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Managing the "backend" of LIS research projects: A project management perspective

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Managing the "backend" of LIS research projects: A project management perspective

Abstract

There is very little guidance in library and information science (LIS) literature about how researchers should manage the scope, time, costs, quality, human resources, communications, and risks associated with LIS research projects. To fill in this gap, researchers tested the utility of project management principles (PMP) for planning and managing a project designed to enhance the information, digital, and financial literacy of the people earning less than $2 per day in India. The customization of PMP through 29 mechanisms and 60 action items were used to conduct focus groups and in-person surveys with over 150 participants, in their native language, at 10 public libraries. PMP were most helpful for managing risks (13 solutions), communications (11 solutions), and human resources (10 solutions) of the project and treating participants ethically. PMP developed in the West were helpful before, during, and after data collection in the LIS research project in a developing country.

1. Introduction

Typically, researchers share the "frontend" of research projects in a publication. Sample frontend details involve research question(s), data collection (i.e., fieldwork), data analysis, and reporting findings. The "backend" of research projects is also part of the research process, and can be useful for others, especially new researchers learning the craft. Sample backend details include: defining and controlling the scope of a research project; building and managing research team(s); managing communication among team members; estimating budget and controlling costs of the project; establishing and controlling data quality; identifying and managing risks associated with the project; and estimating, defining, and managing activity resources (PMBOK, 2017). Thus, backend details are typically related to managing the scope, risks, time, human resources, communications, costs, and quality associated with research projects. Figure 1 proposes the relationship between the frontend and backend details of research projects.

[Figure 1 about here]

2. Problem statement

Most library and information science (LIS) literature does not report on the "backend" details of research projects, which communicate the efforts involved in overcoming barriers in planning and

implementing research projects and can help others undertake similar projects in the future (Bu, Ding, Liang, & Murray, 2018; Nemer & Tsikerdekis, 2017; Poole & Garwood, 2018). Failure to manage any backend details can affect the fieldwork and project outcome (Potnis, 2015). Backend details may also be relevant in outlining the ethical treatment of participants. In the absence of experiential guidance for managing the challenges related to the scope, time, costs, quality, human resources, communications, or risks associated with LIS research projects, others interested in planning and managing similar projects may find themselves ill-equipped.

2.1. Research question

A growing number of LIS scholars expect guidance on research methods to be more practice-oriented, so that junior or inexperienced researchers can be better informed when dealing with issues, including but not limited to collaboration and contingency planning during fieldwork (Fourie, 2014). Considering the significance of backend details in planning and conducting fieldwork, it becomes necessary to investigate the following research question: *How can LIS researchers better manage the backend of research projects?*

3. Literature review

3.1. Drawback of past guidance

The guidance offered by LIS researchers focuses primarily on the frontend of research projects. For instance, Connaway and Radford (2017) offer invaluable guidance for designing and conducting LIS research studies. They cover frontend topics such as the role of theory in research, developing research questions and instruments, validity, reliability, comparing research designs, analyzing data, and reporting findings, but do not adequately equip researchers for managing backend challenges. Similarly, Pickard (2013) equips researchers for conducting research using methods such as case studies, surveys, and ethnography, and provides insightful guidance for collecting data using interviews, questionnaires, and observations, but does not go beyond data analysis and presentation of findings.

There is a stream of LIS research dedicated to managing data in research projects (e.g., Cox, Wan, & Tam, 2018), which helps researchers manage the quality of research projects, but this guidance on research data management does not sufficiently prepare researchers for mitigating other backend dimensions of research projects. The research on managing data, information, communication, and research methods for social media (e.g., Sloan & Quan-Haase, 2017) also does not sufficiently equip researchers to manage scope, risks, costs, and human resources of research projects. The past guidance on conducting research in teams, i.e., human resources dimension of projects, asks researchers to identify and operate on common ground related to theories, vocabularies, value systems, and research methodologies (Bu et al., 2018; Sonnenwald, 2007). However, acculturation barriers can still challenge the interdisciplinary collaboration of LIS researchers (Poole & Garwood, 2018; Potnis, 2016). A panel of experts also identifies human resources as one of the key barriers to engaging with vulnerable communities like farmers, physically disabled users, women earning less than $1 a day, and racial and ethnic minorities during fieldwork (Potnis, Adkins, Cooke, & Babu, 2017). However, their actionable solutions for addressing the barriers, which focus on the precautions to be taken by researchers and research assistants during fieldwork, do not help junior researchers manage the challenges associated with the scope, quality, and costs of projects.

Most studies do not offer any systematic guidance for addressing the range of backend challenges (Baumard & Starbuck, 2005; Brewer et al., 2006; Venkatesh & Sykes, 2013). For example, Brewer et al. (2006) ask researchers to plan in detail but to stay agile, engage with stakeholders, and expect delays in projects. How exactly should researchers follow these guidelines? Would following this strategy work as well when managing costs, research personnel, and other aspects of projects? A considerable amount of experience or a relevant background is necessary to understand and benefit from this guidance in an appropriate manner.

The past guidance of LIS researchers lacks the granularity necessary for managing the backend challenges in the field (Potnis, 2015). For instance, Heeks (2009) proposes the "concept-reality" gap theory for managing technology, information, values and objectives of projects, process, staff and their skills, time, and organizational management. Although this theory is useful for managing backend challenges, it has neither a set of mechanisms nor action items like project management principles (PMP), one of the most widely used methodologies by practitioners for managing projects. Due to the lack of specific guidance for managing dimensions of a research project, it can be challenging for inexperienced researchers to effectively manage them.

Some LIS studies offer unrealistic guidance for managing the backend of research projects. For instance, Touray, Salminen, and Mursu (2013) ask principal investigators to manage the following critical factors themselves: finances, education and skills, infrastructure, legal regulations, politics, security, socio-cultural elements, and technical components. Without assistance, expertise, or strategic delegation of tasks, it can be daunting for any researcher to manage such backend challenges alone.

3.2. Project management principles

Any task or set of activities can be considered a project (PMBOK, 2017). Planning and implementing any LIS research study involves a series of activities, qualifying it as a research project. LIS scholars consistently call for openly engaging with theories, methods, and frameworks from multiple disciplines to address backend challenges encountered during research projects (Fourie, 2014; Potnis, 2015). Thompson and Walsham (2010) also suggest that researchers engage openly with knowledge from other disciplines by adopting an outward-looking focus through interdisciplinary collaboration with practitioners. Researchers responded to this call by testing the utility of PMP, a structured and hierarchical guidance with mechanisms and action items (see Table 1), for managing the scope, time, costs, quality, human resources, communications, or risks associated with a LIS research project.

[Table 1 about here]

3.3. Sample LIS projects applying PMP

Some LIS research projects have already applied the guidance offered by PMP for managing backend challenges. For instance, in congruence with a principle for managing the scope of projects, researchers divide the scope of research projects into small, achievable objectives, which enable data collection at several research sites at the same time. The Technology and Social Change Group completed a project to study the use of technology at public facilities in 25 developing countries (Gomez & Gould, 2010). Using the same research design, research teams conducted surveys and interviewed over 25,000 respondents. The strategic planning of duties and execution enabled data collection in tandem at 500 locations. Nemer and Tsikerdekis (2017) also broke down their fieldwork into two manageable phases of two and six months each when studying

the sociotechnical factors influencing the political inclusion of marginalized communities in Brazil.

LIS researchers can manage time efficiently if they identify activities in the field in advance and develop a schedule that they can control. For instance, while exploring the use of mobile services by financially marginalized communities in China, Ma, Du, Cen, and Wu (2016) interviewed 32 migrants at places and times chosen by the study participants. Within 12 days, the researchers collected data at lottery sites, migrant workers' dormitories, canteens, grocery stores, fruit stores, and senior activity centers.

PMP can also be useful in managing the risks associated with engaging marginalized communities in research (Potnis, 2015; Potnis et al., 2017). For instance, to protect the identity of study participants affected by mass killings and genocide, Cibangu, Hepworth, and Champion (2017) avoided videos and tapes during interviews for investigating the influence of mobile devices on the development of marginalized communities in Congo. The researchers destroyed their notes so that they could not be used as evidence to harass, confine, or execute participants and related others. These techniques map onto the mechanisms and action items of the risk management principle in Table 1 above.

However, none of the above cited LIS publications mention or give credit to PMP for managing backend challenges. As a result, the generalizable, theoretical backbone of solutions for managing challenges remains buried, and others cannot understand the logic behind the solutions.

In contrast, Potnis (2014) applies PMP for studying the information behavior of women earning less than $1 a day in India. He illustrates the utility of communications and risk management principles from PMP for collecting quantitative and qualitative data, while addressing gender-related challenges and cultural sensitivity issues. Potnis' (2014) research does not, however, involve libraries as a venue to engage with study participants.

4. Research project used for PMP application case

4.1. Context

Since 2016, the Government of India has been encouraging citizens to use mobile devices for financial transactions, which requires the user to be literate, operate a mobile device, and comprehend financial jargon. However, nearly 200 million adults earning less than $2 per day have a limited digital or financial literacy (Potnis & Gala, 2019). If these low-income people do not have an adequate level of digital, information, and financial literacy to operate mobile devices for financial transactions, they could be further marginalized.

4.2. Project goal

The researchers developed a digital, information, and financial literacy toolkit to build the competencies necessary to use mobile devices for finance. The goal of the project was to evaluate the toolkit and train the low income to use mobile devices for financial transactions.

4.3. Procedure

Public libraries served as gatekeepers in providing access to local communities. Their endorsement of the project was useful in establishing credibility of outside researchers. Public libraries also did not charge any fees for conducting research at their sites. The Director of Public Libraries, who supervises over 4,000 libraries in Gujarat, issued a permission letter and circulated it among the

twelve select libraries for the research project. He also provided their contact information, including telephone numbers.

In ten sessions of three hours each, focus group discussions were conducted with over 150 study participants at ten public libraries in urban and rural parts of Gujarat state. Survey responses were collected in a vernacular language.

5. Application of PMP

5.1. Scope management

While defining the scope of the project, the researchers set the following goals for the study: (a) creating awareness about mobile-based financial services and the opportunities paved by the services, (b) sharing the operational challenges and risks associated with using mobile phones for managing finances, (c) building and enhancing participants' confidence by demonstrating the use of mobile devices for financial transactions, and (d) introducing participants to multiple sources of information for seeking guidance in the future. To create a work breakdown structure, researchers divided fieldwork into 10 manageable sessions at 10 public libraries. Each session was subdivided into three parts: focus group, snack break, and in-person surveys. To verify the scope, after every session at a public library, researchers in the US and India met over Skype to discuss the lessons learned and verified the procedure of interacting with, and collecting data from, study participants. One of the researchers translated survey responses from Gujarati to English and then shared them with the other researcher to verify translation.

5.2. Time management

As per the PMP guidelines, researchers defined the activity of data collection by identifying and following a specific set of protocols for planning and conducting sessions at ten public libraries. As part of an activity sequencing exercise, researchers identified and documented several dependencies among scheduled activities. For instance, unless librarians at potential research sites confirmed their interest and dates of availability, researchers could not send them posters, banners, and pamphlets with the specific times and dates of sessions. After working with staff members at the libraries, for resource management purposes, researchers estimated the quantities of promotional materials and pamphlets that needed to be printed. To estimate activity duration, researchers projected the number of weeks and months it would take to accomplish the following tasks: receive clearance from the Institutional Review Board for fieldwork, seek the permission letter from the Director of Public Libraries, coordinate with librarians at potential research sites for planning sessions, complete the sessions at libraries, and translate data from Gujarati to English. Each team member completed the training necessary for the Collaborative Institutional Training Initiative Certificate. This certification was required to seek approval for the research project from the IRB.

During data collection, researchers made some changes to the schedule due to monsoon, high summer temperatures, and poor road conditions. The schedule adjustments represented schedule control in the project. India has an agrarian economy, with over 60% of the population engaged in farming and related activities that rely mainly on monsoon. The researchers anticipated a low response rate for the sessions in monsoon. Hence, researchers originally planned to conduct sessions before the monsoon season. However, summer temperatures above 100°F made it impossible for the research team to meet the goal. Researchers identified the most appropriate timespan for data collection by analyzing local weather conditions in the past. They conducted six

sessions between the peak of the summer season and the beginning of the monsoon season. They had to change their schedule twice due to poor road conditions in monsoon since it became difficult for the research team to reach two of the libraries.

5.3. Cost management

The researchers estimated the cost of resources needed for fieldwork before setting out. Major budget items included travel costs, the printing of advertising and promotional materials, snacks and beverages offered to participants, and compensation for research personnel. While budgeting, researchers grouped estimated costs of activities for a financial baseline, which they included in their external research grant proposal. External funding helped the researchers conduct fieldwork without having to personally worry about finances.

The researchers managed costs by not providing any compensation for filling out the survey or participating in focus groups. However, transportation reimbursement was provided for study participants who lived at the outskirts of cities and did not have enough money to travel to the libraries. The operational cost was controlled by limiting the number of participants who received travel support.

5.4. Quality management

An assistant professor of Gujarati from a university verified the translation of informed consent and recruitment material from English to Gujarati. All participants signed an informed consent form in Gujarati before they participated in sessions, which helped researchers gain their trust, thereby affecting their degree of participation.

In the first few focus groups, men attempted to dominate group discussions, so researchers began requesting that women sit up front to ensure their voices were heard. By making this adjustment, researchers mitigated the issue of imbalanced perspectives and biased data. The researchers also tried to balance the power dynamics between respondents from various castes by seeking everybody's opinion for actively engaging them during group discussions.

5.5. Management of human resources

The researchers identified and documented the roles and responsibilities of research personnel in an external research grant proposal. They also partnered with public libraries and librarians to train the low-income citizens to use mobile devices for financial transactions. They identified and sought service from local small business owners, who offered competitive quotes for printing banners, posters, and pamphlets. They rented a local cab service for travelling to different parts of the state. The presence of, and active participation by, a female researcher on the research team helped female participants share their views and experiences in the presence of men in the room.

Key performance indicators (e.g., number of survey participants, number of pages of field notes taken per session, quality of translations from Gujarati to English) helped the researchers manage their performance during fieldwork. The researchers observed that their expertise and confidence in training the low-income citizens in easy-to-understand language, and using non-technical terms and local examples, gradually improved throughout the research project.

5.6. Communications management

For planning communications, the researchers made sure to carry out all printed and oral communication in the native language of participants. To increase participation, visuals of local popular snacks and beverages were depicted in the promotional literature. The researchers relied

on colorful graphics and local examples in the PowerPoint presentations to train participants. They managed nonverbal communication to downplay the visible differences between the research personnel and study participants, and used illustrations from daily routine (e.g., household chores) to teach financial literacy concepts, to which female participants could relate, considering the prevalence of gender roles in rural India.

As part of their information distribution strategy, researchers sent banners, posters, and pamphlets to librarians at least two weeks prior to sessions so that they had ample time to advertise and recruit study participants. Janitors working in the libraries were provided pamphlets to distribute to their neighbors. This recruitment strategy enabled researchers to spread the word about sessions and recruit as many low-income citizens as possible.

The communications management principle of PMP helped the researchers manage any miscommunication between stakeholders. For instance, during statewide travels via a cab service, researchers experienced an unexpected issue. A librarian requested a ride with them, but he was not comfortable riding in a cab operated by an individual belonging to a different religion. There were several unpleasant moments during their conversation in the cab. The cab was full of stickers depicting the driver's religious beliefs, leading to the tension between the driver and the librarian. The researchers resolved the tension in a timely manner by playing songs from movies and relying on humor. At some research sites, study participants thought researchers were government officers. The researchers provided timely clarification to dispel participants' incorrect perceptions. Despite repeated attempts to clarify identities, some participants asked researchers to relay their difficulties in carrying out financial transactions using mobile technologies to the government, along with other concerns regarding government schemes, and policies related to life and crop insurance. The researchers told participants that they were teachers in a university, and explained the purpose and implications of the study in easy-to-understand words.

5.7. Risk management

The researchers identified a range of risks before and during data collection. For instance, before data collection, based on the past research (e.g., Potnis, 2011), they identified the lack of Internet, mobile network, and electricity as potential technology risks for fieldwork in rural India. In anticipation of poor road conditions during monsoon season, researchers decided to carry extra tires for cabs they rented. They also identified the risk of low response rate if the survey was written in English or a focus group was conducted in English. They anticipated resistance from participants belonging to different castes being in the same room or focus group together. It was also possible for librarians not to receive or distribute promotional materials. Finally, in tribal areas with high crime rates, researchers decided not to stay overnight.

The researchers developed specific plans to manage each of the above risks they identified. For instance, in case of a loss of electricity, they decided to fully charge laptops and mobile phones used for the demonstrations. In the absence of an Internet connection, they accessed mobile Internet via a wireless modem. Their promotional materials did not reach two libraries in remote, rural areas. In such situations, researchers delivered the materials to the nearest library headquarters, and the librarian collected the materials from there. They reminded study participants of the policies of the Government of India on equality and inclusion, which helped the research team gather study participants from multiple castes in the same room. This strategy did not always work.

Despite planning, researchers encountered a few unforeseen risks that they managed successfully. For instance, several participants in a session shared the sentiment, "We barely make enough money to meet our daily needs. We do not have any extra money to deposit in banks." Most participants did not have savings accounts in formal banks. Some of them openly laughed at researchers, due to their ignorance, when researchers asked if they had savings accounts. To respect their sentiment and financial situations, researchers immediately stopped discussion on the significance of banking and savings accounts. Over 70% of study participants were men who owned, and in some cases carried, mobile phones, which was a much higher rate than women. Thus, men were more able than women to discuss their experience of owning or using mobile phones. The researchers had not anticipated this challenge for focus groups. To address this challenge, they started (a) requesting that women sit towards the front of the room, (b) described the significant role played by women in managing household finances, and (c) directed questions towards women during the focus group. During fieldwork, researchers started to realize the intensity of risks associated with the weather (e.g., monsoon, hot summer days) and the vulnerability of study participants (e.g., access to drinking water once per day). They tweaked their research design to work around participants' vulnerabilities. No sessions were conducted at a time of day when participants could access drinking water in their homes.

6. Discussion

Most guidance for managing LIS research projects primarily focuses on frontend topics. Existing guidance for managing the backend of research projects is not structured, comprehensive, or granular (Potnis, 2015; Potnis et al., 2017). This study demonstrates the utility of PMP for managing numerous backend challenges related to communications, costs, human resources, quality, risks, time, and scope of the project. Project management guidance for managing risks (13 solutions), communications (11 solutions), and human resources (10 solutions) proved most helpful in generating the maximum number of benefits before, during, and after data collection (see Table 2). Table 2 presents the value gained from each dimension of the application of PMP in this project.

[Table 2 about here]

Although PMP were developed in the West, the principles are not dependent on any contextual parameters. This flexibility makes the principles unique and enhances generalizability. Action items of PMP, which reflect the granularity of backend operations, made it easier for researchers to apply and benefit from the guidance.

Some of the PMP are useful in treating participants ethically during fieldwork. For instance, a combination of communications and risk management principles helped researchers demonstrate respect toward participants, establish trust with them, and patiently interact with them.

6.1. Limitations

It is impossible to anticipate all backend challenges in fieldwork. Although researchers clearly communicated that they would follow the laws and policies of the government of India (i.e., enforcing diversity, equality, and inclusion for all), and structured the sessions and focus groups accordingly; lower-caste participants often suppressed their opinions in the presence of respondents from higher castes. Lower-caste participants engaged in behaviors such as seeking

nonverbal consent from participants from higher castes before speaking, and even refusing to share sofas with participants of higher castes, despite clear messaging. This experience shows that it is difficult for any Western methodology to mitigate feelings of inferiority deeply rooted in the collective psyche of lower-caste members.

7. Conclusion

The researchers did not apply PMP grounded in a Western context "as-is," instead customized them to manage the backend of a LIS research project. The structured guidance offered by PMP for managing projects and the specific benefits of the customized application of PMP in this LIS research project (see Table 2) can inform future LIS research practices involving marginalized communities, multiple research sites, and diverse research contexts. Study findings focusing on the backend details of the researchers' LIS research project complement the existing guidance on managing the frontend. There will be differences between research questions, research sites, sample populations, and methods of data collection and analyses in LIS projects; however, LIS researchers (Connaway and Radford, 2017; Pickard, 2013) can benefit from PMP and the application of PMP in this study, since the principles offer guidance for managing the backend challenges related to the scope, time, costs, quality, human resources, communications, or risks associated with LIS research projects. The customized application of PMP in this study demonstrates a systematic approach to treating participants ethically during fieldwork, which can enhance the ethical wisdom of LIS researchers.

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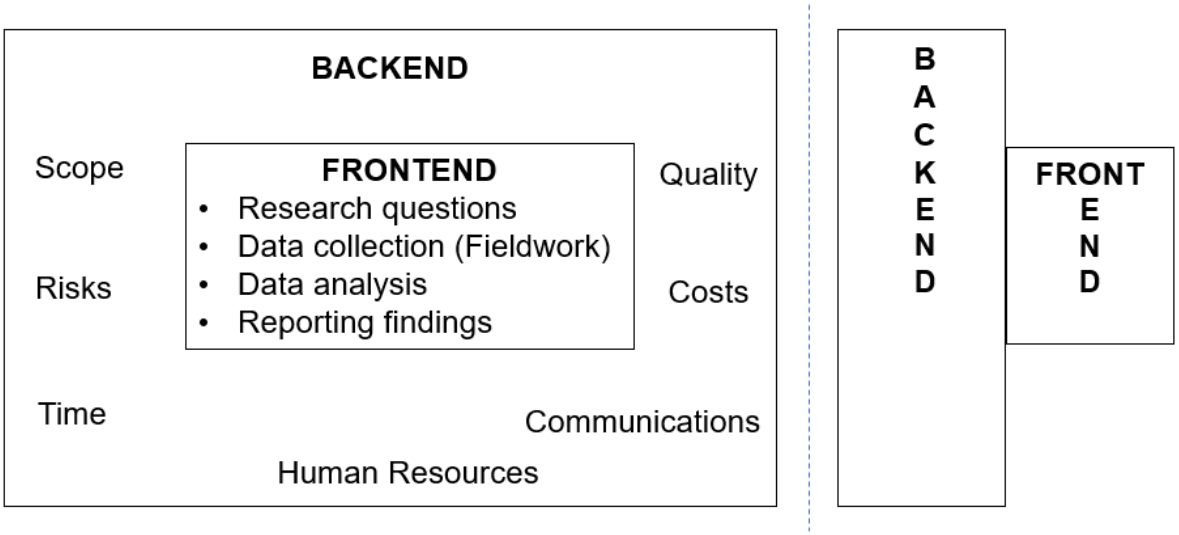

Fig. 1. Frontend vs. backend details

Table 1. Project management principles

Dimensions of PMP	Mechanisms	Action Items
Scope management	Planning	Defining, verifying, and controlling the scope
	Definition	Defining a project statement
	Work structure	Subdividing project into manageable components
	Verification	Formalizing acceptance of deliverables
	Control	Controlling changes to the scope
Time management	Activity definition	Identifying activities
	Activity sequencing	Documenting dependencies among activities
	Activity resource estimating	Estimating the type and quantities of resources needed
	Activity duration estimating	Estimating the number of work periods to complete activities
	Schedule development	Analyzing activity sequences, durations, resource requirements, and constraints
	Schedule control	Controlling changes
Cost management	Estimating	Approximating the costs of the resources
	Budgeting	Aggregating estimated costs of activities
	Control	Controlling changes
Quality management	Planning	Identifying quality standards and deciding how to satisfy them
	Quality assurance	Applying the planned quality activity to ensure that the project meets requirements

	Quality control	Ensuring quality standards
Human resource management	Planning	Documenting roles, responsibilities, and reporting relationships
	Acquire team	Obtaining human resources
	Develop team	Improving competencies and interaction
	Manage team	Tracking member performance, providing feedback, resolving issues, and coordinating changes
Communications management	Planning	Determining the information and communications needs of the project stakeholders
	Information distribution	Making needed information available
	Performance reporting	Collecting and distributing performance information
	Manage stakeholders	Managing communications to satisfy the requirements of and resolve issues with stakeholders
Risk management	Planning	Deciding how to approach, plan, and execute the risk management activities
	Identification	Determining risks
	Analysis	Prioritizing risks for analysis and assessing and combining the probability of occurrence and impact
	Response planning	Developing options and actions to reduce threats to project objectives
	Monitoring and control	Tracking identified risks, monitoring current risks, identifying new risks, executing risk response plan, and evaluating their effectiveness

(Source: Adapted from PMBOK, 2017)

Table 2. Benefits of customized application of PMP

Challenges related to…	Solutions based on PMP	Benefits
Communications	*Planning* • Oral and printed communications in the mother tongue of participants • PowerPoint with graphics • Pictures of snacks and beverages on the advertising materials • Managed nonverbal communication • Illustrations from everyday life	• Facilitated communication and interactions with participants • Increased participation • Downplayed the visible differences between researchers and participants • Increased relatability for and participation by women
	Information Distribution • Distributed banners, posters, and pamphlets to librarians at least two weeks in advance • Gave pamphlets to janitors at public libraries to distribute them in neighborhoods	• Gave librarians enough time to advertise the session • Spread the word about sessions among the low income
	Stakeholder Management • Explained job titles • Explained the benefits of using formal finance • Managed the communication between a cab driver and a local librarian	• Rectified the incorrect perceptions of participants • Demonstrated the benefit of sessions and gained trust of participants • Resolved the tension in a timely manner
	Performance Reporting • Research team in Gujarat reported performance to the research team in the US after each session	• Enhanced the quality and performance of the team and ensured consistency in data collection
Costs	*Budgeting* • Aggregated the estimated costs of activities • Received funding	• Established a cost baseline • Reduced financial concerns

	Estimation • Identified budget items	• Developed an approximation of the costs of the resources
	Control • No compensation for participation • Partnered with businesses with the most competitive pricing • Sponsored travel of a limited number of participants living outside of cities	• Controlled budget • Increased participation of the people in poverty • Controlled unexpected expenses
Human Resources	*Acquiring Team* • Hired a local cab service • Female member in the team • Partnership with public libraries • Solicited service from local small businesses	• Travel • Helped women participants share their experiences in front of men • Leveraged the status of libraries as gatekeepers and interacted with participants for free • Printed material at competitive pricing
	Developing Team • Team's expertise and confidence of training the low income in easy-to-understand language improved over time	• Enhanced the quality of interactions with participants
	Planning • Documented the responsibilities of research personnel	• Created accountability
	Managing Team • Constant feedback was provided to the team • Tracked member performance	• Monitored the progress, provided directions for improvement, and encouraged the team • Ensured accountability • Continued data collection

	• Resolved anticipated and unforeseen challenges	
Quality	*Assurance* • A professor verified translation of the informed consent and other recruitment materials • All participants signed an informed consent form	• Ensured accuracy in translation • Followed the IRB standards and gained trust of participants
	Control • Requested women to sit in the front • Asked questions to respondents of different castes	• Ensured that everyone's voice was heard and reduced bias in data • Balanced the power dynamics and offered an equal opportunity to all
	Planning • Referred to fieldnotes during analysis	• Ensured accuracy in and a high-quality translation of the focus group discussions
Risks	*Identification* • Librarians reluctant in advertising sessions • Resistance by participants from different castes to sit together • Car damage due to poor road conditions • Lack of Internet, mobile signal, or electricity • Low response rate if research conducted in English	• Managing risks proactively
	Monitoring • Rough driving • Respondents' access to drinking water once a day	• Changed the cab driver for safety • Changed session timings to ensure participation
	Planning	

	• Created mobile Internet connections • Material deposited at the nearest district headquarters library • No overnight stay in tribal areas with high crime rates • Prepared for power outages	• Illustrated the use of mobiles for finance and explained technical terms • Librarians collected the material from there • Ensured safety • For demonstrations to participants
	Response • In the absence of electricity, researchers used fully-charged laptop • Avoided sensitive, embarrassing, and controversial topics	• Completed the session without interruptions • Reduced threats to project stemming from lack of participant or cooperation
Scope	*Control* • Could not use mobiles of participants for demonstrations; instead researchers used their phones	• Could demonstrate the use of mobiles for finance
	Breakdown Structure • Divided fieldwork into focus group sessions at ten public libraries • Subdivided each session into three parts	• Conducted the project work in a limited budget • Manageable sessions
	Defining • Established realistic goals	• Achieved goals and increased the confidence of the team
	Planning • Designed a flexible data collection schedule • Identified nearby towns with hotels before finalizing research sites • Submitted a grant proposal with implementation details	• To avoid setting the research team up for a failure • Avoided overnight travel for safety reasons • Secured funding and defined the scope of project
	Verifying	

	• Research personnel in the US and India met online after each session • Translation of survey responses	• Discussed lessons learned and verified data collection procedure • Verified the translations
Time	*Defining Activity* • Defined protocols for sessions	• Collected data in a systematic and structured way
	Estimating Duration & Resources • Estimated the duration for permissions, and fieldwork activities • Estimated the types/quantities of material to print	• Estimated, planned, and conducted data collection • Estimated resources needed for data collection
	Sequencing Activity • Identified and documented dependencies in the schedule	• Managed bottlenecks in fieldwork
	Controlling Schedule • Made changes in the schedule	• Responded to the side effects of the monsoon
	Developing Schedule • Analyzed activity sequences, durations, resource requirements, and schedule constraints	• The researchers sought help from librarians fluent in Gujarati to engage with participants