Pause-and-practice: Learning QR code payments

A Study by Centre for Social and Behaviour Change, Ashoka University

Executive Summary

I. Study Background

Our study focuses on understanding the role of confidence in encouraging financial inclusion. According to a recent report by the India Brand Equity Foundation (an initiative undertaken by the Ministry of Commerce and Industry), as of October 2021, India has around 1.18 billion mobile connections, 700 million Internet users, and around 600 million smartphones. In 2020 alone, India had about 25.5 billion real-time online payment transactions, and the numbers are expected to keep growing. However, despite the growing usage of digital payments, a large part of people in India continue to prefer cash-based payments due to various factors, one of which is likely the low level of confidence in navigating the payment apps or the smartphone itself.

According to CGAP's report on M-PESA usage in Kenya, they found several benefits to using this digital payments app, namely: it can be a useful way to receive or send money when banks are closed and can also save a trip to the bank. Digital payments also enable transactions online without the need to keep or store cash at home or in person. Online transactions of cash have also been found to be beneficial for rural women who are dependent on their husbands (who work as migrant workers in cities) to receive cash in a quicker manner. Therefore, increasing confidence in using digital financial services could have a positive impact.

Its face value suggests that digital transactions are costless, but it requires an active bank account, a smartphone, internet access, digital literacy, and financial know-how. Thus, such a transaction is hardly free of cost. Two further reasons behind the low adoption of such digital services could be the low perceived benefits of the transaction, which goes hand-in-hand with low trust in these providers. Omidyar Network and Dalberg Global Development work show that even financially savvy customers prefer using banks only for large transactions. Given that one of the most significant use cases for digital payments is a safe place to store funds while making small transactions easy, changing people's perceptions is integral to proper financial inclusion.

To tackle a few of these issues, we created an intervention that increases confidence in using digital and financial services. Transactions are demonstrated in a simple manner, and participants are asked to execute them step-by-step. Breaking the task into simple sub-tasks and ample practice could increase their confidence. Further, we increase motivation by providing them with tangible benefits of digital financial services, hoping to change their perception of financial services.

This project aims to test behaviourally informed strategies to increase the uptake of digital financial services in rural Uttar Pradesh. The insights from these research experiments will aid in developing public goods by CSBC (Centre for Social and Behaviour Change) for creating teaching material in different sectors.

Indicators of interest:

- Increase the adoption of digital financial services
- Increase people's confidence in their ability to do QR code transactions

Based on our pilot, we designed interventions that we hypothesised would increase successful learning of QR code transactions. Our main objectives for the interventions are:

- The process is explained clearly by a relatable person.
- Videos have instructions to pause in the middle and practise the task alongside, breaking the task into manageable steps and allowing for practice.
- Videos provide additional information on handling contingencies and other trust and confidence-building messages.

This document outlines a proposed experiment using the randomised controlled methodology to assess the effectiveness of the proposed interventions in increasing the task performance of QR code transactions using PhonePe and GooglePay apps. It also includes secondary outcomes of confidence and trust.

II. Diagnostic Findings

Before the intervention was rolled out, we conducted FGD sessions in Sewapuri to better understand people's digital and financial usage. This exercise also helped us understand the layout of smartphones that participants are likely to use and be familiar with. For instance, some phones have a swipe-up function, while others may have a swipe-down function for looking at the app menu. These fine differences were important for us to keep in mind while designing our intervention videos so as to make sure that any of the steps highlighted did not confuse participants. This also helped us make important decisions regarding edits to the intervention videos by keeping people's feedback in mind. Some of this feedback included things like keeping the video entertaining to watch (i.e., having the anchor speak in an informal vlogger style) to keep people engaged. Additionally, it helped us finetune the language of the video to be better suited for those who speak the local language. We were able to figure out the correct terminology to use in the local Hindi dialect to refer to different parts or functions of the smartphone. For instance, the keyboard was more commonly referred to as "*likhe wala*", phone torch is typically called "*batti*" and more such examples that were incorporated in our videos and survey instrument text. Similarly, selecting an option was referred to as "*Click/ touch karna*", the QR code was more commonly known as "*barcode*," and ticks/ check marks were known as "Sahi ka Nishan." More such terminologies were incorporated into our scripts to aid understanding. The participants also mentioned that as compared to apps like PayTM or GooglePay, PhonePe app was far more commonly used, which led us to use PhonePe for making the videos.

III. Intervention Design

Given the project objective of improving financial inclusion amongst rural and low-income populations, an effort was made to ensure that all the scripts were -

i) developed in the local language
ii) informational but concise enough to be converted into small videos which could be easily viewed and shared on smartphones
iii) written in an informal, and easy to understand vlogger-like language so that they seem to be coming from a local and relatable person
iv) self-explanatory but delivered in an entertaining and interactive manner

Since the state selected for the purpose of the experiment was Uttar Pradesh, the scripts were developed in Hindi. In fact, we used the exact phrases and terms that a user gets to see while using the PhonePe app when the app's language is set to Hindi. A local youtube vlogger (with the channel name: SAUHARSH) was engaged in converting the finalised scripts into videos. The vlogger was encouraged to converse in a local tone and use non-verbal communication (such as gestures, actions, etc.), props, and graphics to make the video appear like a local youtube vlog.

The vlogger developed three easy to view and share videos in total, each corresponding to the three treatment arms. Each of these videos was essentially divided into two parts, an introduction followed by the main training content. The introduction remained the same for all the videos, but there were some changes in the main training content. Following is a description of the three videos -

1. **Video 1 (Control)**: Involved the vlogger narrating the five steps involved in performing a QR code-based UPI payment on the PhonePe app in an informal language.
2. **Video 2 (Treatment 1)**: Involved the vlogger narrating the five steps involved in performing a QR code-based UPI payment on the PhonePe app in an informal language with interruptions (speed bumps) after each step for the viewer to practice alongside.
3. **Video 3 (Treatment 2)**: Involved the vlogger narrating the five steps involved in performing a QR code-based UPI payment on the PhonePe app in an informal language with interruptions (speed bumps) after each step for the viewer to practice alongside. Furthermore, additional information on how to handle contingencies, safe practices, grievance redressal, etc. were also included in each of the five steps in this video.

IV. Evaluation

5.2 Sample Details

Survey	Total Sample	T1 (Treatment I)	T2 (Treatment II)	C (Control)
Baseline	489	192	141	156
Endline	438	168	126	144

Sample Characteristics

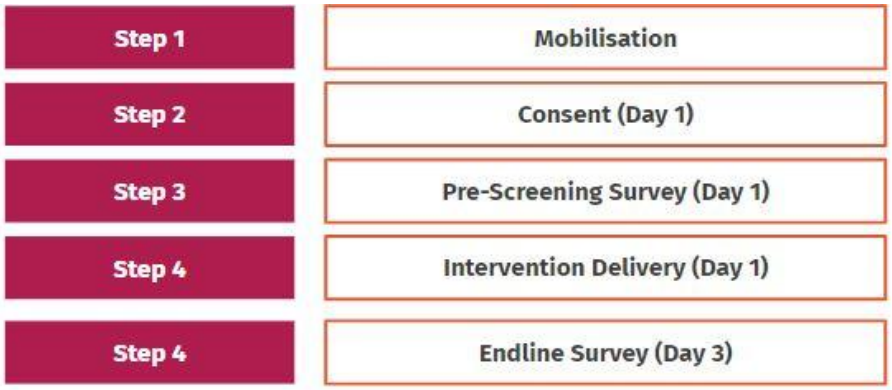
The endline sample of 438 participants had the following characteristics:

 Female 75.11%	 Mean Age 26.79 years	 Average household size 8.03
 % Hindu 93.84% % General 24.71%	 % completed 10th standard or higher 80.82%	 % employed 44.52%
 % with household income below Rs. 15,000 per month 74.44%		

Mobilisation Strategy

The sample was mobilised and recruited via a convenience sample by enumerators in our Pop-Up Lab in Sewapuri for the purpose of this study. They typically reached out to Anganwadi workers across different villages, requesting them to connect us to potential participants who were interested in our study. Primary owners of smartphones who have never used any form of DFS from the district of Benaras in Uttar Pradesh were eligible. The baseline survey was programmed to screen out participants who did not meet our study's eligibility criteria.

Experiment Flow



As part of this study, we tested variations of knowledge-based videos through a lab-in-the-field experiment conducted in villages in Sewapuri, Varanasi (Uttar Pradesh). After the mobilisation of participants in a particular village, the team would be sure to go to the village within a week's time. The baseline survey and the intervention videos were administered on the first day. After a gap of two days (on some occasions, three days), the endline survey was conducted.

1. **Pure control (C)**: Participants assigned to this treatment arm were shown a training video on steps of performing QR code-based UPI payments on PhonePe app with a relatable person narrating the instructions in informal language
2. **Treatment 1 (T1)**: Participants were shown the same training video on steps of performing QR code-based UPI payments on PhonePe app with a relatable person narrating the instructions in informal language. After watching the video once, they practised step-by-step the QR code task along with the video.
3. **Treatment 2 (T2)**: Participants were shown a training video on steps of performing QR code-based UPI payments on PhonePe app with a relatable person narrating the instructions in informal language. This video included additional information on how to handle contingencies, safe practices, grievance redressal, etc. After watching the video once, they practised step-by-step the QR code task along with the video.

   We also recorded participants' specific confidence through stated measures while they carried out the UPI payment tasks and general confidence through cognitive tasks embedded in the survey.

Short Videos: We wrote the scripts for all videos in English and had them translated into Hindi by a Copywriter contracted for this purpose. A local content creator made the videos to ensure they were in the proper Hindi dialect, giving participants a sense of familiarity. Videos were designed to be cognitively simple, with relevant visuals of the app shown. The process is described in simple language, narrated by a relatable person visible on the screen.

The treatment arms include an instruction to pause the video and do the task alongside on a separate device. These instructions come five times to demarcate the major steps of this process. We hypothesise that the videos that make the process easy through simple visuals, with familiar language and a relatable person narrating, will lead to greater learning of the task and ensure the adoption of the behaviour. Along with these principles, we test if practising the task while watching the videos step-by-step improves learning even more. By adding an instruction to pause and practice at strategic points, we allow a breakdown of the task (overall goal) into smaller steps (manageable sub-goals) that have previously been known to improve the uptake of behaviour. This kind of scaffolding of instructions or the gradual release of responsibility has been found to be effective in educational practices. Breaking up instructions into smaller pieces and shifting the learning from being teacher-driven to student-driven in line with the model's simple motto "I do, We do, You do" (UNICEF report, 2019; Central Square Foundation, 2019; Central Square Foundation, 2020). In "I do, We do, You do," the facilitator demonstrates the task first, then performs the task with the learner, and then finally, the learner does it independently, the rationale of which we borrow for our intervention since it can be fundamentally linked to the teaching of skills (along with testing which method increases task accuracy and confidence). We also investigate if giving information on how to manage contingencies, either as additional information or confidence-building messages, increases their confidence in their ability to do the task.

Outcome Variable	Outcome Measure
Confidence regarding FI related behaviors/tasks: To gauge respondents' confidence regarding their ability to carry out /the accuracy of the financial tasks they have carried out on their smartphones	1. Self-reported measure: Asking respondents their level of confidence regarding the accuracy of their responses and upon the completion of and before knowing the outcome of the financial tasks.
General Confidence tasks: To gauge respondents' general confidence	Three general tasks were administered on a tablet to measure general confidence. Both accuracies of the task and confidence in each answer are measured. 1. Panamath - Participants are shown two sets of green and pink dots very quickly (for 1.5 seconds), and they have to identify which set of dots is more in number. Total of 20 trials. 2. Vocabulary test - Show a word and four words below. The enumerator reads out the word and the options and asks which of the options is closest in meaning to the main word. Enumerator enters the answer and the confidence rating. Total of 20 trials. 3. Esoteric Analogies Test - The test contains 20 items of the following type: CHICK is to HEN as CALF is to: BULL, COW, COAT,

	ELEPHANT (answer = COW).

5.5 Evaluation Results

The results (***Figure 5.5.1)*** indicate that accuracy for task 1 (PhonePe QR code transfer, the task they were trained on) were 3.36 and 2.78 times higher for T1 and T2 as compared to the control group immediately after watching the videos and practising. This indicates that while the videos are fresh in memory, respondents in treatment groups T1 and T2 are significantly more likely to get each step of the tasks right. T1 respondents were also 1.72 times more likely to complete task steps for task 1 accurately two days after the intervention, while only a trend is present for T2. Accuracy for task 2 (GPay, QR code transfer, novel platform) was 1.71 and 1.87 times higher for T1 and T2 as compared to the control group immediately after watching the PhonePe videos and practising. However, this task was not significantly better in either arm compared to the control two days after the intervention.

Figure 5.5.1: *Summary of results for task accuracy rate. Green indicates significant difference from Control at the 5% significance level.*

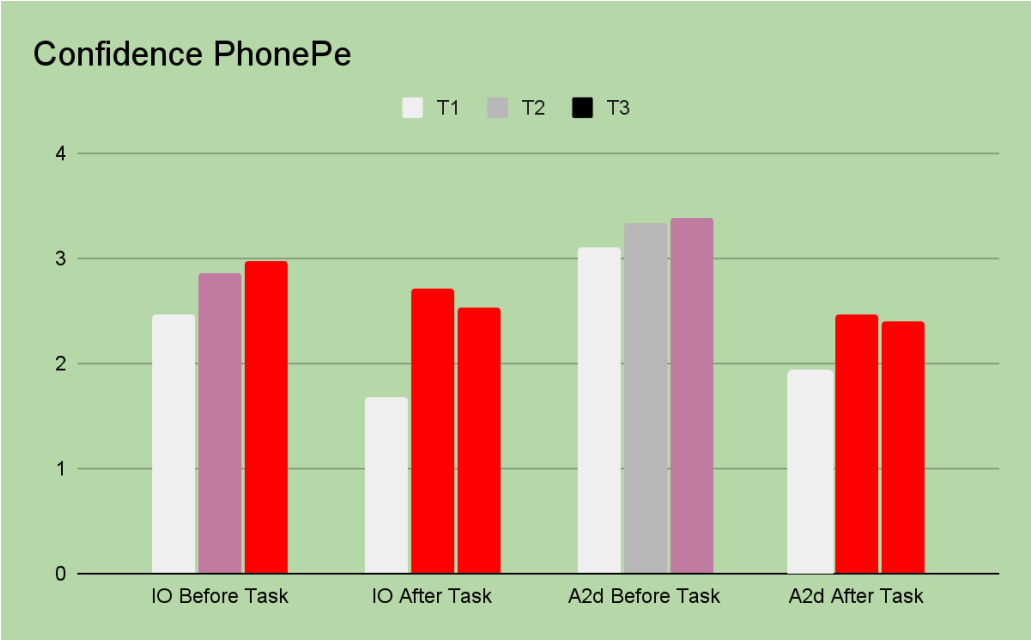
	Task 1 Immediate Outcome Odds ratio (% accuracy)	Task 1 After 2 days Odds ratio (% accuracy)	Task 2 Immediate Outcome Odds ratio (% accuracy)	Task 2 After 2 days Odds ratio (% accuracy)
Control	(64.44)	(64.17)	(61.81)	(63.19)
T1	3.36 (83.10)	1.72 (77.38)	1.71 (72.74)	0.96 (65.12)
T2	2.78 (78.10)	1.45 (70.48)	1.87 (71.59)	1.30 (69.52)

The task-specific confidence levels were measured at most four times for both task 1 and task 2 (***Figure 5.5.2)***: once before the task starts, and once right before the last step (if they reached that step), immediately after the intervention and two days after the intervention. Our results indicate a clear trend of greater confidence in the two treatment arms than control.

Task 1 (PhonePe) confidence levels for completing the task on their own in T1 and T2 are 1.44 and 1.72 times that of control immediately after the intervention, before starting the task. This is to be expected as T1 and T2 participants got a chance to practise the task. More interestingly, they also state higher confidence in getting the task right at the last step, even though having reached the last step should have been an indication they have gotten the previous steps right. T1 and T2 confidence levels are 2.88 and 2.77 times that of control. Further, this persists even at the last step when testing two days after the intervention, i.e., the levels of confidence are 1.49 and 1.80 times higher for T1

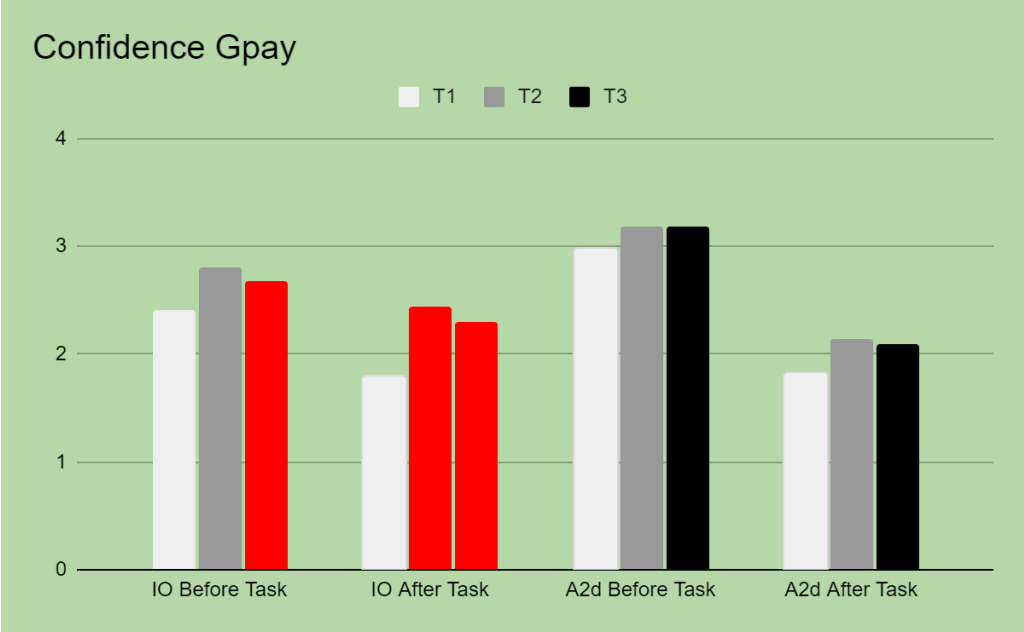
and T2 as compared to the control group. T2 also had 1.50 times higher confidence before starting the task two days after the intervention.

Figure 5.5.2.1: *Confidence graph (PhonePe)*



This graph demonstrates the confidence reported by participants before performing the task and after performing the task at baseline (immediate outcome - IO) and endline (after two days - A2d). The task was performing QR code transactions on PhonePe. Red bars indicate significant difference from the Control at the 5% significance level and magenta at the 10% significance level.

Figure 5.5.2.2: *Confidence graphs (GooglePay)*



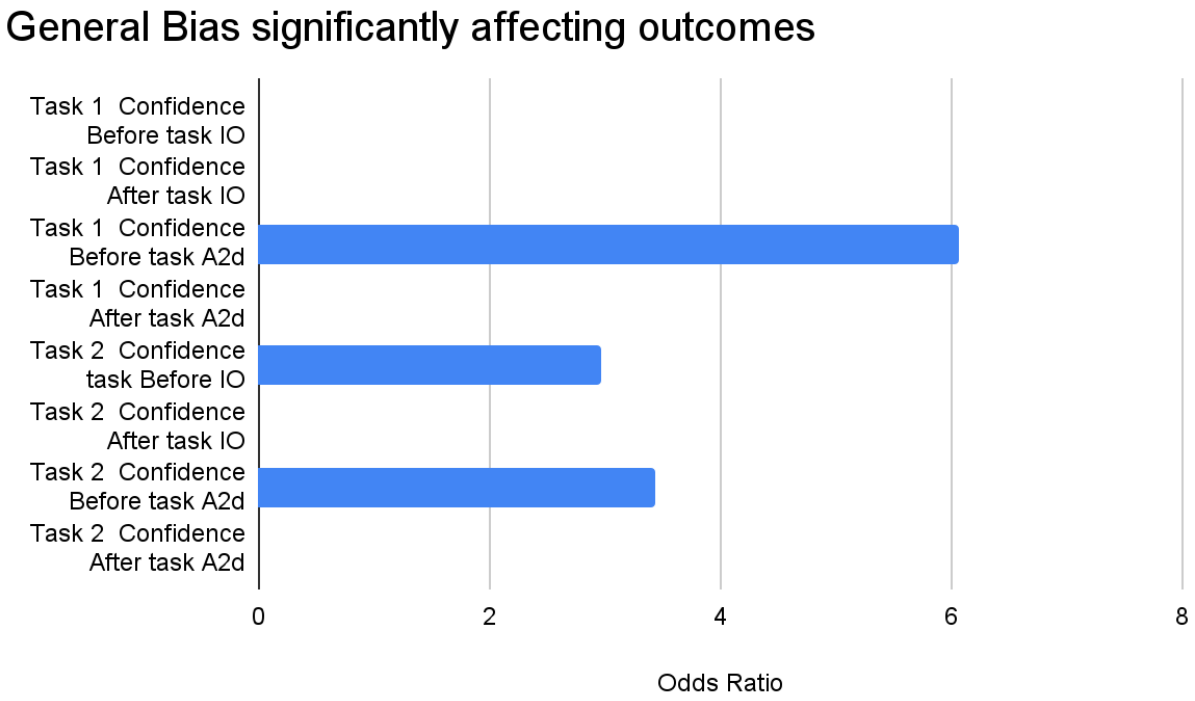
This graph demonstrates the confidence reported by participants before performing the task and after performing the task at baseline (immediate outcome - IO) and endline (after two days - A2d). The task was performing QR code transactions on Google Pay. Red bars indicate significant difference from the Control at the 5% significance level and magenta at the 10% significance level.

Overall, we see more conclusive evidence of increased confidence for respondents in T1 and T2 for task 1 (PhonePe QR code transaction) that they were trained to perform in the intervention video as compared to task 2 (Google Pay QR code transaction), which was technically new to them because even though the broad mechanics of QR code transaction is same for both apps, smaller things like understanding the app interface, etc. are different. However, the results do indicate the possibility that task 2/ translation of knowledge is also significant and perhaps be enhanced both in terms of performance and confidence if respondents have more time to spend with the video, which was not tested in our lab-in-the-field experiment.

While T1 showed better performance two days after the intervention, and T2 did not, secondary analysis indicates that T1 is not significantly different from T2 for any outcome variable. Therefore, we do not have a strong reason to recommend T1 over T2. It is quite likely that repeated video viewing could possibly have stronger results for T2, given that it was a longer video and, therefore, may need more viewing frequency.

Findings on General Confidence

Figure 5.5.3: *General bias*



Finally, we checked if people with a greater general confidence bias (overconfidence bias) state greater confidence in completing the tasks (***Figure 5.5.3)***. General bias was calculated as the mean bias (the average confidence minus the average accuracy across all trials) across the three cognitive tasks (panamath, vocabulary, and analogy) completed by participants at Endline. People with greater general bias tend to be 6.07 and 3.44 times more confident on PhonePe and GPay tasks two days after the intervention, before the task. This is interesting as it suggests the effect of general bias is dwarfed immediately after the intervention, both before and after the task, as that evaluation of confidence may be more to do with the specific task to be performed and the knowledge just acquired rather than general confidence. It becomes more evident two days after the intervention, before the task, suggesting knowledge may have faded, bringing general confidence more to the forefront. Again, confidence after the task is more to do with evaluating that specific task confidence and has less of a general confidence influence. Higher general bias also predicts 2.97 times greater confidence before the GPay task immediately after intervention as well as two days after the intervention seen in the PhonePe task. Effect of Bias is seen even immediately after the intervention, as it's an unknown platform and, and to that extent, a novel task.

V. Recommendations for scale

The results of this study have been promising and further investigation would be key to understanding if the results are scalable. One way to do this would be to add these videos to the overall Financial Knowledge disseminating programme, where they can be handed out to people

through grassroots NGOs. This would also help people watch the video and practice as many times as possible and could lead to an increase in their confidence in using digital payment services like PhonePe and Google Pay. CSBC has collaborated with Reserve Bank of India Innovation Hub (RBIH) to test and scale financial inclusion training methods within the Swanari project. As part of this engagement we will be exploring the possibility of scaling up the pause and practice training methodology to increase the adoption and usage of UPI payments amongst migrant women.

Given the simplicity of concept, ease of use, and scalability, the pause and practice training methodology can be applied to contexts beyond financial inclusion. From tech adoption to health and nutrition, to education, to grievance redressal, this methodology can be suitably applied to solve situations where low user confidence affects the uptake and adoption of a service or product. However, the key consideration in scaling up would be to ensure compliance i.e. the user diligently follows the pause and practice methodology, especially when administered remotely.

VI. Acknowledgments

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