

# MicroSave – Briefing Note #168

## Mobile Wallet Design for Oral Users

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### Key Points:

1. The usability dimension of mobile wallets has been largely neglected to date. These challenges need to be addressed soon.
2. *MicroSave* and My Oral Village found that usability is a major problem in the mobile wallet sector too.
3. Oral users should not be 'protected' from the literate world, because they must adapt to it.

### Introduction

As mobile phones gradually reach every household in India, technology is transforming payment systems fast. One popular spin-off is the mobile wallet, which allows users to send and receive money using a phone. A major barrier to faster and more inclusive adoption of the mobile wallet has been its 'usability'. Can the consumer use the product, or not? Although this sounds simple, it has been a major engineering and design challenge in many industries for decades.

A pioneer of consumer usability research was Dr. Lucy Suchman at the Xerox Palo Alto Research Centre (PARC). In the late 1980s, Xerox developed an advanced copying machine. They advertised that it was very easy to use, implying that the only task new users had to learn was how to push the 'start' button. Suchman conducted a study in which she provided 15 technology PhDs and Nobel laureates with the Xerox manual and asked them to use the machine to make 15 double-sided copies of an article from a bound book. "Most participants could not complete the task, and those that did spend the better part of an hour figuring it out."<sup>1</sup>

*MicroSave* and My Oral Village in a study<sup>2</sup> in 2016 found that usability is a major problem in the mobile wallet sector. Illiterate and semi-literate people find it difficult to adopt mobile wallets, which are text-heavy (here, we refer to this population as 'oral', referring to the habits and practices that drive behaviour, including product adoption). Even respondents without smartphones agreed that mobile wallets could be useful, mentioning tuition payments, merchant and agricultural payments, etc. The goal of our study was to design a mobile wallet which can easily be used by oral people in India.

In our preliminary fieldwork, we observed that the screens of existing wallets are cluttered with icons and colour choices that can confuse the consumer.<sup>3</sup> Although our interlocutors realised that there were icons representing 'send money', 'add money' and 'request money', people had considerable trouble identifying them due to literate protocols embedded in colour choices, iconography and navigation cues.

Formally, usability is defined by the ISO as 'the effectiveness, efficiency and satisfaction with which specified users can achieve specified goals in particular environments'.<sup>4</sup> Illiteracy and innumeracy are major cognitive usability constraints. The national census counts 264 million illiterate adults in India aged 15 or more. Many more millions have very weak literacy skills. Our field research found that many individuals who *can* read and write could not read a 4-digit numeral string (e.g. '5025'). A person who cannot do this may not be sure whether to input '500' or '5000' or '50000' in an input field to send five thousand rupees to her mother.

### Mobile Wallet Design for Oral Users

We used 'oral information management' (OIM) principles and devices to bring digital transfers within usable range for this vulnerable population. (Matthews B. et al. 2016).<sup>5</sup> The team designed wireframes for a mobile wallet targeted to the oral segment and then assembled a clickable prototype for field-testing on our smartphones.

### Guessability and Learnability

Product features and functions should be 'guessable' for the target users - in terms of time taken and a number of errors made. A design with high guessability is likely to be highly learnable and memorable, raising the chances of the user to return to it later.

<sup>1</sup>Conley, Chris V. Contextual research for new product development. In Kahn, Kenneth (ed., 2005). *The PDMA Handbook of New Product Development*, John Wiley & Sons, Hoboken, NJ.

<sup>2</sup>The team visited three States i.e. Uttar Pradesh, Bihar and Punjab and in the end it checked the usability of the digital wallet prototype in Uttar Pradesh.

<sup>3</sup>Benartzi, Shlomo, with Jonah Lehrer (2015). *The Smarter Screen. Surprising Ways to Influence and Improve Online Behavior*. Portfolio/Penguin, New York.

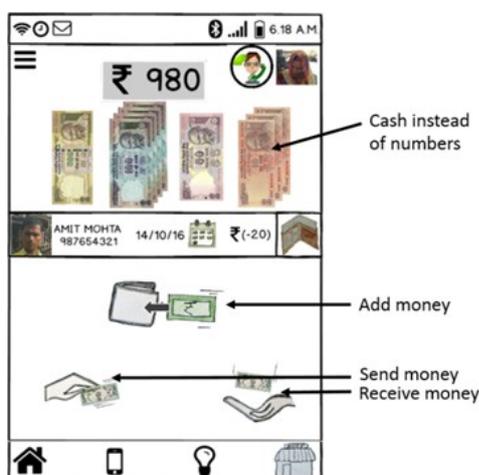
<sup>4</sup>Jordan, Patrick W. (1998). *An Introduction to Usability*, London and Bristol, PA.

<sup>5</sup>Matthews B. et al. (2016), *A Mobile Wallet for Oral Segment in India*, *MicroSave*, Lucknow

The wireframe design is uncluttered for greater visual clarity.

Oral iconography differs from literate iconography, and while it can be abstract, abstractions must be derivative of oral, not literate, culture (e.g. in the wireframe the hand pointing down, giving cash from above). Images were tested for fast guessability. Oral users must easily recall them after a long interval. Most oral abstractions are easily understood by literate users, but the reverse is not true.

The absence of cash notes is removed a major element of concrete clarity from digital finance. We included a correct, countable cash-representation of the wallet balance at the top of the screen, to provide both familiarity and comfort to novice users.



**Diagram 1:** User-tested wireframe, mobile wallet launch page.

To generate a readily guessable design, the team identified key images required for a basic mobile wallet and made sketches. In the following weeks, 26 focus groups discussions were conducted with participants in the three categories -- illiterate, semi-literate and literate -- to develop oral icons. The wireframes were then uploaded to [Invision](#) and field-tested on smartphones in an integrated prototype.

The team did not test voice applications. Voice is clearly important: in fact, it will come on-stream over time automatically (as voice technology matures). However, in our view, it would be a mistake to rely on voice as a 'magic bullet'.

There are several reasons for this including privacy concerns; background noise; and the challenges of long-tail languages (spoken disproportionately by financially excluded people). User safety and trust underlie these concerns. For safety, users must be able to reconcile more than one clearly understood input method (e.g. cash notes and voice) against each other.

Twenty individuals helped the team to test the usability of a clickable 'send money' prototype in three villages in Uttar Pradesh. Six of the twenty made no error at all and all are able to complete the process of sending money, suggesting that it may be substantially more learnable for oral users than conventional mobile wallets.

## Conclusions and Recommendations

The usability dimension of mobile wallets has been largely neglected to date, and the size of the affected market widely underestimated. It is essential to confront the basic challenges that oral users face in conducting personal financial transactions. Oral users experience low context since text shapes context. Stress is normal for poor people in financial transactions and low context<sup>6</sup> increases it.

In recent years, a consensus on some principles of good practice has begun to take shape.<sup>7</sup> Key points on oral user interface design include:

- Literate culture is built on an oral cognitive foundation. Suppliers who understand the oral segment will find many ways to please *both* oral and literate users.
- In the processing of transactions, oral individuals prioritise the ability to understand and track the flow of inputs and outputs in real time with virtually no risk of error.
- Interface pressures that increase stress, such as time limits, should be minimised.
- Support user navigation with pictures that are directly declarative and uncluttered by irrelevant distractions.
- 'Sandboxes' should be available by default and off-line at registration time, allowing risk-free learning and confidence-building.
- Oral users should not be 'protected' from the literate world because they must adapt to it. Oral abstractions and measurements should provide cognitive bridges linking oral users to the literate world, and support the acquisition of skills that are vital for successful financial inclusion.

*MicroSave* has used these design principles to develop a prototype of a mobile wallet for the Oral segment. The report is available [here](#).

<sup>6</sup>Low context: much information is being transmitted to this population segment in codes they cannot decipher.

<sup>7</sup>This work was crystallised at a CGAP-convened meeting on 'Smartphone UI/UX and Mobile Money' on April 20-21, 2016, which brought a number of perspectives on design of digital interfaces for oral populations together.

Further readings: [Lessons from Orality for Digital Financial Services Development](#), [Learnings from Cash Economy for DFS Providers](#)