOOCs platforms. Therefore, social enterprises can encourage their employees to use MOOC content.

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