Mobile Information Literacy: Building Digital and Information Literacy Skills for Mobile-first and Mobile-centric Populations through Public Libraries

Melody Clark
Communications Manager, University of Washington Technology & Social Change Group (TASCHA)
melclark@uw.edu

Chris Coward
Director, University of Washington Technology & Social Change Group (TASCHA)
ccoward@uw.edu

Chris Rothschild
Research Analyst, University of Washington Technology & Social Change Group (TASCHA)
chriskr@uw.edu

Abstract

For billions of people coming online around the world - many in Africa - mobile phones (and increasingly smartphones) is their point of entry to the internet. This is true in both developed and developing countries. However, the user experience on a smartphone is very different from that on a PC or a feature phone. The different affordances and limitations of each device shape how people interact with information, and even one's conceptualization of the internet itself. Mobile-specific tendencies include: interacting through apps versus a browser, coming online via a handful of "walled garden" applications, information consumption rather than production, and a focus on social activities over more "serious" uses. In order to take advantage of the benefits that information and communication technologies (ICTs) offer, one must have the skills and knowledge to do so. Digital and information literacy skills are critical to fully realize the potential of technologies. Yet the research and practice around digital and information literacy has largely failed to account for these differences. A review of information and digital literacy frameworks, for instance, illustrates a PC-centric orientation. One consequence is a dearth of digital literacy courses and other learning programs developed for smartphone-centric users. This has many important implications for how people get online, including how they access and experience the internet, how much they produce and consume information, and more.

Mobile Information Literacy - a combination of digital, internet, and information literacies for smartphone-first and smartphone-centric populations - fills a critical gap between access alone and realization of the benefits mobile technologies and applications can have. Through a process of reviewing existing PC-based digital and information literacy frameworks and curricula and identifying the specific needs and information behavior differences among mobile-first and

mobile-centric users, we have created Mobile Information Literacy (MIL) curricula and trainings for various geographies and audiences, taking into account local contexts and conditions. This paper details why MIL is important and needed, describes the process of developing and implementing the curriculum, explains how it is currently being adapted for public libraries in another setting, and concludes with next steps for Mobile Information Literacy. The paper also highlights lessons we have learned along the way and changes we have made as we adapt the curriculum.

Introduction

As part of a larger project called *Information Strategies for Societies in Transition*[1] in Myanmar, a country experiencing rapid expansion of access to information and communication technologies (ICTs), we developed a digital and information literacy curriculum and training specifically for those first experiencing the internet on mobile devices, rather than personal computers (PCs). Our project objectives were to: 1) improve digital and information literacy amongst the general public in Myanmar, and 2) grow the capacity of libraries in Myanmar to serve as trustworthy information hubs. Our stakeholders, then, were the Myanmar general public, libraries, and librarians. Our original goal was to conduct a train the trainers workshop. What we needed was a training curriculum. Initially, we thought we could use an existing curriculum and adapt it to the Myanmar context; however, once we surveyed the existing literature and resources, we determined that the best course of action was to create a curriculum to suit the needs we identified in Myanmar. What resulted from this process was somewhat unexpected on our part. We found that there was a need in general, beyond the context of Myanmar, for a foundational mobile information literacy curriculum. A mobile information literacy curriculum was one that would address critical information literacy skills in the mobile environment.

The Mobile Information Literacy[2] (MIL) curriculum is a combination of digital, internet, and information skills, knowledge, concepts, and attitudes for smartphone-first & smartphone-centric populations. This paper details why MIL is important and needed, the process of developing and implementing the curriculum, how it is currently being adapted for public libraries in another setting, and concludes with next steps for Mobile Information Literacy. The paper also highlights lessons we have learned along the way and changes we have made as we adapt the curriculum.

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[1] See http://tascha.uw.edu/projects/information-strategies-for-societies-in-transition/

[2] The MIL was first developed by the Technology & Social Change Group (TASCHA) at the University of Washington Information, the Henry M. Jackson School of International Studies at the University of Washington, the Myanmar Book Aid Preservation Foundation (MBAPF), and the Enlightened Myanmar Resesarch Foundation (EMReF). The full curriculum can be found at http://tascha.uw.edu/mobile-information-literacy-curriculum/

Why mobile information literacy is important

Mobile information literacy is needed for several different reasons. First, the majority of people currently coming online are doing so via mobile devices (and increasingly smartphones). Two, the existing frameworks, curricula, and trainings that exist are PC-centric and developed for PC-based learners. Three, the difference in device characteristics on a PC versus a mobile device (such as size, portability, information architecture, and hardware features) mean many information behavior differences as well. Fourth, the lack of information and communication technology (ICTs) skills are a barrier to adoption of the internet. Finally, other organizations are beginning to work in this area, making mobile skills training a priority.

Smartphone-first & smartphone-centric populations

For billions of people coming online around the world, mobile phones (and increasingly smartphones) are their point of entry to the internet (e.g., Donner, 2015; GSMA, 2017; ITU, 2016; Pew Research Center, 2016). This is true in both developed and developing countries. Most of the world has gradually adapted to new technologies over time, moving from a desktop PC to a feature phone to a laptop to now a smartphone. The exception is the number of people--mostly in Africa and South East Asia--who have skipped the PC altogether, going straight to basic mobile phones. However, these basic feature phones have been predominantly used for communications and not for full data access to the internet. Some countries like Myanmar, on the other hand, went directly from traditional media, in an access-denied culture with limited and controlled information sources, to having full internet access in their hand with smartphones - in a very short period of time. This was unprecedented in the world. Even those who have access to PCs are increasingly consuming digital information via a mobile device more frequently - and for different reasons - than on their desktop or laptop PC (Pew Research Center, 2016). Just as PC-first and PC-centric populations needed to learn basic digital and information skills to successfully navigate the then-new technologies, so do smartphone-first and smartphone-centric populations.

Existing frameworks, curricula, & trainings are PC-centric

Before developing our MIL curriculum, we conducted an inventory and review of existing digital and information literacy literature, frameworks, curricula, and trainings. At the time, all of them were oriented for PC-based users and developed from a PC-centric point of view. No digital and information literacy materials existed for smartphone-first or smartphone-centric users. While there have been other developments (see below) since we released the MIL, the majority still focus on desktop or laptop PC users. One consequence is a dearth of digital literacy courses and other learning programs developed for smartphone-centric users. This has many important

implications for how people get online, including how they access and experience the internet, how much they produce and consume information, and more. MIL sets out to fill this gap.

Information behavior differences

The user experience on a smartphone is very different from that on a PC or a feature phone. The different affordances and limitations of each device shape how people interact with information, and even one's conceptualization of the internet itself. This is true for both physical interactions such as touching and pinching rather than clicking and information architecture and design-based interactions (Güler, Kılıç, & Çavuş, 2014). Mobile-specific tendencies include: interacting through apps versus a browser, coming online via a handful of "walled garden" applications, information consumption rather than production, conducting shorter and location-focused searches (and viewing fewer results), and a focus on social activities over more "serious" uses (e.g., Kim et al., 2015; Nicholas et al., 2013; Paulson, 2017; Sherugar & Budiu, 2016).

Lack of skills as barrier to adoption

Research shows that a lack of digital and information literacy skills is a significant barrier to internet adoption and uses, which ultimately leads to further digital divides (e.g., Armbrecht, 2016; Arese Lucini, 2016a & 2016b; Ranger, Chandler, & Arscott, 2015; Van Biljon, et. al., 2015; Van Dijk & Van Deursen, 2014). Given the value of mobile devices for first-time internet users, without proper *mobile* digital and information literacy skills, there are populations once again left behind, even if they are technically connected to the internet. Access alone is not enough to close digital divides. In order to take advantage of the benefits that information and communication technologies (ICTs) offer, one must have the skills and knowledge to do so. Digital and information literacy skills are critical to fully realize the potential of technologies.

Mobile skills training becoming a priority

Recent research suggests that new internet users do not necessarily know that they are using the internet when they use applications like Facebook (Mirani, 2015). They are also likely to underuse the mobile internet, even when they have access to a smartphone and data, using their phones mainly for communication through voice calls and text messages (GSMA, 2017). Research findings like these have prompted other organizations to focus on training new smartphone users on the benefits of the mobile internet and smartphones. Since the first MIL curriculum and trainings were first developed for Myanmar in 2015, other organizations have created and implemented other mobile internet skills training programs. In India, GSMA developed and implemented the Mobile Internet Skills Training program in partnership with mobile operators and local mobile phone vendors (GSMA, 2016). In Kenya, the Mozilla Foundation started their Digital Skills Observatory project that seeks to understand how first-

time smartphone users use smartphones and trained dozens of first-time smartphone users on smartphone literacy skills (Mozilla Foundation, 2016). As all of us have similar goals and objectives, we have been discussing how we can share what we are learning and best practices for teaching digital and information literacy skills for mobile-centric users.

Development & implementation of the MIL

Many of the reasons above illustrate why we developed the first MIL curriculum and training in Myanmar. Below the process of developing and implementing the curriculum is outlined, along with some of the results and lessons learned from the experience in Myanmar.

Review of existing digital and information literacy frameworks

At the outset of this project, we searched for digital information literacy curricula that we might adapt or model from for use in the Myanmar context. The Microsoft Digital Literacy IT Academy curriculum seemed a likely option early on; however, we realized that the PC-orientation of this curriculum for Myanmar would limit its applicability. In addition, translation from English to Myanmar language entailed more complicated issues that were beyond the scope of our project. Finally, the prevalence of mobile digital platforms in Myanmar, low bandwidth, and unreliable electricity rendered this curriculum option unusable for our purposes.

In order to build a mobile digital information literacy curriculum, we needed a framework. We surveyed the field for relevant frameworks and models that could inform the development of the MIL Curriculum. The Society of College, National and University Libraries (SCONUL) 7 Pillars, UNESCO Empowering 8, Mozilla Web Literacy, the European Union Joint Research Centre's Digital Competence Framework (DIGCOMP), and the Australian National Framework were assessed for their relevance and applicability for our purposes. As mentioned above, all of the existing frameworks assumed people were learning on PCs, and at the time, no frameworks or curriculum for mobile-based users were found. Finding no other available digital information literacy curricula for a mobile context, we decided to build one.

Because the target audience of the curriculum in Myanmar was beginner-level with little to no knowledge of the internet, World Wide Web, or mobile technology use, the DIGCOMP framework was deemed most relevant to the needs at hand, as others assumed a minimum baseline digital information literacy. As such, the Mobile Information Literacy curriculum was developed based primarily on the DIGCOMP framework, which emphasizes multiple competencies in five areas: information, communication, content creation, safety, and problem solving. With the aim of teaching skills, attitudes, and knowledge connected to these areas, particularly on mobile platforms given the prevalence of smartphones, the group designed a curriculum focused on training organizations and individuals at various levels of aptitude and experience. Fundamentally, the goal was to train local librarians and community members to

teach local people basic online skills and concepts. Designed to be modular, the initial curriculum targets new users, but has the potential to be expanded for varying skills levels.

Developing the curriculum

The first Mobile Information Literacy curriculum contains six modules to build digital and information literacy skills and competencies on mobile devices. While extensive, the DIGCOMP framework does not provide a basic foundation of what information is, what information and communication technologies (ICTs) are, and what the internet is. Given that this curriculum is designed for internet newcomers, the curriculum begins with two modules that define information, explains what ICTs are, and what the internet is - all through a mobile lens.

Each module covers one or more of the competencies defined by the DIGCOMP framework. Through activities and discussion, the modules help participants gain proficiencies in digital and information literacy on mobile devices. Participants learn skills and broader knowledge about the internet – not just how to use it but why what it is and consists of and why it works the way it does. It also helps shape attitudes – participants are inclined to want to participate in an engaged way online in this increasingly connected information and digital society. Informs participants about the limitations of certain applications and makes them aware of the internet beyond Facebook. Our approach was to develop a curriculum that provides a foundation of digital and information literacy, that then can be used to dive deeper into domain specific areas such as health, education, and financial services.

Table 1: Overview of Mobile Information Literacy competencies, topics, and activities

Modules	**DIGCOMP Competencies**	**Topics Covered**	**Activities**
Module 1: Introduction to Mobile ICTs	Information Communication Safety	ICT basics Mobile ICT basics Mobile phone operation Affordances of mobile ICTs	Connecting to wifi Securing devices Downloading & assessing applications Basic messaging & file sharing
Module 2: A Mobile Lens on the Internet	Information Communication Problem solving	Development & evolution of the internet What the World Wide Web is What web browsers are & how they work	Identifying browser elements & navigation Searching the web across the platforms Hyperlinks & hypertext Tabs & bookmarks
Module 3: Basic Web Searching via Mobile Devices	Information Problem solving	Web browsers vs. applications Basic web search	Web browser applications Web search operators Search engines vs. Facebook Advanced search
Module 4: Working Online and Using Information via Mobile Devices	Information Communication Content creation Safety Problem solving	Privacy & security measures Online etiquette Referencing online sources Working in the cloud & collaborative online environments	Basic protection measures Using online content Facebook groups Introduction to Google Docs
Module 5: Putting It All Together	Information Communication Content creation Safety Problem solving	Project-based learning: creating a project based on what was learned in Modules 1-4	Preparing a project with the mobile and digital information literacy skills and knowledge learned
Module 6: Module 5 Project Presentations	Not applicable	Mobile Information Literacy project presentations	Each participant presents their project

Implementation of the curriculum

After developing two of the modules, they were piloted with a small group of local partners in Myanmar, staff from Myanmar Book Aid Preservation Foundation (MBAPF) and Enlightened Myanmar Research Foundation (EMReF). The pilot provided invaluable feedback on what worked, what did not, and what was missing. After the pilot, the modules were revised based on the pilot feedback and the remaining four modules were developed. A training-of-the-trainers was then held with a group of 25 "master librarians" - library staff who would learn the MIL curriculum and then take it back to their libraries to train other staff and library patrons. The training also included a pre-training assessment of ICT skills and a post-training assessment of those same skills with the aim of evaluating the success of the training. Training participants assessed their own skills through self-reporting surveys.

Partnering with libraries

Libraries have a long tradition of contributing to the literacy of the populations they serve. Through both specific programs designed to enhance reading literacy and informally helping patrons select trustworthy and accurate information sources that contribute to information literacy, libraries are one of the main institutions where literacies of all kinds are promoted and taught. As technologies evolve, so must the literacies libraries teach. Given that libraries exist in almost every part of the world, are often trusted institutions in the communities they serve, and places people go to learn and seek information, libraries are natural partners in developing and implementing mobile information literacy curriculum and training. In Myanmar, there are over 5,000 public libraries in all regions of the country. By training library staff on mobile information literacy and teaching them how to adapt and implement the training back in their community libraries, thousands of people around the country have received training on how to take advantage of the benefits that mobile phones and the mobile internet have to offer.

Results

To date, over 5,000 people have been trained on the MIL in Myanmar. This number includes librarians, library users, and other people from various organizations that have requested the training. Our partners in Myanmar are not only helping librarians and their patrons learn digital and information literacy for mobile phones, but are also being called upon to train ministries in government, staff at foundations and non-governmental organizations (NGOs), and academic library staff as well. The original curriculum and trainings continue to be adapted and expanded upon for use in various sectors and for use in various domains, such as agriculture, health, and financial services.

Lessons learned

The experience of developing and implementing the first MIL curriculum in Myanmar has yielded some important lessons that help shape future MIL work and adaptations of the curriculum for other geographies and contexts (more on that below).

- **Local context is key for a relevant and useful curriculum**: It is important to understand the local context and conditions when developing a curriculum and training. Ask questions such as "What types of information and digital platforms are popular and used locally?" The first MIL curriculum was going to be heavily based on Wikipedia. However, we learned from our local partners that Wikipedia was not used in Myanmar. Facebook was heavily used for everything and a critical main source of information for anyone on the internet in Myanmar. By using something people were already aware of (Facebook) instead of something rarely used (Wikipedia), the curriculum was more relevant to the participants.
- **Cultural norms must be taken into account for curriculum content and delivery**: A critical point discovered during the pilot and in consultation with Myanmar participants was that training participants expected a very traditional teacher-student hierarchy. Explicit coaching tips were included to teach trainers how to deliver the curriculum using an approach that would be novel and uncomfortable for them because it challenged generally-accepted hierarchical norms of student deferment to teacher knowledge. This hands-on, participatory approach encouraged group work, project-based learning, experimentation, making mistakes as a useful learning tool, and asking lots of questions. Flexibility was explicitly built into the curriculum and trainers are encouraged to adapt the curriculum as necessary to meet the needs of their participants.
- **Use participant feedback to revise and adapt the curriculum and training**: As more and more people were trained in Myanmar, participants seemed to be interested in and excited about specific tools and content. Participants wanted to learn more about communication tools (email, Skype, etc.) and the use of Google Drive and Docs. By listening to the participants, our local partners developed a separate Communications Tools module and created specialized training on Google Drive.
- **MIL training does not necessarily end when the training session is over**: In interviews with librarians who had participated in the MIL training, we learned that they continued to learn new digital and information literacy skills on their own and began including this in their local trainings. They also suggested that "refresher modules" be developed to include updates to training and continued learning on their own once the training is over. These would be shorter materials that focused on refreshing skills, rather than starting at the beginning.

Adapting the MIL

It had been our hope that the first MIL curriculum would be a foundation for many adaptations in other geographies and contexts. EIFL (Electronic Information for Libraries), an organization working with public libraries in various countries in Africa, approached us to adapt the MIL curriculum and training for library staff working at the Kenya National Library Services (KNLS). Based on our experience in Myanmar, we were eager to use what we learned there to adapt the curriculum in another country and context.

Given what we learned from Myanmar, we began this adaptation with more extensive research about the ICT and library landscape in Kenya. We visited Kenya to meet with KNLS staff, visit public libraries in various parts of Kenya to talk with librarians and patrons, and to learn from local stakeholders and other organizations working in the digital and information literacy skills space in Kenya. We also administered a survey among KNLS library staff to learn more about their ICT skills, current trainings, and library users.

Based on our research, we have developed an outline of what the Kenya MIL will include and are currently developing the curriculum and training. The pilot will take place in May 2017, and from the pilot, we will incorporate feedback for the final curriculum and training to take place later in 2017.

While much of the original curriculum material remains relevant for the Kenyan context, we are doing some things differently in this iteration. Some of these include:

- **Locally relevant content:** While Facebook is used in Kenya, it is not the only application that is popular there. This curriculum will also include other applications, content, and platforms that makes sense given the digital landscape in Kenya. One addition will be including WhatsApp. There are also more local applications and websites in Kenya that will be included.
- **Expanded modules on various topics:** During our library visits, we heard that privacy and security are a main concern when using ICTs in Kenya. We will expand our curriculum to include more about how people can use digital devices and platforms securely and safely.
- **Tips for trainers**: In addition to training the trainers on the MIL, this version of the MIL curriculum and training will also include tips for how to best teach the MIL and adapt it for their local communities and the interests of their patrons.
- **Different delivery methods**: Many of the people we spoke to in Kenya emphasized that people enjoy learning and working together. The training delivery will reflect this by incorporating more social learning activities.

- **Evaluation and assessment**: The evaluation component of the Myanmar MIL was not as robust and complete as it could have been. We are integrating evaluation and assessment components throughout the curriculum so we can learn more about the effectiveness and success of the MIL curriculum and training beyond self-reported pre- and post-training assessments.

Current and future work

As with Myanmar, we are documenting the process and what we learn along the way. Once we have completed the MIL adaptation and implementation in Kenya, we hope to be able to share more generalizable tips, recommendations, and best practices for libraries and other organizations to adapt and implement MIL for their communities and purposes. We continue to invite others to adapt the current MIL and share their experiences with us to help with our recommendations.

We are also working on developing a Mobile Information Literacy Framework to further contribute to the digital and information literacy literature and practice. Working with GSMA and the Mozilla Foundation, we have invited academics, libraries, practitioners, and other interested individuals and organizations to contribute to this framework. Interested people can email tascha@uw.edu for more information on how they can get involved.

By continuing to adapt and expand the Mobile Information Literacy curriculum, implementing it in new places with different organizations, and collaborating with others working in this field, we believe that many of the billions coming online via mobile devices will benefit from learning digital and information literacy skills specific to smartphones. Libraries, particularly public and community libraries, can and do play a significant role in helping individuals and communities obtain ICT access and ICT knowledge and skills. By tailoring digital and information literacy trainings to match the user's first or main device through Mobile Information Literacy, libraries can better meet the needs of their users and communities.

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