Three Ways to Increase Client Engagement with Digital Tools

The growing landscape of innovative mHealth tools marks an encouraging leap towards a more digitally-enabled future in health care. In low-resourced countries like Kenya, more people than ever are now turning to digital platforms to direct their health outcomes. Yet as these tools scale and diversify their users, a design challenge emerges; namely, how to establish and maintain a meaningful or personalized two-way connection with clients - at scale.

Engaging with users on mHealth tools is more than an exchange. Each interaction generates valuable client-side data that organizations and decision-makers can use to;

- Personalize their service based on user responsiveness to certain content.
- Proactively screen risk by analyzing the data shared by users for potential danger signs.
- Generate greater visibility on priority health indicators, like uptake of key services or the quality of care.

A Case Study | Jacaranda Health continuously works on these design questions. PROMPTS, its digital health tool, uses AI to empower new and expecting mothers with information to make informed choices about their care, and prompts them to ‘self-report’ information on priority maternal and newborn health (MNH) indicators linked with better outcomes, like prenatal appointments, care quality in facilities, infant immunization, and uptake of family planning services.

When the platform first launched in 2017, it was as a one-way information-sharing service. But mothers started asking questions; at first, our helpdesk received a few questions a few times a week, but this quickly grew to 100 per day. Jacaranda quickly saw potential for a wider platform use case; both as an informational companion to mothers and a channel for them to ask questions about pregnancy, delivery or the postpartum period. Now, at 1.5 million users, the platform receives nearly 5,000 incoming messages from mothers a day. The exchange is vital; not only informing how we adapt and optimize our service for mothers, but also as a vital source of client-side data for our government partners who are using it to efficiently plug quality gaps in maternal health systems.

PROMPTS runs on SMS to ensure its broadest accessibility to mothers across Kenya, but this also comes with a number of design considerations around message content, brevity, flow and options for personalization. Jacaranda is conducting rigorous qualitative and quantitative research with mothers to understand engagement, and how to increase it, through three central questions;

1. **Credibility**: Do mothers sufficiently trust the source of information to engage?
2. **Content**: Are messages sufficiently readable and relatable to garner a response?
3. **Flow**: How does sequencing and timing of interaction impact engagement?

By winning trust and further refining the way mothers receive information to elicit engagement, our hope is to offer a highly personalized service that caters to the individual and unique pregnancy journeys of women in Kenya - and further afield.
Credibility: Early engagement with digital tools requires a user-centered onboarding process that wins trust with both the user, and her supportive community.

mHealth tools offer a lifeline for health information and advice, especially in low-resourced areas where staff shortages and sparse facilities hamper timely service delivery. Yet, challenges with onboarding remain. Many women equate reliable information with a physical examination, or favor face-to-face interactions with care providers who, by nature of being embedded within their communities, are familiar and trusted sources of information. During a series of Focus Group Discussions (FGDs) we conducted in Kakamega, mothers cited the importance of ‘personal relationships’ in health communication: “The good thing about going to a clinic is that I have a personal relationship with the nurse. I have her phone number which I can call any time to get advice.”

We see a steady upward trend in mothers’ engagement with PROMPTS over the first two weeks from enrollment, indicating a growing trust and familiarity with the platform. Yet, incentivizing mothers to engage earlier means we can identify signs of potential obstetric complications sooner, and build more comprehensive ‘profiles’ around each user reflecting their entire lifetime on the platform.

Insights & Recommendations: In August and September this year, Jacaranda conducted qualitative FGDs with mothers across Murang’a, Kitui, Kilifi, and Nakuru to understand what barriers might exist to initial engagement with PROMPTS, which resulted in the following insights;

1. **Insight:** Many mothers didn’t trust or understand the message source, discouraging engagement: PROMPTS messages are white-labeled as coming from the recipient’s county (eg. Bungoma County rather than Jacaranda), but many mothers were unsure why the county was sending them messages. SMS marketing campaigns are ubiquitous in Kenya, and some mothers confused the SMSes with advertising for health products. In the facilities where mothers register, the nurses supporting enrollment were found to have incomplete information about the platform, leading to confusion about the message source and benefits. **Recommendations:**
   - **Build the capacity of nurses to better explain and endorse the platform at the point of enrollment:** We will brief our partner network of nurses to offer more comprehensive information about PROMPTS and its benefits to mothers when they enroll, and capitalize on ‘health talks’ in facilities to reinforce the platform’s source and benefits to mothers.
○ **Test alternative names for the message source to increase trust.** We are testing whether masking our shortcode with MAMAHEALTH or a specific facility name (eg. where a mother registered) helps build credibility and increases response rate.

2. **Insight:** *The content and timing of the first message determines initial engagement:* Many mothers failed to make the link between the platform they’d signed up for and the one sending messages 48 hours later. Low literacy levels in some areas (eg. Kilifi county) meant some mothers couldn’t read the introductory message. **Recommendations:**
   ○ **Decrease the window between time of enrollment and welcome message.** We are currently testing the optimum time.
   ○ **Test and adapt the content of the welcome message.** This might mean standardizing the terminology in the welcome message and that used by nurses at enrollment (eg. “health messages’) to reinforce a connection, or adding a peer-to-peer endorsement to build trust (eg. ‘110,000 mothers from your county are already benefiting from this service.’)
   ○ **Introduce voice messages** for mothers who do not respond to the initial SMS. We are currently testing whether Interactive Voice Response (IVR) could be a viable alternative to SMS for low-literacy mothers.

3. **Insight:** *The decision to trust and engage with digital tools is often a communal one.* A proportion of PROMPTS users are not the primary recipient of messages; some women sign-up for the service via a family member, neighbor, or partner’s phone (3% of our users are male). In the FGDs, some women (majority in rural areas) cited the need to seek approval or get support from other members of their household before sharing information with PROMPTS. **Recommendation:**
   - **Offer a channel for the direct user’s family or supportive community to ask questions** via SMS within the first set of messages.

**Content:** Mothers are more likely to engage if the content is relevant and readable, but achieving this requires human-centered adaptation and keeping ‘humans in-the-loop’.

At scale, many mHealth tools rely on AI to direct the majority of their two-way exchange with users. AI can be an effective replacement where human response would be impossible, reading and responding to thousands, sometimes millions, of incoming messages in multiple languages, dialects, and constructions. Yet engagement relies on relevance and, as users diversify and take on evolving needs, generic ‘cookie cutter’ responses vastly impact engagement. We also realize that pregnancy, delivery, and the postpartum period can be complex and challenging for many women, and that humans can provide the nuanced guidance and referral that a machine could not. During emergency scenarios or when a question has not been adequately answered by AI, moms are referred to a helpdesk agent, ensuring that even as the platform scales, we maintain a human touchpoint.

**Insights & Recommendations:** We continuously monitor mothers’ engagement rates and responses on PROMPTS through our helpdesk interface Salesforce, and the resulting data informs how content is optimized.
1. **Insight:** ‘Cookie cutter’ content deters future engagement. After each response we send mothers on PROMPTS, we ask ‘Did this answer your question?’. We noticed for nutrition-related questions, **31% of mothers were responding ‘no’**. Previously, when our AI detected a nutrition question (eg. Can I eat eggs in pregnancy?) we sent a generic response:

   “Eat a variety of foods like grains, nuts, beans, dairy products, meat/fish, fruits and vegetables. Eat eggs, avocados, bananas, and meat in moderation. Keep sugar, sweets & fats to a minimum. Avoid unpasteurized cheese & dairy products, under-cooked meat/fish, and alcohol.”

Our AI has now been trained to offer more specific answers, for example:

   “There are several myths about the negative effects of eating eggs while pregnant. Some say that the baby’s speech will be delayed. Others say it will prevent hair growth. In reality, these have no scientific evidence. Eggs are an excellent source of protein for pregnant women if eaten in moderation.”

Adding more specificity to our responses immediately resulting in a **15% increase in mothers reporting their question had been answered** by PROMPTS.

**Recommendations:**
- Our next challenge is to build this level of specificity at scale. Our tech team is using the millions of questions and answers from our past messaging to generate more ‘personalized’ AI support. We will continue asking for feedback on whether mothers’ questions have been adequately answered, as one of the best ways to drive relevance across all messaging topics.

2. **Insight:** ‘Active listening’ that collects and acts on user feedback drives relevance and encourages repeat engagement. We aim for scale, but we also recognize that our users are impacted by different social, financial, and contextual factors. We therefore take a qualitative research approach to message testing and adaptation to increase relevance for more mothers. We ask questions like ‘What do you think happens during delivery?’ to gauge delivery knowledge gaps and misconceptions, and remain responsive to feedback. For instance;
  - We simplified the terminology in a message instructing to ‘fully immerse your baby in water until the cord has fallen off’ after receiving messages asking ‘What does immerse mean?’.
  - We altered a nutrition message suggesting mothers should ‘eat carbohydrates like pasta and porridge during pregnancy’ to ‘ugali and cassava’ after receiving feedback from mothers in rural areas that pasta and porridge wasn’t available in the market.
○ We changed a message suggesting women could ‘read stories’ to their babies to promote early language development’ to ‘sing songs’, when some reported they couldn’t afford books.

**Recommendations:**

○ *Shift from reactive to proactive content adaptation.* While our current approach to message testing means content caters for most mothers, we recognize that further personalization, according to geography or socio-economic status for instance, might drive stronger engagement. This might mean taking a qualitative research approach to define contextual factors impacting mothers in specific areas (eg. the availability of certain food groups, transport options, or presence of cultural norms) and developing different variations of the same message based on these contextual factors.

○ *Train AI to cater for local dialects.* Our AI currently reads and triages messages in Swahili and English, but we recognize that mothers may be more willing to engage if they can ask questions and receive responses in their first language ([over 30 distinct languages and dialect clusters](#) are spoken in Kenya). Jacaranda is working to train its current machine learning model on local dialects and low resource languages to cater for the broadest possible demographic of mothers across Kenya, and beyond.

**Flow:** Smart message sequencing makes user engagement easier, without compromising the quality of the information shared.

Flow determines when and in which order certain information is shared and when and how users are prompted to respond. The sequencing of PROMPTS messaging is acutely responsive to the engagement data we track on the platform. We continue to conduct quantitative and qualitative studies with mothers to understand when within their journey they are most likely to engage, and what type of messaging sequencing elicits a response.

**Insights & Recommendations:** Through [USAIÐ’s MOMENTUM Country and Global Leadership](#) project, Jacaranda is piloting PROMPTS messaging for targeted family planning support in the postpartum period. The pilot is underpinned by a rigorous design process with early postpartum mothers in two demographically diverse counties, Nairobi and Kajiado, to determine, amongst other findings, the optimal message sequencing, timing, and delivery to incentivize engagement. The emerging findings can inform how content can more broadly be adapted to drive stronger back-and-forth with mothers.

1. **Insight:** ‘Response options’ empower mothers to engage: Prototyping our PPFP messaging, we found that engagement rates significantly increased in flows where mothers were given response options over ‘open ended’ flows (where users were not prompted with options for what they could ask). Eg.

   *Habari mum! Did you know you can get pregnant soon after delivery even before receiving your period? The recommended birth spacing period is 2 years between pregnancies. Using any method now will not affect the baby or your ability to get pregnant later. For more information reply with 1,2,3,4 to select a topic: (1) Timing, (2) Safety, (3) Traditional methods, (4) Resuming sex, (5) Family planning methods.*
Initial qualitative and quantitative data suggests that providing mothers response options significantly impacts engagement. Compared to the average response rate of 19% on standard PROMPTS messages, **58% of mothers responded to our prompt at 21 days postpartum** (52% of these mothers asked for family planning methods), whereas 48% asked a different question, like resuming sex, bleeding, or discharge.

**Recommendation:** Based on these insights, we are now exploring a ‘counseling’ approach\(^1\) for PROMPTS messaging to help mothers make informed choices based on preferences they share within the exchange. For example, rather than naming different methods of contraceptives upfront for mothers to select from, we might ask them a series of questions before sharing a recommended method, or a selection of methods, based on these preferences.

*An example of a revised flow for family planning options is below:*

**2. Insight:** Mothers are most likely to engage between 10am - 1pm. We can learn a lot about when to prompt engagement by tracking phone usage. Weekly analysis of incoming messages from mothers (represented in the two charts below) tells us that mothers are most active between 10-1pm (this tapers towards the end of the day), and on a Monday (with the lowest engagements recorded on a weekend). **Recommendation:**

- Greater visibility on engagement patterns will mean we can better time when we ‘nudge’ mothers to engage on the platform (eg. asking a question, requesting feedback on care quality)

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in facilities). We are working to build this data into our existing ‘flows’ to incentivize two-way engagement on PROMPTS.

**The Way Forward:** We know from our qualitative and quantitative insights that, in simple terms, users of digital health tools need to trust and find relevance in services before engaging. Both start with a deep understanding of the end user, and their preferences for engagement. As PROMPTS expands to more demographically-diverse areas of Kenya and to new geographies, we will look to offer an increasingly personalized service to cater for the diverse needs and unique user journeys of mothers in different contexts.

One avenue we are exploring is **proactive risk screening**. PROMPTS already triages inbound messages from mothers effectively for urgency, but we are now exploring ways to more proactively screen risk and customize care. We are currently testing user-friendly survey tools to collect essential information from mothers at enrollment, like obstetric history, clinical information, and other risk factors (eg. prior preterm birth, comorbidities, or social determinants like alcohol use), as well as building our AI capability to segment groups of mothers based on clinical, demographic, socioeconomic and behavioral characteristics. With data-driven risk screening, we hope to be able to identify high risk mothers earlier and launch them on the best care pathway with greater accuracy.

Going forward, we are eager to hear from and work with partners on effective strategies for increasing client engagement on digital tools like PROMPTS, and how data generated from these interactions can be applied to build more responsive, personalized services - at scale.