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Article

Information preservation, a neglected component of information literacy: Development of information preservation literacy in rural Bangladesh

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Abstract

The issue of information literacy (IL) in contexts where people do not have easy access to libraries and to sources of information has not received much attention in IL research. In particular, rural areas in developing countries where there are no public libraries and travelling to town to access information is arduous and time-consuming need a different approach to IL than what is recommended for societies served by public libraries. This article reports on the findings from 52 semi-structured interviews conducted in January 2023 with villagers in two remote and marginalised areas of Bangladesh where an Information and Communication Technologies for Development (ICT4D) project had been conducted in 2016-2019. The findings presented in this paper are based on a thematic analysis of the interview transcripts with a particular focus on the interrelationships between IL and information preservation. The interviews revealed an improvement in IL among the participants in the ICT4D project, as well as among those who had not participated in the project, but had benefited from it indirectly, particularly in relation to preserving information that is useful to them. The authors argue that an important component of IL programmes in marginalised rural communities should be information preservation literacy, that is an awareness of and the skills to keep information that can be useful later on.

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Keywords
Bangladesh; information access; information literacy; information preservation; marginalised communities

1. Introduction

The United Nations Sustainable Development Goals (SDGs) recognise that ensuring public access to information is necessary to promote peaceful and inclusive societies for sustainable development (United Nations General Assembly, 2015, Goal 16.10). Access to information is required to perform many economic and social activities and plays an essential role in supporting development objectives (Garrido & Wyber, 2024; Shepherd & McLeod, 2020). However, marginalised communities are often unable to access vital information, such as information on their rights, public services, health, education and work opportunities (United Nations Development Programme, 2015). Moreover, availability of information is not sufficient if people do not know how to access, select and evaluate information in order to solve their problems. People need to be information literate. Bundy characterised information literate people as "People who recognise their own need for good information, and who have the skills to identify, access, evaluate, synthetise and apply the needed information" (Bundy, 2002, p. 125).

The issue of information literacy (IL) in contexts where people do not have regular access to libraries and to sources of information has not received much attention in the IL literature. In particular, rural areas in developing countries where there are no public libraries and people who do not have access to information and communication technologies (ICTs) have to undertake arduous and time-consuming travel to nearby towns to access information, call for a different approach to IL from what is recommended for societies served by public libraries. This article reports on research that was conducted in two remote areas of Bangladesh where a development project, which ran from 2016 to 2019, focused on providing rural women with mobile phones to help them to access information. The research for this article was conducted after the end of the development project to evaluate the impact of the project on the IL of the participants and their communities. Given that researchers had observed during the development project that participants were writing in notebooks information that had been provided to them in digital form because they thought that paper records would last longer than digital records (Frings-Hessami et al., 2020), a particular focus of the research for this article was on the preservation of information in the communities. The specific research questions that framed the research for this article are:

- How did the development project impact on the IL of the participants?
- How did the project participants share the information they received during the development project with their communities?
- How did the development project impact on the IL of community members?
- Are community members aware of the usefulness of preserving information?

Semi-structured interviews were conducted with 23 participants from the development project, 37 community members from the same villages and nearby villages and 5 development officers from local non-governmental organisations (NGOs) who had supported the development project. Due to the difficulty of travelling to and within Bangladesh in 2021–2022, the interviews were conducted in three stages, with two rounds of phone interviews with the former project

participants in 2021 and 2022 and in-person interviews with former project participants, community members and NGO officers in 2023.

This article starts with a brief review of relevant literature and an explanation of the methodology used for the data collection and data analysis, followed by a note on literacy in the areas where our study was conducted. The findings from the interviews will be presented into three sub-sections: information access and information preservation before the development project, development of information preservation literacy during the development project, and development of information preservation literacy in the communities. The findings will show how the participants in the development project developed their IL awareness and skills and in particular, their information preservation literacy awareness and skills and how they shared their newly acquired knowledge and skills with their communities. We will argue that an important element of IL programmes in contexts where individuals have limited access to information should be information preservation literacy, that is an awareness of and the skills to keep information that can be useful later on.

2. Literature review

The phrase “information literacy” first appeared in the literature in 1974 when it was used to refer to “techniques and skills” for applying information solutions to problems by Paul Zurkowski (Kelly, 2023). Since then, numerous definitions (Campbell, 2004; Information Literacy Group, 2024; Sample, 2020) and key phases (Bruce, 2017) of IL development have been reported in the literature. In 2003, the Prague Declaration proclaimed that: “Information Literacy, which encompasses knowledge of one’s information needs and the ability to identify, locate, evaluate, organise and effectively use information to address issues or problems at hand, is a prerequisite for participating effectively in the information society, and is part of the basic human right of lifelong learning.” (Prague Declaration, 2003). Two years later, the Alexandria Proclamation described IL as a means to “empower people in all walks of life to seek, evaluate, use and create information effectively to achieve their personal, social, occupational and educational goals.” (UNESCO et al., 2005). These definitions raised the IL debate to include economic development, effective citizenship, critical evaluation and ongoing education (Crawford, 2013). Despite the value of IL to solve everyday problems, most research studies have been conducted in educational and workplace settings (Martzoukou & Sayyad Abdi, 2017; Ahmad et al., 2021; Ryan et al., 2023). There has been relatively little research about the value of IL within everyday life situations (Martzoukou & Sayyad Abdi, 2017). Harding (2008) reported that less than 2% of the literature on IL discussed IL in public libraries, the institutions that are expected to support individuals with everyday queries and lifelong learning, whereas 52–62% of publications focused on academic libraries and 20–35% on school libraries. Moreover, due to limited funding for IL, IL programmes provided by public libraries tend to focus on teaching ICT skills and access to search engines and databases (Harding, 2008). However, as Bundy (2002, p. 125) argued, the critical issue of the information age is the “information literacy divide, not the digital divide”.

IL is not the acquisition of digital skills, but the ability to access information and evaluate it, independently of the format in which it has been accessed (Lloyd, 2010). IL starts with the recognition of the need for information (Bundy, 2004a; Lloyd, 2010). Lloyd (2024) argued that IL cannot be reduced to a skills-based view. She proposed a broader understanding of IL “as a social practice which, when enacted, connects people with information through the signs,

symbols, materiality and embodiment associated with the sayings and doing of practising" (p. 28). Martzoukou and Sayyad Abdi (2017) suggested that everyday life IL can be approached from two different levels. The first level, which they call "contextual information literacy", is the level where "the individual is equipped to deal with a specific information environment that is governed by set expectations of competence and accepted principles around IL practices set by that context". The second and more profound level is the "information literacy mind-set", which "encompasses a critical approach that empowers individuals to constantly adjust themselves confidently and proactively to new and different information environments" (Martzoukou & Sayyad Abdi, 2017, p. 657).

IL has been presented as a tool of empowerment for people in developing countries (Choudhury et al., 2015). Numerous studies have been undertaken on IL in developing countries from an educational and learning perspective (Batool et al., 2022; Choudhury et al., 2015; Huang et al., 2020). A few studies have been undertaken in rural contexts (Lunkuse et al., 2024; Atikuzzaman et al., 2023; Anwar et al., 2022). Research undertaken on IL in some developing countries has found that many citizens lack skills to recognise when information is needed and to find, locate, evaluate and use information (Shibambu & Mojapelo, 2024), and that information poverty is connected with insufficient IL (Mou & Xu, 2020). In Bangladesh, the majority of studies have reported on IL skills of university students (Bhuyan & Bipasha, 2022; Tabassum et al., 2024; Ul Islam et al., 2024). A few IL-related studies have been undertaken on urban and rural citizens with an emphasis on information dissemination (Sayed et al., 2022), but by relying on online surveys, these studies only reached citizens with access to the internet and good ICT skills. IL frameworks are generally based on establishing common competencies such as information searching, analysing, evaluating, organising, applying and communicating (Association of College and Research Libraries, 2016; Bundy, 2004b; IFLA Information Literacy Section et al., 2006). The Seven Faces of Information Literacy framework (Bruce, 1997) highlights the need for IL to be contextually focused and take into account cultural dimensions. However, it has been argued that IL suffers from too many models and frameworks and that none are fully applicable to multi-cultural contexts (Nowrin et al., 2019; Kruesi & Frings-Hessami, 2025).

IL models have often been adopted in developing countries without considering the differences between the contexts from which they were derived and in which they were applied (Dorner & Gorman, 2006). However, several authors have noted that if an IL model is introduced to a non-Western context, it can risk becoming an imperialistic endeavour (cline & López-McKnight, 2024; Pilerot & Lindberg, 2011). Dorner and Gorman (2011) emphasised the importance of culturally and contextually appropriate IL programmes for developing countries.

Whilst public libraries can play an important role in teaching IL skills to disadvantaged citizens in developed countries (Matteson & Gersch, 2020), many public libraries in developing countries are confronted with enormous challenges including limited staff time, skills and budget constraints, insufficient ICT infrastructure (Hussain & Ameen, 2023; Islam et al., 2024) and frequent power cuts (Bangani, 2024). Although there have been some innovative attempts at teaching IL skills in public libraries in the Global South (Potnis & Gala, 2022), public libraries are unable to suitably meet the IL needs of communities in developing countries in Asia (Balaji, 2012) and Africa (Hart, 2006; Otolo, 2022). Many Global South countries do not have enough libraries to meet the needs of their population (IFLA, n.d.). In Bangladesh, public libraries cannot suitably support teaching IL skills to the millions of people who live in poverty and have limited access to information sources. There are only 71 government public libraries throughout

Bangladesh (Islam et al., 2024); that is one library to support 2.45 million people in a country with a total population of over 174 million people (United Nations Population Fund, 2024). Information preservation relates to how information is stored so that it can be kept for as long as it may be needed and remain accessible and useable (National Archives of Australia, 2023). In this article, we define information preservation literacy as the awareness of the importance of retaining information that can be useful at a later time and the skills to preserve information in formats that will permit the information to be easily found, retrieved and used.

Some IL frameworks include information management or information storage as a component (e.g. Bundy, 2004b; SCONUL Working Group on Information Literacy, 2011; University of Sheffield, 2023). However, they are mostly concerned with managing bibliographic information with digital tools. Personal information management research has investigated solutions for managing records and information (Whittaker 2011; Marshall, 2008a, 2008b; Ali & Warraich, 2021). However, their recommendations presuppose access to digital technologies that are out of the reach of marginalised communities in developing countries. National libraries, archival institutions and digital preservation enterprises provide advice for organisations and for individuals on how to preserve digital records as archives (National and State Libraries Australasia, 2023; Williams et al., 2009; Digital Preservation Coalition, n.d.). The archival community has made efforts to promote archival literacy, which is understood as teaching the importance of archives and the skills to access and use archival repositories (Garcia, 2017; Emerling, 2018). Nevertheless, there is a scarcity of literature on the topic of teaching information preservation awareness and skills to individuals in communities with limited access to digital technologies (Frings-Hessami, 2024).

3. Methodology

The research for this paper was conducted in two remote areas of Bangladesh in the sub-district of Dimla, district of Nilphamari, in the north of the country and in the sub-district of Shyamnagar, district of Satkhira in the south of the country. Both areas have fragile ecosystems and are affected by climate change and by natural disasters, floods in the north and cyclones in the south. The data for this research was collected in two villages, one in each area, where a group of women had taken part in a development project from 2016 to 2019 and in nearby villages. The aim of the development project was to empower women through access to information. In each village, 100 women involved in agriculture had been provided with a smartphone and with internet data packages, and an information system had been put in place to support them (Frings-Hessami et al., 2020; Stillman et al., 2022). The participants were taught how to use the phones to make calls, access text messages and use the internet. Training sessions on agricultural topics were also organised for them, as well as monthly meetings during which they discussed the information they had received, the training sessions they had attended and the problems they were facing. Each week, text messages with localised advice on agricultural topics and weather warnings were sent to them. A call centre that they could phone to ask questions about agricultural matters was also set up specifically for the project participants. The project was funded by a charitable donation, managed as an action research project by an international NGO and supported on the ground by local NGOs.

The research reported in this article was conducted after the end of the development project, with ethics approval from the researchers' university. Interviews with a sample of the project participants were conducted over the phone in 2021 and early 2022 due to the impossibility for

researchers to travel to and within Bangladesh during the first two years of the COVID pandemic (see Tables 1 and 2 in Appendices). The interviewees were asked questions about how they accessed, used, shared and preserved information after the end of the development project. A survey of all the project participants was also conducted face-to-face in early 2022 to validate the findings from the interviews. The findings from these interviews on information access and information preservation have been presented in previous publications (Frings-Hessami & Sarker, 2022; Frings-Hessami, 2023).

This article focuses on a larger series of semi-structured interviews with community members conducted face to face by a Bangladeshi research assistant in January 2023. These later interviews were informed by the previous findings and focused on issues that were deemed to warrant further investigation, including the reach of the information acquired and shared by the project participants, the information practices of community members who had not been involved in the development project, the differences between the information practices of men and women, and their awareness of the usefulness of preserving information for future use. Semi-structured interviews were selected for this study in order to give a voice to individual villagers and capture a variety of stories and experiences. All the women were interviewed in their own villages, whereas the men, who are more mobile, were interviewed either in their own villages or in the nearby sub-district town. A total of 52 interviews were conducted, each one lasting between 30 minutes and one hour. In the northern district, 5 project participants who had previously been interviewed were re-interviewed. Five women and 4 men from the same village, 5 women and 3 men from nearby villages, and 3 local NGO officers (all men) were also interviewed (see Table 1 in Appendices). Similarly, in the southern district, 5 project participants who had previously been interviewed were re-interviewed, while 5 women and 5 men from the same village, 5 women and 5 men from nearby villages and 2 local NGO officers were interviewed for the first time (see Table 2 in Appendices). The interviewees were selected by NGO officers who were familiar with the communities so as to provide a sample of community members from farming families with a variety of ages and education levels. In order to protect their anonymity, the interviewees were attributed codes as shown in Tables 1 and 2, with P referring to participants in the development project, N to the northern district and S to the southern district, W to women and M to men and NG to NGO officers.

All the interviews were audio-recorded with the participants' permission. They were then translated by a team of Bangladeshi research assistants before being analysed thematically by the first author. The first author read each interview transcript several times and coded the emerging themes in an iterative way. The first reading focused on coding themes relating to information sharing, information access and information preservation in the community. Then after re-reading the transcripts from the 2021 and 2022 interviews, the second reading focused on coding themes relating to IL, while a third reading ensured that no interesting examples had been missed in the previous rounds of coding. The findings presented in this paper focus on the interrelationships between IL and information preservation.

4. Literacy in rural Bangladesh

Literacy levels improved considerably in Bangladesh in the past 30 years from 38.9% for men and 25.5% for women in 1991 to 76.56% for men and 72.82% for women in 2021 (Bangladesh Bureau of Statistics, 2014, p. xi; Bangladesh Bureau of Statistics, 2022, p. 17). However, inequalities remain between rural and urban population and between men and women in rural

areas. According to the 2011 census (the latest for which regional statistics have been published), only 43.6% of rural men and 38.8% of rural women in the sub-district of Dimla were literate (Bangladesh Bureau of Statistics, 2014, p. 449), while literacy rates were higher in the sub-district of Shyamnagar where 52.6% of rural men and 43% of rural women were literate (Bangladesh Bureau of Statistics, 2014, p. 358). The improvement in the literacy rates are reflected in much higher literacy rates among young men and women than among middle age men and women. The 2011 census reported that among the rural population in Dimla, 59.77% of women and 61.13% of men aged 20–24 were literate, compared with 14.67% of women and 29.5% of men aged 40–44 (Bangladesh Bureau of Statistics 2015a, pp. 154–155). Similarly, in the rural population of Shyamnagar, 72.1% of men and 69.31% of women aged 20–24 were literate, compared with 46.12% of men and 22.62% of women aged 40–44 (Bangladesh Bureau of Statistics 2015b, p. 176).

5. Findings

5.1 Information access and information preservation before the development project

All the interviewees reported that they carefully preserved their important records. In a country affected by frequent cyclones and floods, rural inhabitants have developed strategies to keep their important records safe and dry, by wrapping them in polystyrene and keeping them in trunks or locked boxes that they can easily move to higher ground or take with them when they must evacuate their house. A man from the northern district (MN1) recounted that during floods, wherever he went, he carried the trunk with the important documents on his head.

Interviewees also reported that they kept track of their income and expenses by writing them in notebooks and most wrote down important dates. Other types of writing depended on their level of education, on their age, on their gender and on their engagement with agricultural activities. In previous generations when few women were literate, it was the responsibility of the male family heads to look after the important records of the family and to write down income and expenses and other important information. This started to change when women became more literate. One of the female participants in the development project, PS1, who was in her late thirties when the project started and who had not completed secondary school, commented that: “since we are not much educated, after getting married we did not write much.” On the other hand, PS3, who was 21 and a student when the project started, used to keep a journal where she wrote about her feelings and everything that happened to her, but she did not write agricultural information because she was not engaged in agriculture before joining the development project. Among the women who were engaged in agricultural activities, some took notes of agricultural information while others did not feel the need to write that type of information. PN5 commented that when she encountered a problem, she used to go to the agricultural supplies shop and bought the medicine that the shopkeeper gave her. She thought: “There was no need to write that!”

According to one of the NGO officers working in the northern district, NGN2, none of the women who were involved in a previous development project in the same village took notes in the notebooks that were given to them when they attended training sessions even those who were literate. According to him, the women stopped writing regularly after they got married and found it difficult to write due to lack of practice. When he organised training sessions, he encouraged

them to take notes of the technical details that are difficult to memorise and to keep writing to improve their writing, but with little success.

5.2 Development of information preservation literacy during the development project

The participants in the development project were the first women in their areas to use smartphones. Field officers taught them to use the phones to make calls, send text messages and use the apps developed for the project. They provided them with the phone numbers of agriculture extension officers, suggested other useful apps and websites, and encouraged them to post on Facebook about their achievements. However, they did not teach them how to evaluate information from other sources. This did not seem necessary at the time since the women were provided with information specifically developed for their village.

Throughout the course of the project, the participants, who were divided into several area-based community groups in each village, met monthly with the members of their groups and local women who were not part of the project were invited to attend these meetings. The meetings were facilitated by field officers from the local NGOs. In the meetings, the participants discussed their agricultural problems and the information provided to them by text messages. When some of the women attended a training session, they shared what they had learnt with the others at the following monthly meeting. Not all of the 100 participants attended all the training sessions. Some participated in small-group courses on vegetable cultivation, while others took part in a pisciculture or animal husbandry programme, thereby acquiring different skills to improve their income-generating potential and to share with others in their communities.

During the project, the participants developed their skills in using their mobile phones and in agricultural techniques. Through their participation in the project, they also improved their literacy skills, including writing skills and skills to access and to preserve useful information. These skills were not directly taught to them but learnt incidentally and often in reaction to adverse events. The women who struggled with writing were not offered literacy training. Instead, they had to rely on other participants, relatives (usually their children) or neighbours to take notes for them. One interviewee, WN4, who was not involved in the project herself, but was the neighbour of a participant, reported that because her neighbour could not write, she occasionally asked her to write down information that she had memorised.

Project participants started preserving information when they understood that the information would be useful for them in the future and that digital formats were fragile. One of the women from the southern village, PS1, remembered that the participants had discussed different backup options, such as storing information on the phones' memory cards or making voice recordings, but decided that writing information in notebooks was the best option for them. Although the project aimed at developing digital skills, the NGO officers did not provide any advice about backing up data in digital formats. One participant, PN10, reported that in the last year of the project, she took screenshots of the text messages that she had received so that she could keep them on her new phone. However, few participants did this. Their preferred method to preserve the project information was to write it in their notebooks. Even for PN10, her screenshots did not replace writing on paper but supplemented the notes that she had carefully written in her notebook.

A woman from the southern village, PS2, recounted that from the beginning of the project, she wrote down the information that she received from the call centre. Consequently, if someone asked a question about a disease, she could instantly tell them the cure by checking in her notebook. She declared that when others saw that she could remember the names of medicines because she had written them, they started doing it as well. A woman from the northern village, PN11, recounted that in her area the decision to write down information had been taken collectively:

> Together with 7–8 people from our area we decided one day that it is not always possible to remember every piece of information so why not write it down in a notebook? Then we started writing all the important information so that we can work by following that information in the future as well.

The participants' growing understanding of the fragility of their mobile phones and of the data stored on them influenced their decision to write important information on paper. For example, a woman from the northern village, PN5, recounted in her 2022 interview:

> One of [the participants] accidentally deleted some of the SMS and she was collecting those from us. Then I thought it was a good idea [to write the SMS] as that could happen to me as well. So, I started writing in a notebook the SMS that seemed very relevant and important to me.

Another woman from the same village, PN4, further elaborated:

> We used to share our thoughts with our group members during different meetings and we used to inspire each other. Actually, I started writing in the notebook first in my area and I was the youngest and my educational qualifications were higher. I was also very comfortable writing. So, when I started writing, I shared my thoughts with my group members and many of them were inspired and started writing SMS in their notebooks.

Women who accidentally deleted the text messages stored on their phones or lost them due to technical issues were then able to copy them from other women's notebooks.

As one of the participants, PN5, commented, the change of information source explained the change of practice. Before the development project, when they were getting information from the shopkeepers and could get it again if they needed it, they did not feel the need to write it down, but it became necessary to write the information provided to them by the project because they could not get it again after the end of the project.

The project participants also used the project's information system and their information preservation practices to help their community. One of the participants from the southern village, PS4, reported:

> Many times, people from the village came to me and talked about their goats and chicken diseases, so I had to find out solutions for them from the [project's] call centre. Let's say, I asked for solutions for my neighbour's domestic animals' diseases. Then if that medicine worked, I would write the name of the medicine in my notebook so that we would be able to solve the problem ourselves in the near future if necessary.

One woman from the same village, PS1, recounted that during the regular group meetings, the women who had attended a training session used to report to the others what they had learnt and that important points were written on sheets of brown paper which were hung on the walls of their meeting place. Another participant, PS5, added that the women who had not attended the training then wrote the new information in their notebooks. She said that the other people not involved in the development project suggested that they invite them to the meetings so that they could benefit from listening to the participants' discussions. She asserted that she suggested to them that they write the information in notebooks, but that many of them did not. She recounted:

> Well, we open the notebooks first during the meeting. You know, two of us attended the meeting and noted down the important information. When we share with them, we tell them to note it down so that they can never complain that 'We could not attend the meeting! That's why we missed the information or knowledge!' We tell them: 'Everything is here. Whatever you need to do, read it, learn it, or record it!' Those who need it can write it. Who doesn't need, would not write.

5.3 Development of information preservation literacy in the communities

The project participants reported that they shared the information they received with others in their communities in different ways: informally though casual conversations with their relatives and neighbours, by answering their questions when they came to ask for advice or more formally by organising meetings to share their new knowledge or by forwarding text messages to them. In some cases, the sharing of information was accompanied by encouragements to write down the information shared in order to preserve it. One participant interviewed in 2021, PS7, reported that she used to forward the text messages that she received to those on her contact list.

In this section, based on interviews with men and women from the same two villages and from four nearby villages, we report on the other side of the story: how the community members benefited, or not, from the new information acquired by the project participants, whether the information was shared with them and in which ways, whether or not it was useful to them, and whether or not they decided to preserve it for future uses or were encouraged to do so. The experiences of community members differed widely according to their gender, their personal connections with one or more of the project participants, and their geographical distance from them. In the context of traditional villages, women's interactions with men who are not relations are met with disapproval. Therefore, more female community members than male community members had interactions with the project participants and received information from them. Moreover, in rural districts with poor transport infrastructure, affected by flooding, where farmers are tied to their land and women to their homes, people rarely have time or reason to travel to other villages. Consequently, despite the neighbouring villages in which interviews were conducted being only 1 to 5 km away, many interviewees from these villages said that they had heard of the development project but never met the participants or that they rarely went there because it was "too far", and in a few cases, they had not heard of the project at all.

In the northern district, the female interviewees from the project village reported that the women participants organised meetings to share information with the community. Another woman from the same village, WN4, reported that they sent pictures of medicine packets to the women who

had smartphones. The woman who used to help her neighbour with writing information in her notebook developed the habit of writing the information in her own notebook as well. The sharing of information through personal connections extended to women in the neighbouring village. WN7 reported that the project participants used to send her text messages and let her listen to recorded information on their phones. If she asked for it, they also wrote the name of the treatment on a piece of paper for her. Another woman, WN10, commented that when the participants shared information verbally with her, they explained it in simple terms and sometimes demonstrated how to solve the problem, and that if any medicine was needed, they wrote the name for her.

Like the project participants, some of the community women with whom they shared information reported writing down the information that they found useful. For example, WN1 reported that the project participants advised her that if she wrote things down, her agricultural work would become easier.

Some of the men from the northern district also reported that they had received information from the project participants. MN1 said that the villagers used to meet and discuss the new learnings with those who had gone to training sessions, while MN2 reported that they shared information with him via Facebook Messenger. He kept it in Messenger where he could access it again and wrote down some information. The other two male interviewees from the village did not interact with the project participants: one said that he never talked with them because they were not well acquainted, and the other one said that he had not heard of the project. Two of the male interviewees from a neighbouring village, both in their fifties, said that they had heard about the project, but did not often go to the village because it is 5 km away and the road is not in a good condition. One of them, MN7, added that he had met one of the participants a few times and that he talked to her when he happened to meet her. He commented that “no one comes by themselves and shares information. No one does that. We have to go to them for our needs. They won’t come to us to share information”. The third man from that village had not heard of the project.

In the southern district, most of the women from the project village also frequently approached the project participants with questions about agricultural matters. WS1 explained that they were not comfortable asking advice from strangers, including the agriculture extension officers based in town, but that “we can be very free with the sisters from [the project] because they live around us and we know them. We can freely ask them to write some advice for us with pen and paper”. WS2 added that the women who took part in the project understand the explanations that the agriculture extension officers give them and that “when they come back, they explain everything to us and we do everything according to what they say”. She then wrote down the information that she got from them. Only one female interviewee from the village, WS5, did not think that it was necessary for her to get information from the project participants, but it was because she had also received some agricultural training. Some of the female interviewees from the neighbouring village also approached the project participants for information, but often by phone because travelling across the river to meet was not easy for them. Others commented that they did not seek information from them because the quality of the soil in their village was different and therefore the problems they encountered were different, and one woman said that she had not heard about the project.

Some of the men in the village also got information from the project participants, particularly those who knew them well and did not have much experience with agricultural matters or did not own a smartphone to search for information themselves. One of them, MS1, said that he did not talk to them directly, but sometimes got information from their husbands. On the other hand, those who were experienced did not see the need to ask them for information. The situation was similar for the men from the neighbouring village. Most of them did not feel the need to ask the project participants for information because they could get it themselves, but two of them who were less experienced and got to know some of the participants well said that they asked information from them when they met them on the road.

Community members, especially the women, developed their information preservation literacy skills by talking and observing others. Most of the female interviewees from the project villages reported that they only recently started to write information in notebooks. A woman from the northern village, WN5, reported that: “Sometimes when we are having a conversation [with other women], a lot of them say: ‘Oh, you wrote it in your notebook! We should have written it down too, it could have been helpful to us.’” WN3 reported that she saw a lot of her neighbours writing down in notebooks information that they got from their phone and that she started doing it too when she found a pesticide that worked for her crops. The use of notebooks extended to women with low level of literacy who had to rely on the help of others. WN1, who only had four years of schooling, asked her daughter to write information for her in a notebook that she got from school. One of the women, WS1, reported that she took notes in a notebook, then asked her husband to take photos of them and save them on his phone’s memory card as a backup. However, the burden of all the domestic, child-rearing and agricultural chores that women have to bear limits the time that they can spare to carefully record useful information. One woman, WN10, commented that she used to write more before her marriage because she had more time.

Some of the male interviewees had been writing information in notebooks for longer, but their reasons for writing were similar to those of the women. Their realisation that information could be useful to them in the future and that it would be easier for them if they wrote it down than if they had to go and look for it again, led them to capture the information in a format that was convenient to them. MN2, a 26-year-old man from the northern village, asserted the realisation: “I always have to go to other people for information whenever I faced any problem, I realised that it is better to write down information”. A 51-year-old man from the neighbouring village, MN6, who had been writing information in a notebook for the past 10–15 years, explained that if he did not have a pen and paper with him, he briefly wrote the key points on his phone, then later wrote the new information in his notebook with more details. On the other hand, some of the men had not yet developed the practice of capturing information to preserve it. When asked if he keeps information by writing it in a notebook, MN5, aged 50, answered that “I never thought that I could preserve information … by keeping it in a notebook”. Another man, also from the same village, MN7, aged 51, admitted that he would have benefitted from writing down information, but that it was not something that he did. When he got some advice, he used it instantly and got along with his work, and if he needed advice again, he would go and ask for it again.

Among the men, the interviews did not reveal a correlation between their level of education and the likelihood that they would write information in notebooks. The men with low level of education were as likely to use a notebook than the men with higher levels of education. This

may be because men with little education had to use writing in their economic activities, in a way that housewives did not, and for that reason continued to practice writing during their working lives.

However, there appears to be a correlation between the ownership of a smartphone and the use of writing among the men, particularly in the southern district, where men were more likely to own a smartphone than in the northern district. In the southern district, men who owned a smartphone rarely wrote agricultural information in notebooks because they could easily access information whenever they needed it. For example, MS5 said that he did not write anything (except his expenses) because when he experienced a problem, he could immediately find a solution for it, but that he downloaded videos and took screenshots to keep information on his phone. In the northern district where only one of the male interviewees owned a smartphone, no such correlation could be established. Similarly, the number of female community interviewees with access to a smartphone was too small to discern a correlation with their use of notebooks to keep information. None of the female interviewees from the northern district had a smartphone. In the southern district a few of them had a smartphone, but there, the practice of writing in notebooks was so common that no connection could be made with their phone ownership.

6. Discussion and conclusion

The findings from our interviews show that the participants in the development project developed their IL during the project. Their new awareness and their new skills were incidental to the project and often grew out of their search for solutions to adverse events (e.g. losing data kept on their phones). They also shared the new information provided to them with members of their communities in different ways, through casual conversations with their relatives and neighbours, by answering their questions when they came to ask for advice, by forwarding text messages to them, or by organising meetings to share their new knowledge. In some cases, they explicitly encouraged them to write down information, while in other cases, villagers decided to follow their example when they saw that they benefited from being able to re-access information. Community members appreciated that the information had been provided to them by experts and therefore was reliable. They also developed their IL awareness and skills, particularly in relation to preserving information during the course of the project and the following years.

While IL is the ability to access and evaluate information (Lloyd, 2010), most IL programmes are designed for contexts in which individuals have access to ICTs to access information. However, individuals who do not have access to those technologies also need to develop their skills to access, select, evaluate and use information. The results from the study that we conducted with marginalised communities in Bangladesh make us reflect on the meaning of IL in communities with limited access to information and on the importance of information preservation as a component of IL. In a context where access to information is difficult, preserving previously accessed information is valuable. Consequently, the awareness of the value of preserving information and the basic skills to do it are important parts of IL. In that context, information preservation literacy starts with the awareness of the usefulness of preserving information for future use. This is in line with Lloyd's (2024) understanding of IL as a socio-cultural practice that cannot be reduced to the acquisition of competencies. Some of the participants in our research had already developed this awareness, while others had not done it yet or were still in the

process of doing it. IL is contextual (Martzoukou & Sayyad Abdi, 2017). IL awareness and IL skills are contingent on the places where individuals live, work and socialise. Individuals need to acquire IL skills suitable for their contexts and relevant to them, which may not work in other contexts, but work in the contexts that matter to them, and may need to be reviewed when significant contextual elements change. For example, when new technologies become available to them, they will need to acquire new IL skills to access, evaluate, use and preserve information in different ways. This may lead them to reconsider their information preferences and adopt new practices reliant on the new technologies or to reject the new ways and strengthen their previous practices.

IL has been conceptualised as starting with the recognition of the need for information (Bundy, 2004a; Lloyd, 2010). In some work environments, individuals do not experience a need for information; they look for information because they are required to do it as part of their job (Lloyd, 2010). In the marginalised communities of our study however, the villagers know that they need information to solve their problems and they go and look for it without conceptualising that experience in terms of information needs or information quality. Many interviewees were left confused by questions about their preferred sources of information or the sources that they trusted the most. Bangladeshi villagers do not have many options; they get information from where they can. They prefer the sources of information that are the easiest to access not because of their quality, but because of the ease of access. On the other hand, preserving information presupposes an awareness of the usefulness of keeping information. For some villagers, this awareness stemmed from the hardships that they experienced when trying to find solutions for their problems. In other cases, it grew out of their discovery of the fragility of mobile phones and the digital data stored on them. This awareness led them to develop ways to preserve information that work for them, by taking notes in notebooks or by making multiple backups of useful information.

Although the findings from this study are specific to the locations in which the research was conducted and are based on a relatively small number of interviews, and therefore cannot be generalised, they highlight issues that are relevant for many disadvantaged groups with limited access to information and to ICTs. This study illustrates the important role that IL, and particularly information preservation literacy can play in empowering marginalised communities that have no or limited access to ICTs and no access to libraries. Therefore, we argue that training programmes that encourage the development of basic IL skills and of an awareness of the usefulness of preserving information should be included in development projects in marginalised communities.

Declarations

Ethics approval

This article was submitted for ethical review to the authors' university and was approved under the project number 27664.

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Appendices

Table 1: Demographic characteristics of interviewees, Dimla

Participant Code	Gender	Age	Education level	Interview mode
PN1	F	24	High school certificate	Phone (2022); in person (2023)
PN2	F	23	College (not completed)	Phone (2022); in person (2023)
PN3	F	33	Grade 8	Phone (2022); in person (2023)
PN4	F	27	College (not completed)	Phone (2022); in person (2023)
PN5	F	34	Grade 5	Phone (2022); in person (2023)
PN6	F	29	College (completed)	Phone (2022)
PN7	F	24	College (not completed)	Phone (2022)
PN8	F	35	Middle school certificate	Phone (2022)
PN9	F	28	High school certificate	Phone (2022)
PN10	F	22	College (not completed)	Phone (2022)
PN11	F	40	Grade 6	Phone (2022)
PN12	F	35	College (not completed)	Phone (2022)
WN1	F	40	Grade 4	In person (2023)
WN2	F	22	Middle school certificate	In person (2023)
WN3	F	22	Grade 5	In person (2023)
WN4	F	22	Middle school certificate	In person (2023)
WN5	F	21	Middle school certificate	In person (2023)
WN6	F	40	Grade 5	In person (2023)
WN7	F	40	Grade 9	In person (2023)
WN8	F	27	Grade 8	In person (2023)
WN9	F	35	Grade 8	In person (2023)

WN10	F	22	Grade 8	In person (2023)
MN1	M	33	Grade 8	In person (2023)
MN2	M	26	Postgraduate	In person (2023)
MN3	M	42	Grade 5	In person (2023)
MN4	M	32	Middle school certificate	In person (2023)
MN5	M	50	Grade 8	In person (2023)
MN6	M	50	Grade 5	In person (2023)
MN7	M	51	Grade 8	In person (2023)
NGN1	M	N/A	N/A	In person (2023)
NGN2	M	N/A	N/A	In person (2023)
NGN3	M	N/A	N/A	In person (2023)

Table 2: Demographic characteristics of interviewees, Shyamnagar

Participant Code	Gender	Age	Education level	Interview mode
PS1	F	40	Grade 9	Phone (2021); in person (2023)
PS2	F	40	Grade 10	Phone (2021); in person (2023)
PS3	F	26	Postgraduate	Phone (2021); in person (2023)
PS4	F	26	Grade 10	Phone (2021); in person (2023)
PS5	F	33	Grade 10	Phone (2021); in person (2023)
PS6	F	42	Grade 9	Phone (2021)
PS7	F	22	College (not completed)	Phone (2021)
PS8	F	29	Grade 8	Phone (2021)
PS9	F	25	Middle school certificate	Phone (2021)
PS10	F	28	Grade 10	Phone (2021)
PS11	F	31	Grade 8	Phone (2021)
WS1	F	35	College (completed)	In person (2023)
WS2	F	34	Grade 10	In person (2023)
WS3	F	28	College (completed)	In person (2023)
WS4	F	30	College (completed)	In person (2023)

WS5	F	35	Postgraduate	In person (2023)
WS6	F	38	Grade 10	In person (2023)
WS7	F	30	Middle school certificate	In person (2023)
WS8	F	38	High school certificate	In person (2023)
WS9	F	27	Postgraduate student	In person (2023)
WS10	F	36	High school certificate	In person (2023)
MS1	M	39	Grade 7	In person (2023)
MS2	M	52	Middle school certificate	In person (2023)
MS3	M	33	College (completed)	In person (2023)
MS4	M	28	Postgraduate	In person (2023)
MS5	M	23	College (not completed)	In person (2023)
MS6	M	N/A	College (completed)	In person (2023)
MS7	M	43	Grade 8	In person (2023)
MS8	M	60+	Grade 8	In person (2023)
MS9	M	30	Grade 8	In person (2023)
MS10	M	50	Grade 7	In person (2023)
NGS1	M	N/A	N/A	In person (2023)
NGS2	M	N/A	N/A	In person (2023)