# TRADITIONAL SOCIO-BEHAVIORAL RESEARCH AND HUMAN-CENTERED DESIGN:

Similarities, Unique Contributions and Synergies

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### *Genesis of this report*

Given challenges faced during efficacy trials of several microbicide and HIV prevention products, and the minimal end-user input into the product research and development process, the Initiative for Multipurpose Prevention Technologies (IMPT) and the United States Agency for International Development (USAID) are supporting a new focus to incorporate end-user feedback at all stages of product development. Human-centered design (HCD) is a commonly used approach in developing strategies for business marketing and has recently been incorporated into projects in the global health space. This approach has similarities with the use of qualitative research methods for social and behavior change communication (SBCC) interventions, but is less structured with differences in data collection and management procedures, and no formal qualitative analysis as part of the process. It also typically involves bringing in consultants with experience in other disciplines such as business, design and technology, which can lead to higher costs for similar outputs. However, some practitioners also promise that use of HCD compared to more traditional public health approaches will deliver products that lead to better uptake and use.

As a behavioral researcher whose research has focused on understanding women's use of contraceptive, HIV prevention and other health products or behaviors in a range of countries and socio-cultural contexts, I was engaged by IMPT/CAMI Health and USAID to help them and others in the MPT/HIV prevention product development field better understand this new approach to make more informed decisions about where, how and whether to incorporate HCD into future product development efforts.

### *My caveats*

I write this report as someone who has a long history of research focused on understanding end-user needs, preferences and behaviors, but only recent experience with HCD. I have worked for over 25 years in the field of public health; much of my research has employed qualitative or mixed methods to identify and describe the range of personal, partner- or provider-related and broader sociocultural factors that affect uptake and use of prevention products. Many of these studies have examined product use within the context of clinical trials. For example, working with the National AIDS Research Institute in Pune, India, I conducted mixed method research in parallel to a phase II microbicide safety trial to first develop scales to measure potential predictors of microbicide acceptability and adherence (e.g., HIV risk perception, couple sexual communication, acceptability of product attributes) and then longitudinally assess how well these scales predicted consistent use by trial- and similar non-trial participants. A few research projects have specifically aimed to provide direct feedback on the "design" (content, format, process) of new technologies or how they should be introduced. One such project included working with my SBCC colleagues at FHI 360 and a project advisory group in Kenya to develop and rigorously test messages and materials for potential microbicide introduction. However, I have only participated in one project

that directly applied a human-centered design approach to inform product development. In this project, I and FHI 360 colleagues have been working with a design firm, Quicksand, to engage multidisciplinary groups of experts in India and Kenya to develop blue-sky concepts for next generation contraceptive technologies that better meet the needs of women and their partners around the globe.

This report is meant to be a *conversation starter – not a thorough review* of the merits of either traditional social-behavior change research or how HCD has been applied recently in the HIV prevention product development field. The report is based on my reflections after reading and learning about other HCD projects, talking with HCD practitioners and participating in one HCD project. As such, I have tried to substantiate my "take-homes" with specific examples from my own professional experiences or publicly available materials.

## ACKNOWLEDGEMENTS

I would like to thank some colleagues who have helped me think through successive iterations of this report. At FHI 360, Emily Namey, a qualitative methodologist, provided helpful comments about some of the key characteristics that are inherent in rigorous qualitative research as applied in global health. Anna Lawton, who has a background in market research and has been an essential team member of the Contraceptive Market Assessment and Ideation project, reviewed and provided feedback with an eye towards the contributions that an HCD process can bring.

Working with our Quicksand colleagues in India has opened my eyes the power of an HCD process. Their ability to translate field observations, conversations and interviews into rich visual materials that conveyed end-user contexts in a compelling manner was inspiring. Members of their team and, in particular, Babitha George provided careful review and feedback on this report and my representation of HCD processes.

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## OVERVIEW

In recent years, USAID has invested in the use of human-centered design (HCD) to generate strategies for the development and introduction of new biomedical prevention products in global health contexts. This report examines and compares traditional social-behavioral research (SBR) - particularly the use of qualitative research methods - with human-centered design (HCD) approaches with the aim of identifying similarities, unique contributions and potential for synergies between the two approaches

The report references several specific research projects in which I (the author) have been involved. They include a study in Kenya and Rwanda to inform the development of a new, longer-acting injectable contraceptive method, a multiphase project to develop and test messages and materials for potential microbicide introduction in Kenya, and a human-centered design project in Kenya and India aimed at generating concepts for next generation contraceptive technologies. It also draws on other publicly available materials, as well as discussions with social-behavioral research and human-centered design colleagues over the last few months. Brief descriptions of these different case studies are included in an appendix at the end of the report.

This report is organized into four sections: I) the Overview; II) Review of SBR and HCD Methods; III) Strengths and Shortcomings of the methodologies; and IV) Synergies.

## REVIEW OF METHODS

There are likely multiple ways in which to compare HCD to other social and behavioral research methods used to understand user needs and behaviors. In this section, I describe SBR followed by HCD in terms of six characteristics, including:

1) the overall objective of the approach;
2) the recruitment or participant selection;
3) the researcher's or implementer's "proximity to the field";
4) the process used to collect and manage data;
5) the approach for analyzing and/or drawing insights from the information being collected; and
6) the output or dissemination approaches used to communicate the findings of the project.

## Qualitative methods in SBR

Qualitative methods have been applied within the context of HIV prevention product development for about 20 years. Some of the first studies focused on understanding women's perceptions of specific attributes for future products, or products that were currently in early stages of development. As clinical trial implementers became more accepting themselves of allowing social-behavioral researchers to intervene with actual trial participants, SBR studies examined more closely women's – and sometimes their partner's –perceptions of and experiences with products being used in trials. They also examined how the clinical trial context and the sociocultural contexts within which trials were being implemented affected participants' acceptability and use of products. [1]

Below is a brief description of features of qualitative SBR as conducted in the fields of HIV prevention and contraceptive product development.

1) **Overall Objective/Purpose**: Qualitative research is used to explore and describe human attitudes and behaviors and to generate theories that could be tied to design or intervention goals. Beyond addressing immediate intervention goals, however, SBR is about building the evidence base and contributing to new scientific knowledge.

   Despite the less-structured nature of qualitative research vis-à-vis quantitative study designs, public health researchers who apply qualitative approaches are generally concerned with maintaining scientific rigor –establishing the trustworthiness of their findings. They want to control or in some way account for their own individual biases –representing information in a way that approximates group reality.

   Standard features of qualitative SBR include:
   - Use of standardized protocols that link research questions to defined data sources and procedures for data collection, management and analysis.
   - Explicit or implicit use of a theoretical framework that helps to narrow and sharpen the specific themes for investigation.
   - Review of protocol and data collection instruments by scientific review boards and/or ethics committees who evaluate how any risks to research participants are being handled and whether the overall contributions to science are in balance with such risks.

2) **Recruitment/Participant selection**: Most qualitative SBR studies pre-specify in the protocol the types and number of participants to be included. The protocol also describes how participants will be selected, whether randomly selected through an established sampling frame or purposively, based on criteria that align with the research objectives.

For example, in the *Long-Acting Injectable Acceptability* study (case study 1), we wanted to understand the viewpoints of women who might potentially use a longer-acting injectable. We recruited women with a range of injectable contraceptive experiences – current users, discontinuers and never-users – through family planning clinics in the public, private and faith-based sectors. We also interviewed providers, clinical managers and policy makers.

The number or range of participants is also specified and usually based on the concept of "saturation," which suggests that most commonly-shared themes will emerge within a small number (often 6-12) of in-depth interviews with similar participants and more nuanced themes within a slightly larger set. [2] Because it is possible for focus group discussions (FGDs) to be dominated by the voices of one or two individuals, SBR studies typically conduct 2-3 FGDs per participant type to gauge whether emerging information is similar or divergent.

3) **Proximity to the field**: Qualitative SBR in the global health field is often designed and conducted by subject matter and/or method experts who may or may not be from the geographic settings in which they are working. (Note: there is growing corps of social-behavioral researchers in the countries and sites where HIV prevention and contraceptive clinical trials are conducted). Even when non-native researchers have developed – through study or living experiences – a good understanding of the culture and language, they tend to remain "behind the scenes," instead collaborating with in-country counterparts and/or local field researchers who are closer to the field in terms of appearance, language and cultural knowledge. Non-native researchers often choose not to be present in the field to reduce participant "reactivity," assuming that cultural, economic or power differentials perceived between a foreign researcher and participants may lead them to alter their responses to questions.

When working through local field teams, a researcher may ensure that the participants' voices/perspectives emerge by ensuring that interviewers are well trained in the use of sound qualitative interviewing techniques, immersing him/herself in verbatim transcripts that are shared routinely as the data are being collected and debriefing often with the field team. In some situations, non-native members may participate in meetings, interviews with in-country experts or other activities – particularly if they feel that their presence will not negatively affect the willingness of participants to share information.

For example, in the *Communicating about Microbicides* project (case study 2), four teams each comprising of an FHI 360/US member, two FHI 360 Kenyan researchers and a Kenyan advisor from our external advisory group conducted several half-day workshops with key target groups in their assigned geographical region. Information from the workshops was written up in brief reports, supplemented by worksheets and drawings

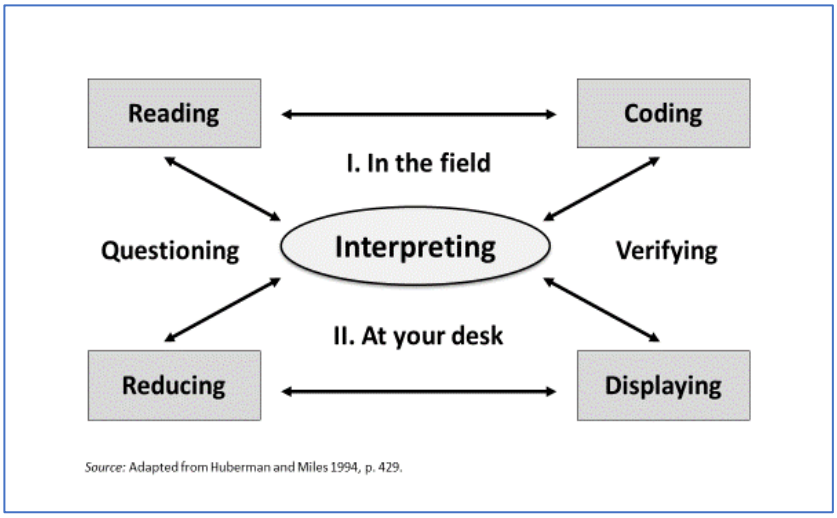
produced by the participants. This information informed the development of messages and strategies that could be further tested by the local field team.

4) **Process/data capture**: Well-conducted qualitative SBR requires researchers to follow the plan for data collection, management and analysis described in their protocol. While the protocol can be written in a way that allows some flexibility, in general, researchers are not able to add new sites, participant types or activities without requesting an amendment from the institutional review boards or ethics committees that originally reviewed and approved the research.

   Given the larger objective of building the evidence base, qualitative researchers aim to provide an "audit trail" that shows how the researcher moved from collecting information (i.e., the data) to arriving at study findings. Once collected, data from qualitative SBR are usually stored in the form of detailed field notes, audio-recordings of interviews and FGDs and verbatim transcripts that are typed and stored electronically. Other types of information may also be collected and stored as part of the research, such as photos or drawings, or supplemental quantitative data. However, the meaning or intent of visual data may still be described "in words" so that they can be analyzed in tandem with field notes and transcripts.

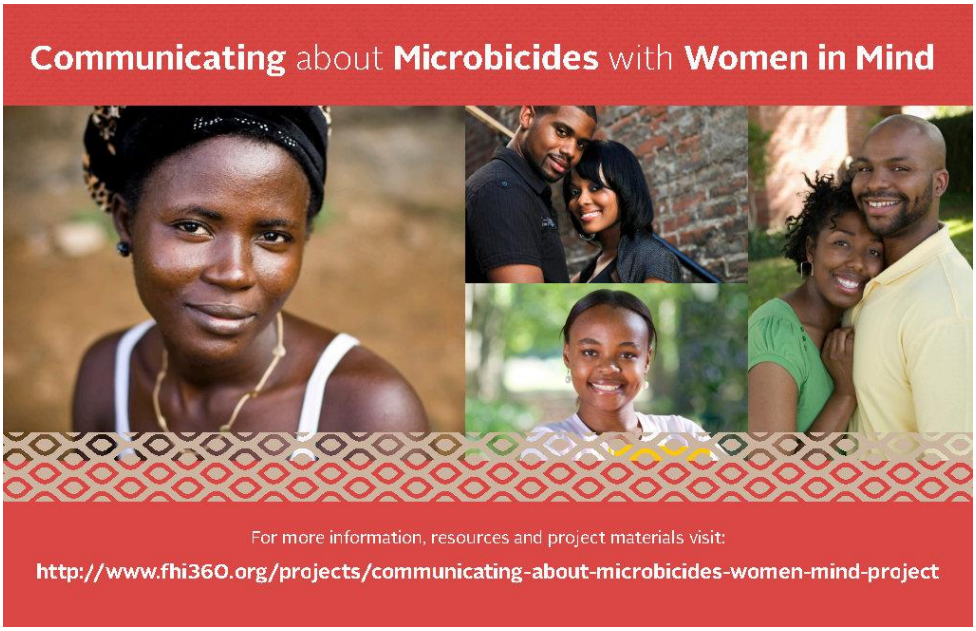
5) **Synthesis of Findings**: Analysis of textual data usually involves importing individual files into a qualitative software package, reading and coding the data and then writing memos, developing matrices or using other mechanisms to determine themes, identifying patterns – commonalities and differences – between groups of participants. Although it is commonly assumed that different analysts might arrive at somewhat different interpretations of a same set of qualitative data, it is nonetheless important to document the analysis process. For example, SBR researchers will usually develop a codebook containing clearly defined articulations of the themes and how they should be applied; they may then write memos, develop matrices and conceptual models to describe thematic content, compare differences across sub-groups of participants and map relationships between themes. These analytic products (codebooks, memos, matrices and models) provide transparency about how the findings were developed.

   During the qualitative phase of the *Sustained Use of Vaginal Microbicide* project (case study 3), our original codebook explored broad themes related to the conceptual framework guiding the study. As we gained a deeper understanding of factors affecting women's and their partner's acceptability and use of HIV prevention products, we refined the codebook, creating hierarchies of sub-codes below each broad coded theme, to enable us to more easily make comparisons between women and their partners, high- and low-risk women or couples and those who had and had not participated in clinical trials.




Source: Tolley 2016, Qualitative Methods in Public Health, Jossey-Bass[3]

6) **Outputs and Dissemination**: Disseminating the findings from SBR to the scientific community is an essential part of validation and of building the evidence base. Common fora for sharing information include conference presentations and peer-reviewed journals. However, with increasing emphasis on research utilization, researchers have found additional ways to share study findings with research communities, program implementers and others. One qualitative SBR project disseminated findings to involved communities by holding poetry readings, while another worked with a local artist to conduct a one-woman play that communicated common themes from the research. [4, 5]



In the *Communicating About Microbicides* project (case study 2), we created a communication strategy and adaptation guide that provided a step-by-step description of data collection stages and findings, adaptations to message content and design revisions and outcomes from a rigorous evaluation. The adaptation guide was shared with the funder (USAID) and with members of the external advisory group, which included representatives from the Kenya Ministry of Health; it was also linked to FHI 360's website. [6] In addition, several papers have been published in peer-reviewed journals.

## Human-Centered Design (HCD)

HCD is a framework and set of processes used initially in private sector industry to develop products or services that are responsive to users' needs, rather than ones to which users must adapt themselves. While the idea of placing prospective users at the center of the design process has been around and operationalized for decades, the HCD movement has developed a unique framework to describe the processes. Three main phases of design include: 1) inquiry; 2) ideation; and 3) early stages of prototyping and implementation, often quite "low-fi," to ensure that design solutions meet user needs. The specific terminology used by individual design firms differs; most HCD approaches emphasize use of participatory methods that involve users in the design and development process, a focus on the emotional triggers for behavior, as well as rapid cycles of prototype development and testing prior to reaching a final design solution.

In the last five years, HCD practitioners have been involved in applying design thinking to introductory activities related to HIV prevention (IDEO project) and/or multipurpose prevention technology (MPT) vaginal rings (Project Imbali), as well as to the development of concepts for next generation contraceptive methods (Ideation project).

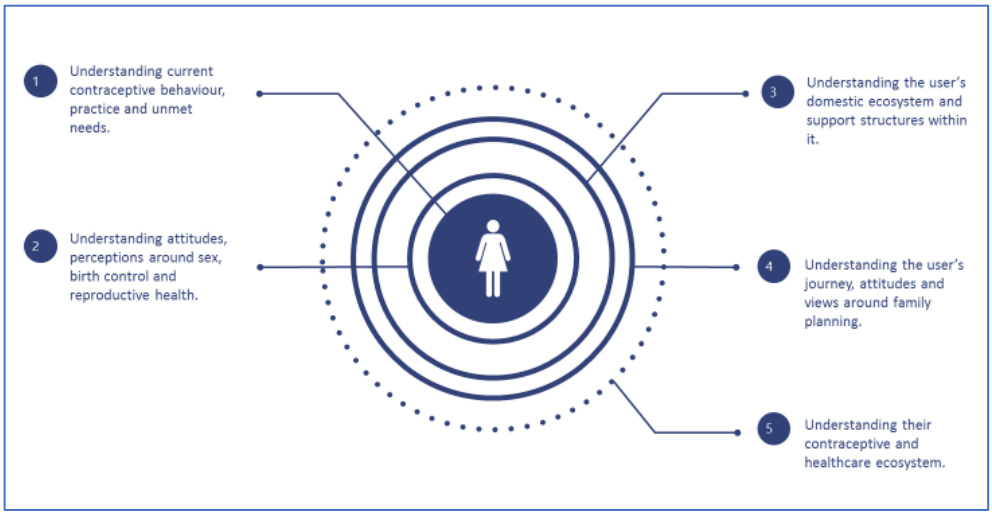
Below is a brief description of HCD features as conducted in the fields of HIV prevention and contraceptive product development.

1) ***Overall Objective/Purpose****:* HCD makes use of many of the qualitative data collection methods used in SBR. However, the overall objective of using these methods tilts towards *inspiration* – obtaining *actionable insights* - for those involved in the design process versus arriving at data-driven descriptions or explanations of a topic of inquiry for a scientific community. Qualitative data collection is typically just one early stage in a longer series of activities that apply designers' insights to iterative rounds of prototype development, user testing and refinement. Nevertheless, it is considered a core foundation for the entire cycle of HCD, as it is focused on building an empathetic understanding of a challenge or opportunity. Empathy is crucial as it allows problem solvers to set aside their own assumptions to gain real insight into customers and their needs.

HCD has tended to differ from more traditional application of SBR as follows:

- Use of qualitative data collection is less protocol driven. The designers are free to follow their hunches and to change their questions and approaches mid-stream in pursuit of new/different information. This nimble/flexible/iterative quality is a key characteristic of HCD and is present from study design through data collection to write up.
- Data collection seeks to understand the user context and therefore may be organized to some extent around a social-ecological framework. However, more explicit behavioral theories are not used.
- Research is conducted to enable rich story-telling that can be transmitted visually or through media outputs, as stories are considered persuasive tools for the development of design-oriented insights, ideas and inspiration.

In the *Contraceptive Market Assessment and Ideation* project (case study 4), phase 1 research sought to rapidly understand and document – through field notes, drawings, photos, audio and video recordings– women's everyday lives, relationships, encounters with the healthcare system and how these contexts might affect their attitudes towards and use of contraception.




Framework contributed by Quicksand.

- In general, HCD practitioners tend not to obtain review by scientific review boards and/or ethics committees. Perhaps this is because the data collected during HCD activities are aimed at informing product design and not scientifically representing human behavior. Routine data collection activities that are part of program implementation or not aimed at contributing to the scientific knowledge base may be deemed non-research. In the public health field, projects that collect data from individuals generally seek review from ethics committees, who may or may not designate the project as non-research or facilitate an expedited (or full) review. As HCD has been applied to development and/or introduction of HIV prevention and contraceptive technologies, some projects (including case study 4) have sought such review.

2) ***Recruitment/Participant Selection***: With the goal of understanding both the users and the systems within which a new product or service will function, HCD may include a wide range of "users" and those who influence them. Interactions with these participants can take many forms: formal interviews or group discussions, observation, informal intercepts or structured feedback sessions. The recruitment strategy may not be fully defined at the outset of a project. Over the course of data collection, practitioners may seek out outliers or special cases – individuals who have unique relationships vis-à-vis the solution being sought. The numbers and types of participants, as well as the methods used for their selection, is influenced more by feasibility and a desire to follow creative instincts than by need for saturation or other scientific concepts.

   In the *Contraceptive Market Assessment and Ideation* project (case study 4 - which was protocol driven, less common in HCD practice), we sought to interact with a wide array of women aged 16 to 50 years old. We set out to talk to women with and without children, working and unemployed, with and without experience using contraception – traditional, temporary and permanent. We also sought to meet, interview or observe partners, friends, other family members, teachers, religious leaders, providers and others. Aiming to have the flexibility to move from a casual intercept into a formal interview (with informed consent), to convene a group discussion or co-creation meeting at quick notice, we established broad parameters around the numbers and types of participants we expected to contact.

It is conceivable that an HCD project might target a more narrowly defined set of users for data collection. However, the recruitment strategy is more likely to emphasize gathering a wealth of different perspectives, rather than ensuring sufficient "saturation" of any one user category. There does not appear to be the same need in HCD approaches to describe to a scientific audience how participants were selected, nor how participant selection might bias the results of the data collection activities.

3) ***Proximity to the Field:*** As described above, one of the primary goals of conducting qualitative research within HCD is to help the HCD practitioner immerse herself in the user context. While in the field, the HCD practitioner is not only talking with potential users, but also observing users in their natural environments – their homes, businesses, market places or other venues. These immersive activities can take different forms such as *Fly on the Wall* observations in which researchers actively observe a service/product/system without being an obvious presence. Observations may last a few hours or even days. Sometimes, researchers even assume the role of users themselves and experience the purchase and use experience (of the product/service and of competitors) first-hand. This can be extremely helpful for researchers to understand inputs they receive from users and to derive a first-hand lived experience of use.

   This first-hand experience is perhaps even more essential for an HCD practitioner who is working outside of her own cultural setting. If she does not speak the language, local researchers or interpreters may be embedded in the field team.

   > In the *Contraceptive Market Assessment and Ideation* project (case study 4), three teams worked simultaneously to gather data from groups of end-users and their influencers. Each team was comprised of an Indian HCD specialist, a behavioral researcher (U.S.) or design consultant (Dutch) and two local field researchers who could speak the local language (Kiswahili in Kenya and both Hindi and Bengali language capabilities in India) and provide additional cultural translation. Field immersion lasted approximately two weeks in each country, with some additional days of data synthesis in India.

   In addition, because the data are being collected, at least in part, by the design team, there is less emphasis on data collection training. Because HCD researchers are themselves present – engagement, direction and oversight of data collection is immediate. Real-time translation allows for immediate response/probing and/or course correction for questioning. The need for direct experience on the part of the designer overrides concerns about whether or how participants might respond to a researcher who is not from their milieu.

4) ***Process/Data Capture***: By design, the HCD process seems overall to be more intense, rapid-fire and even chaotic, compared to more traditional SBR approaches. This may be a result of having a flexible recruitment plan, a data collection process that incorporates a range of different strategies and a process that relies on rapid, on-the-ground data capture and synthesis.

   > During our *Market Assessment and Ideation* project, team members sometimes split off to conduct additional interviews, photograph a local community or visit a pharmacy or market place. Decisions about how to fill days of field work shifted frequently. In addition, a "modular" approach was applied to data collection. Teams could choose between different data collection activities, including various card-sorting activities, journey-mapping,

presentations of existing contraceptive methods and co-creation of future methods. Consequently, the content of each in-depth interview and/or group discussion varied.

Information from field activities is likely to take the form of rapid field notes, photos, videos and other artifacts (i.e., products purchased from a local market or drugstore that help the HCD team empathize with the end-users being researched.) Team members may also share insights and learnings from the field throughout the data collection period. This may lead to shifts in recruitment or in topics or types of activities included in field work.

5) ***Synthesis of Findings:*** The process of arriving at insights from fieldwork is more of a creative than scientific process, with less emphasis on creating an audit trail that can be replicated by others. Affinity mapping is one key strategy for synthesizing HCD findings. It involves a process of looking for key themes across different types of data, visually organizing these themes and supporting observations (oftentimes using color-coded sticky notes) and then seeking to identify insights – in the form of user needs or preferences, ways to overcome barriers or encourage behavior change.

   Both observations and interpretations or insights from data collection activities may be simultaneously catalogued on individual sticky notes and then grouped and further re-grouped on table or wall space to look for key patterns that inform the research objectives. The process of determining what gets onto a sticky note – and what is overlooked, whether the source of the observation or insight is attributed to a particular participant or not and whether some end-user or influencer voices are (over) represented while others have no representation – is generally not described. Data tend to be highly abstracted – for example, *personas* that represent a composite of multiple participants or *journey maps* that highlight specific milestones or decision points in accessing a product or service – with the overall goal to produce highly visual and persuasive collateral (e.g., communication materials) or identify a set of modifiable product attributes or program strategies that could then be prototyped and tested.

Quicksand colleagues during synthesis session in Goa, India.

Across the two rounds of data collection for the *Contraceptive Market Assessment and Ideation* project, the team engaged in midline efforts to review findings and develop preliminary insights that could then guide the rest of the data collection. The analysis process involved identifying high-level thematic buckets that aligned with different levels of the social-ecological framework. After this, teams conducted a brief review of field notes, generated mounds of sticky notes (which were not exhaustive) and then organized the notes under the different headings. These themes and subthemes were written up and further vetted for applicability to specific target user insights.

6) ***Outputs and Dissemination****:* The primary audience for HCD projects is the client responsible for developing the product, service or strategy that will eventually be offered to end-users. Dissemination formats tend to be highly visual and are more likely to be presented as videos or slide decks than text-dense reports. Because findings from HCD are meant to inform development of a specific product, service or strategy rather than building the scientific evidence base, dissemination in peer-reviewed journals or other scientific fora are less emphasized.

### Summary Comparing SBR and HCD

Section II has attempted to provide some contrasts between the use of traditional SBR and HCD within the context of global health product development and introduction. While both approaches aim to understand the end-user needs, preferences, behaviors and contexts that influence their use of HIV prevention, contraceptive or other products and services, important differences exist; they include the overall purpose or objectives of the data collection activity, the amount of scientific rigor or creative license permitted, characteristics of the research implementers themselves and the process of collecting, synthesizing and disseminating the findings. The table below provides a quick summary of the contrasts discussed.

**Table 1: Comparison of traditional SBR and HCD research approaches**

| | Traditional Qualitative SBR | vs | Human-Centered Design Research |
|---|---|---|---|
| **Overall Objective** | Generate information and theories about behaviors that could be used to inform design or intervention goals | | Arrive at new solutions based immersive experience of end-user & context |
| **Recruitment** | Priority on defining participant categories to ensure data saturation | | Priority on identifying a wide range of experiences using rapid flexible processes |
| **Proximity to Field** | Immersion by researchers often "behind the scenes" to reduce participant "reactivity" | | Immersion by multidisciplinary research team allowing for immediate feedback |
| **Data Capture** | Audio-recordings and verbatim transcriptions preferred | | Field notes and rich media assets preferred |
| **Synthesis of Findings** | Step-by-step "auditable" process, with emphasis on scientific rigor | | Rapid and iterative review of data to generate creative insights |
| **Outputs & Dissemination** | Text to convey the content with dissemination in peer-reviewed journals and other fora | | Rich media collateral and a toolkit of assets that facilitate empathetic ideation |

## STRENGTHS AND SHORTCOMINGS

The following section is an attempt to highlight some of the strengths and shortcomings of traditional SBR and HCD approaches, based on my own experiences of each. The list is not exhaustive and I invite others to comment on, disagree with or identify additional comparisons between the two approaches that I may have missed.

## The Power of Pictures

***SBR:*** In the last two decades, growing integration of qualitative methods into clinical research produced a large body of social and behavioral research describing the ways that individual, partner, provider and trial contexts influenced acceptability and use of products. Using participants' own words, social science researchers have sought to contextualize the range of factors affecting trial participation and/or product use, with the goal of helping clinical trial implementers better understand some of the divergent outcomes from different HIV prevention trials. Most often, the lessons learned from traditional SBR have been shared through oral and/or poster presentations at conferences and peer-reviewed journals.

IN THIS DIGITAL AGE, PEOPLE PREFER THE IMMEDIACY OF A VISUAL IMAGE TO THE MORE INTERPRETIVE NATURE OF TEXTUAL DATA.

Despite these rich accounts of end-user perceptions of and experiences using HIV prevention and/or contraceptive products, the findings from these studies may not be linked in a direct way to specific interventions – whether to improve implementation of product-related clinical trials or introduction and delivery of new products once available. It is possible that the information from these studies doesn't reach the right people – the implementers who might incorporate the findings into their programs. Additionally, this may be due to the format in which information is disseminated; text-rich documents require the reader to spend time carefully digesting the information and then further considering how the information should be applied to communication and counseling messages, the organization of clinic services or other interventions.

***HCD:*** In an increasingly digital world, the use of highly visual formats can be very alluring. They have the power to immediately convey an end-user's perspective as well as their material contexts. They can inspire constituents to take action in ways that words-only presentations cannot. Based on post-workshop evaluations, the visual collateral produced in the *Contraceptive Market Assessment and Ideation* project was instrumental in helping workshop participants maintain a focus on user needs as they developed future-forward concepts for new contraceptive methods.

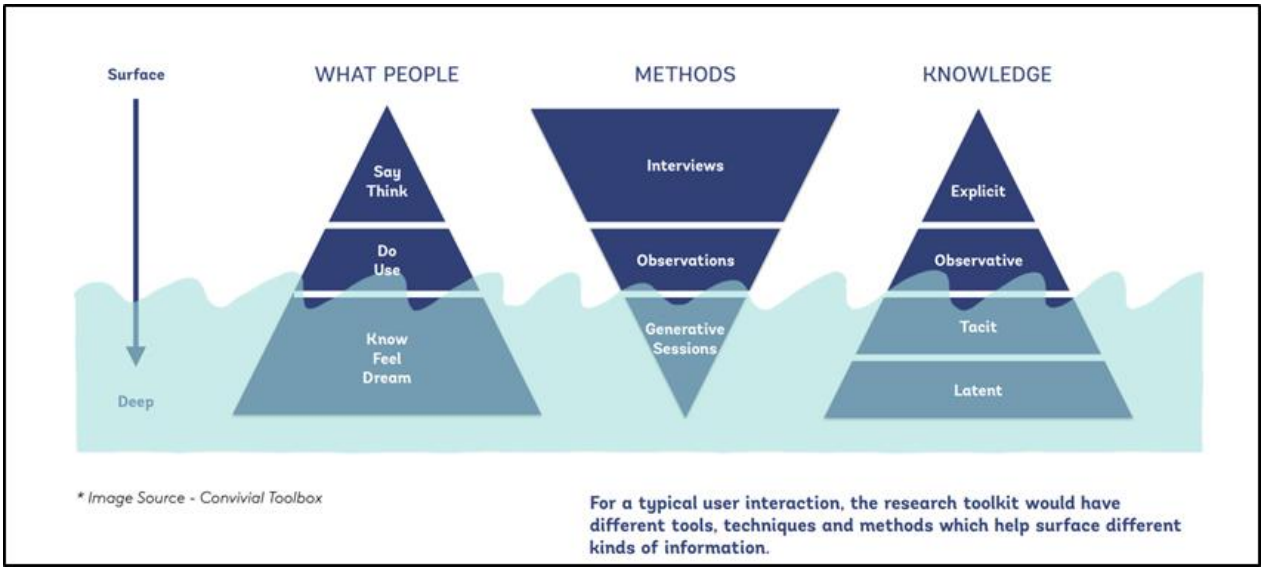
However, the move to infographics, short-form deliverables and applications formerly used (and indeed created) for high-level abstractions (e.g., PowerPoint, Keynote, Prezi) leave less room for nuance or description of more complex information, which is present in any behavioral research.

## Getting it right?

***SBR:*** Once considered to be "quick and dirty," traditional social-behavioral researchers have strived to increase the legitimacy of qualitative research methods. Several aspects of qualitative SBR have become standard and are generally described in research proposals, protocols and peer-reviewed papers. They include incorporating relevant social and behavioral theories and frameworks into their study design and data collection instruments; defining the study sample and considering how their recruitment and the data collection process itself might shape findings (e.g., who collects the data and how the questions are asked); when possible, using complete transcripts or training data collectors to write concrete, descriptive field notes that minimize subjectivity; taking a team approach to data analysis and providing an audit trail including well-defined codebook, information about inter-coder agreements on code application, development of memos, matrices and other synthesis products that can be shared with external audiences.

THERE IS A TRADE-OFF BETWEEN RAPIDITY AND RELIABILITY.

Increased attention on the process of documenting data collection and analysis decreases the researchers' degree of flexibility to change data collection approaches and lengthens the time needed to move from data collection to analysis and conclusions. However, if the objective of a research project is to provide "deep understanding" of particular end-user groups and their behaviors, or to assess how the introduction of a product or program affects end-user attitudes and behaviors, use of it would seem essential to show your audience how you have arrived at the conclusions.




Source: Convivial toolbox

***HCD:*** The research conducted prior to an HCD project appears to have a different objective than traditional SBR; an important goal of HCD user research is to ensure that HCD designers have developed sufficient empathy with end-users that they are able to design and elicit useful user feedback on successive iterations of a new product, program or system. For this reason, the research is generally rapid and highly immersive. The effort to remove subjectivity and bias during the research process is not valued in the same way it is in SBR. Indeed, HCD practitioners are looking for specific insights that may be uniquely their own.

Some HCD processes and tools are especially effective in helping to understand and represent the unique contexts and circumstances that shape user behaviors. For example, asking a participant to sort through and select an image from a deck of cards showing animals, natural settings or emotional states can provide insight into his or her personality that would be difficult to obtain in a more direct line of questioning. Similarly, by mapping a woman's "journey" from meeting her first partner through her various reproductive milestones, it is possible to learn a lot about a woman's relationships and her ability within them to communicate and/or negotiate choices about family size, contraceptive use and future aspirations for herself and her family.

TRADITIONAL SOCIAL-BEHAVIORAL RESEARCH IS ACCOUNTABLE FIRST AND FOREMOST TO PARTICIPANTS; HUMAN-CENTERED DESIGN TO CLIENTS.

**Protecting Participants**

***SBR***: Obtaining research ethics review and approval is an essential component of SBR. Ethics committees (ECs) generally review the protocol, recruitment strategy, data collection instruments, informed consent documents, data management plans and researcher certifications in research ethics to ensure that any potential risks to participants have been considered and minimized. Unlike the potential for side effects or other adverse health effects associated with participation in a clinical trial, risks of participation in SBR are more likely to be in the form of social rather than physical harms. Nevertheless, in research related to sensitive – even stigmatized – topics like use of contraceptive or HIV prevention products, a breach of confidentiality can create problems within a participant's relationship with partners, family members or others. Consequently, researchers typically aim to remove any identifying information (e.g., names, specific geographic locations) from data transcripts and may use participant ID numbers or aliases when reporting participants' words in any dissemination materials.

***HCD:*** It has not always been standard practice for HCD research to obtain ethics reviews. This may be in part because the data collected during immersive field activities were not intended to be shared beyond the project, or were considered proprietary. Fortunately, HCD projects as more recently practiced within the contraceptive, HIV prevention and multipurpose prevention technology space have sought ethics review.

The emphasis of HCD on developing and sharing visual collateral from the research raises some difficult questions during an ethics review. For example, how widely should participants be willing to allow their photos or video recordings to be shared? While participants' words can be anonymized, it is more difficult to anonymize visual materials.

## SYNERGIES

There are two ways to think about synergies between SBR and HCD. One way is to think about whether there are points along the product development to introduction continuum where one research approach is likely to be more meaningful, efficient or effective than the other; should we selectively use an approach based on the desired purpose/outcome? The second way is to think about which aspects of the two approaches should be retained and/or combined into a hybrid approach.

### Selective Use

Thinking about the product development pipeline, there are several points during which the rapid, participatory and iterative nature of HCD seems especially useful. One point is in the early phase of concept development and prototyping – much like was described in case study 4. When looking to galvanize new thinking around potential solutions to an intransigent problem, features of the HCD process may help move the needle. Some effective HCD strategies include engaging a multidisciplinary perspective, using immersive and rapid encounters with end-users and others to develop empathy and inspiration, generating multiple solutions that can be "built" and tested, allowing failures and/or revisions until a solution emerges that appears scalable.

Similarly, during product introduction, the development and rapid testing of messages, materials, and approaches aimed at increasing access to new products could benefit from an HCD lens. This would ensure that various components of an introduction strategy met the needs of prospective users and of those who influence their decisions about product use. A design thinker's ability to interact with end-users about message content, observe interactions with clinic staff or experience the purchasing process at a local pharmacy or drugstore can help her quickly surface and design solutions for issues that might affect product uptake and adherence.

While HCD can generate new and more user-centric design solutions, there remains an important role for traditional SBR. For example, one of the first opportunities to understand end-user experiences with a new investigational drug or device is within the confines of clinical trial research. SBR studies can provide valuable information on participants' initial beliefs about how the product works, barriers and/or facilitators to product use and preferences for the investigational product vis-à-vis existing options. Such research should, of course, keep in mind the ways that the clinical trial context itself might shape end-user perceptions and behaviors – also of importance to understand given the adherence challenges that some HIV prevention product trials have faced. In fact, requirements are in place (via the National Institutes of Health) to ensure that participants do not handle, ingest or insert products – even placebo products – unless they have already passed specific safety assessments. Therefore, an HCD approach that aims to rapidly modify, test, discard (i.e., iterate) successive versions of a pharmaceutical product is not likely to be feasible.

Traditional SBR may also be more appropriate when seeking to identify determinants of behavior change and/or evaluate program implementation and effectiveness. First, HCD should not replace the in-depth qualitative SBR that generally aims to identify, describe and compare end-users' individual (i.e., attitudes, motivations and behaviors), partner relationships and larger clinic, community and/or cultural contexts related to whatever outcome (e.g., pregnancy, HIV or other disease acquisition) a product is being designed for. HCD research is not designed to provide rigorous evidence on these kinds of questions. SBR, and particularly mixed method approaches, should also be used to evaluate how well a design solution works. For example, during early end-user workshops in the *Communicating about Microbicides* project, participants indicated a preference for HIV-framed messages. As researchers altered their recruitment approaches for these workshops, such preferences were less pronounced. However, it was only after analyzing data from the randomized intercept survey that we determined the impact of message framing on future interest in use of a microbicide. The survey indicated that among men and women who were in a stable relationship, non-HIV framed messages (i.e., messages that associated microbicide use with improved intimacy or empowerment) significantly increased interest in microbicide use, compared to the HIV framed messages. Unless we had set out to examine this hypothesis, we might have proposed a communication strategy that was destined to fail an important segment of the population.

## Hybrid

Is it possible to draw on the strengths of each strategy to enhance user-centered research more generally? Below are some of the features from each that I would choose:

1. Initial research should be protocol driven with some uniformity in how data are collected and synthesized. At the same time, it is important to look for ways to make traditional SBR more rapid and responsive – perhaps by limiting the full transcription (and translation) process when not essential.
2. End-user research could make better use of participatory data collection methods, as well as the collection of visual data. More integration of these methods could also facilitate story-telling and improved formats to disseminate, inspire and galvanize the use of findings.
3. One important question to be resolved is the degree to which a large, multidisciplinary team would spend time in the field. Could some of the immersive HCD approaches be included towards the beginning or end of more protocol driven data collection?
4. Maintain a focus on human protections during the research process – especially when gathering visual collateral. This is an area in which HCD practitioners, traditional qualitative researchers and ECs will have to work out better guidance.
5. Following the *Ideation* model, pair HCD "designers" with content area SBR experts. Designers lend new eyes/perspective and potential adjacency knowledge while content experts make sure that designers don't reinvent the wheel.
6. Pressure-test resulting concepts that come out of an HCD context to increase confidence that the concepts resonate more generally with end-users and/or their influencers.

## Conclusions

Ultimately, within the field of public health, we are aiming to understand why various population groups suffer negative health outcomes, design interventions that address the underlying causes and evaluate their effect. We have a number of tools that assist us in achieving these ends and the more able we are to skillfully use these different tools, to collaborate and to innovate, the more effective we will be in fulfilling these goals.

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## APPENDIX 1: CASE STUDIES

**1 Study:** Preferences for a Longer-Acting Injectable (LAI) Contraceptive Method

**Countries:** Kenya and Rwanda

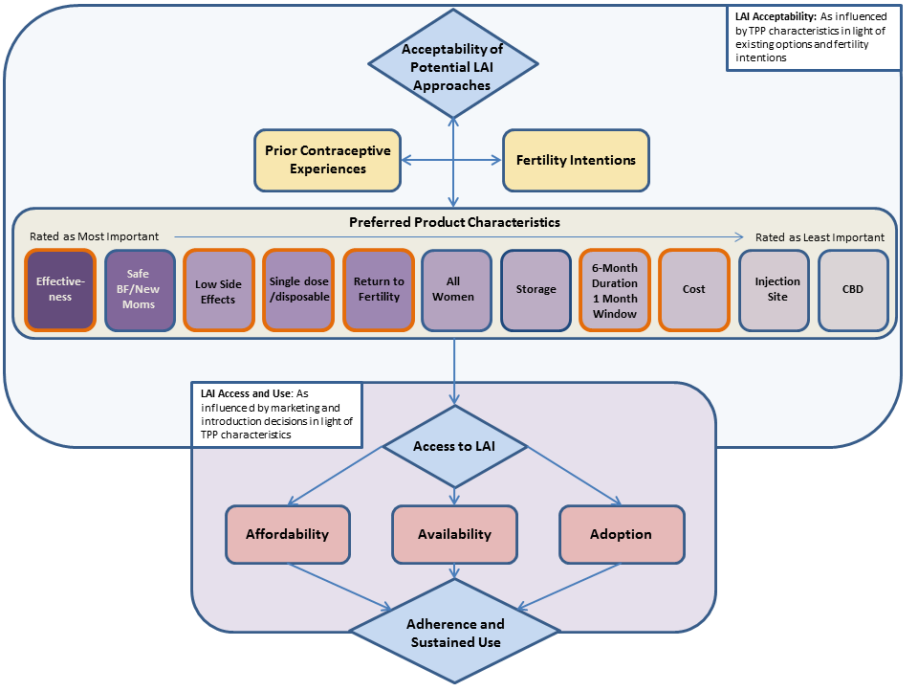
**Topic**: Acceptability of a longer-acting injectable contraceptive

**Background:** Worldwide, injectable contraceptive use doubled between 1995 and 2005. In sub-Saharan Africa, more than one-third of modern contraceptive users currently rely on injectable contraceptives. Despite dramatic increases in injectable uptake in several African countries, including Kenya and Rwanda, discontinuation is high, due in part to women's experiences of menstrual and weight changes, or other side effects. Additionally, as many as 40% of injectable users unintentionally discontinue due to missed appointments.

A longer-acting injectable (LAI) could prove a valuable addition to the method mix by decreasing the number of visits required per year, thereby improving compliance and increasing typical use effectiveness. With funding from the Bill & Melinda Gates Foundation (BMGF), FHI 360 is spearheading efforts to develop an LAI. Approaches under consideration include increasing the dosage of an existing injectable formulation, altering the administration or injection site or identifying drug delivery systems that could prolong the release of the drug.

**Aims:** This research aimed to inform the development process of an LAI by providing a more in-depth understanding of potential users', providers' and opinion leaders' perspectives on potential product characteristics identified as part of the target product profile (TPP), to help inform the selection of candidates for early proof-of-concept testing, as well as later product development efforts.

**Theory or approach used:** The researchers organized discussion around the target product profile (TPP), which identifies desired and minimally acceptable product characteristics related to such aspects as effectiveness and side effect profile. The conceptual framework provides an overview of the themes we analyzed and their relationship to LAI acceptability.




**Methods**: Qualitative case studies were conducted in Kenya and Rwanda, consisting of 19 focus group discussions (FGDs) with 177 current, previous or never users of injectables and 46 in-depth interviews (IDIs) with providers, program implementers, and policy makers. FGDs and IDIs assessed current injectable

experiences; attitudes toward potential LAI products; and perceptions of TPP attributes. Visual cards depicting each product attribute were used to probe further about participants' attitudes towards, or prior experiences with each aspect. We included a ranking activity in both FGD and IDI in which participants were asked to sort through the cards and rank the most and least important characteristics for development of a longer-acting injectable. In addition, we obtained completed electronic surveys from 28 international family planning opinion leaders about the perceived need for an LAI, important product characteristics and challenges to LAI development or introduction.

**Contributions of the methodological approach:** This study provides evidence of strong acceptability for an LAI. Furthermore, it provides some guidance related to product characteristics that should be prioritized in the development process, while also serving as a reminder that eventual demand will be influenced by policy and service delivery decisions that affect potential users' knowledge about, access to and correct use of the method. Specifically, it found that high effectiveness, predictable return to fertility and a single, prepackaged, disposable delivery system ranked high. Side effects were generally acceptable to women if they did not last long or disrupt daily activities. Cost was considered important for providers but not so much for most potential users.

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**Key study staff:** FHI 360: Elizabeth Tolley, Kevin McKenna; Caroline Mackenzie, Emmanuel Munyambanza; Rwanda Ministry of Health: Fidele Ngabo

**2 Study:** Communicating about Microbicides with Women in Mind

**Country:** Kenya

**Topic**: Vaginal Microbicides - new ARV-based HIV prevention for women

**Background:** Globally, women continue to be disproportionally affected by HIV, despite widespread HIV knowledge and availability of condoms. To curb the epidemic, HIV prevention products that work for women are needed. In 2010, the clinical trial CAPRISA 004 provided proof-of-concept that peri-coital, vaginal use of tenofovir 1% microbicide gel can reduce HIV acquisition among women. With confirmatory results from FACTS 001 expected by 2015, now is the time to think strategically about demand generation.

Along with product efficacy, price and availability, women's social and sexual contexts will shape their interest in and ability to use microbicides. Communication campaigns will also play a key role in generating demand and educating women about correct use. For example, by framing microbicide-related messages exclusively on HIV prevention – or on other benefits such as sexual pleasure, empowerment – communication strategies could either facilitate or impede a woman's interest in their use. Moreover, because the current peri-coital use regimen is complicated, and because microbicides are not likely to be as effective as condoms, in-depth education will be necessary to ensure proper use and understanding of efficacy.

**Aims:** This project aimed to develop a minimum package of microbicide-related communication materials and then test their efficacy in generating awareness of and demand for microbicides among women, male partners and providers.

**Theory or approach used:** Two theories were consulted. Based on the Social Cognitive Model, messages were developed to target the individual and environmental barriers and facilitators of microbicide-related behaviors for different audiences. Additionally, the Elaboration Likelihood Model informed pretesting and materials assessment. This theory suggests that communication materials influence audiences through two routes to persuasion – peripheral cues (based on positive/negative "cues" such as attractiveness) and central processing (based on relevance of topic to individual), the project developed and tested two sets of awareness-raising materials.

**Methods**:

- Phase 1: Kenyan stakeholders and representative audiences were consulted to identify priority audiences, determine what types of materials to develop and inform message content. Activities included: a National Policy Consultation with Kenyan policy makers, program implementers and researchers to determine which audiences should be prioritized for microbicide-related communication; 12 workshops in four regions with target audiences to provide input on draft messages and visual images; a National Message Development Workshop to draft audience profiles and key audience-specific messages.
- Phase 2: A local design firm was identified to develop materials, which included materials for awareness-raising (posters, TV storyboards and radio spots) and in-depth education (flip charts, an informational brochure and counseling algorithm). Two versions of awareness-raising materials were developed: one with microbicides framed as HIV prevention, and one with microbicides framed primarily as a product with other benefits – in addition to HIV prevention. Two rounds of pre-testing, were conducted with target audiences in four regions to refine messages and materials prior to formal research assessment.

- Phase 3: A mixed method design was used to assess materials. The ability of *awareness-raising materials* to increase general interest in and demand for microbicides was assessed via a quantitative intercept survey with 200 men and 800 women, randomized to a) microbicide information-only; b) HIV framed materials; or c) non-HIV framed materials. At the end of the survey, participants were asked an open-ended question regarding their final thoughts about microbicides and the materials they viewed. NGOs tested *in-depth educational materials* to determine how well flipcharts addressed women's informational needs and generated microbicide interest. In addition, in-depth interviews were conducted with health care providers to assess providers' acceptability of vaginal microbicides, ability to appropriately use materials to counsel women on microbicides, and their thoughts on the content and usefulness of materials.

**Contributions of the qualitative approach:**

Iterative rounds of stakeholder and end-user workshops helped identify message content for awareness-raising and in-depth messages and materials. Randomized surveys provided evidence about the efficacy of message framing.

Qualitative analysis of the mock discussion groups revealed that participants were engaged in the discussion about microbicides. Moreover, research assistants documented questions that participants had – either about microbicides or about the flip charts. They were also able to identify areas where additional training might be required for facilitators.

Analysis of the in-depth interviews with health care providers, revealed that materials were well-received and effective in educating providers about microbicides and at helping providers deliver appropriate counseling for hypothetical scenarios involving women in different sexual contexts.

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**Key study staff:** Elizabeth Tolley, Elizabeth Ryan, Allison Pack, Emily Bockh, Samuel Field (FHI 360 USA); Caroline Mackenzie, Alice Olawo (FHI 360 Kenya); George Githuka (National AIDS and STI Control Programme)

**3 Study:** Sustained Acceptability of Vaginal Microbicides

**Countries:** India

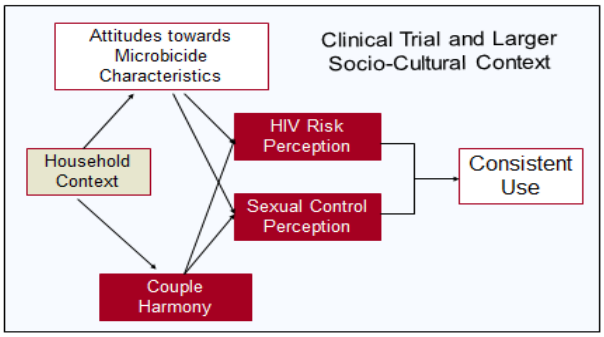
**Topic**: Acceptability of and adherence to new ARV-based prevention methods

**Background:** In the early years of studies on microbicides, social scientists were focused on acceptability of the attributes of the products, while clinical researchers were focused on proving efficacy rather than on effectiveness outside of the clinic setting, where dynamics of variable use would be at play. In addition, there was the strong belief that microbicides would be female-controlled and able to be used clandestinely; thus, there was little attention to the role of male partners or the dynamics of decision making about sexual practices. To address these gaps that would affect women's ability to sustain use of a product over months or years, this study integrated qualitative and quantitative data collection methods in a longitudinal study of microbicide acceptability among married men and women in Pune, India.

**Aims:** The overall objectives of the study were to:

1) Identify and describe factors that enable individuals and couples to use microbicides consistently and long-term
2) Account for the effects of clinical trial and acceptability research participation on microbicide use, including motivations for joining the trial and the importance of counseling and support provided by study staff in maintaining product use

**Theory or approach used:** The researchers developed a conceptual model that was informed by the AIDS Risk Reduction Model and constructs drawn from other theories, including sexual power and couple harmony.




**Methods**:

Formative Stage: Qualitative

- During the first phase of data collection, two to three in-depth interviews were conducted with 30 women (15 women at high risk of HIV because a husband was HIV-positive or they or their partner had a history of sexually transmitted infections, and 15 women at low or unknown risk) and 15 husbands. Interviews focused on key concepts believed to influence risk-reduction behaviors, including: HIV risk perception, self-efficacy, couple harmony, and sexual communication. In-depth interview data were used to identify individual, couple-related or environmental domains likely to influence microbicide use. Textual data provided the basis for construction of approximately 130 draft items for a later structured survey representing HIV risk perception, couple harmony and sexual power and control.
- During a second formative phase, the face and content validity of the domains and items were assessed through cognitive interviews with 16 women and 8 men, followed by a review by a panel of 12 US and South Asian experts in sexual and reproductive health issues.

Formative Stage: Quantitative

- Finally, the revised domains and items were then included in a structured survey instrument and administered to 305 women and 151 husbands. The items were factor analyzed using exploratory factor analysis procedures. Resulting factors were further assessed for construct validity by examining associations with other theoretical variables, identified a priori and included in the scale survey. The formative research produced scales measuring couple harmony, perceived partner infidelity and protection efficacy.

Assessment Stage: Mixed Method

- Once the acceptability scales were developed, they were used in a longitudinal study of microbicide acceptability. The acceptability study enrolled 100 women who were concurrently participating in a clinical trial to assess the safety of a microbicide gel; 100 non-participating women and 103 male partners (evenly distributed between the clinical trial and non-clinical trial cohorts) were also enrolled. Participants were asked to respond to structured questions at baseline and during follow-up visits scheduled at 8, 16, and 24 weeks, or until discontinuation. A small cohort of couples also participated in qualitative interviews conducted at 12 and 20 weeks after joining the study. The study identified important differences between women and their partners who joined and did not join the clinical trial. It also found that condom use, but not gel use, was predicted by couple harmony.

**Contributions of the methodological approach:** The mixed method approach to this study provided valuable insight into factors associated with microbicide acceptability and use. The scales produced through the project have been used in other contexts and further validate the utility of this approach to better measure difficult or nuanced cultural concepts.

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**Key study staff:** FHI 360: Elizabeth Tolley, Sharon Tsui; National AIDS Research Institute: Sanjay Mehendale, Rewa Malhotra-Kohli

**4 Study:** Market Assessment and Ideation for New Contraceptive Technology

**Countries:** Kenya and India

**Topic**: Concept generation for next generation contraceptive technologies

**Background:** Despite advances that have made a range of contraceptive methods available to populations, at least one in ten women globally have an unmet need for contraception – meaning that they are not using any contraceptive method despite wanting to delay or limit any future childbearing (United Nations 2015). Reasons for contraceptive non-use vary to some extent at regional and sub-national levels. However, in general, the most frequently cited barriers to effective use of contraception globally include concerns about contraceptive side effects, opposition from male partners or others, or perceptions that contraception is unnecessary due to breastfeeding or sub-fecundity (Sedge and Hussain 2014). Furthermore, contraceptive access and use may be highly variable within various country settings and for specific populations (United Nations 2015). As a goal of the London Summit on Family Planning held in 2012, the international community pledged to increase contraceptive use by an additional 120 million women and girls by the year 2020 (FP2020 website). Consistent with this goal, the Family Planning program at the Bill & Melinda Gates Foundation has recently made a strategic decision to further stimulate the development of ground-breaking, "disruptive" contraceptive technologies that address the unmet needs of women in developing countries. Disruptive technologies are those that create a new market or a new set of values, much like the invention of personal computers ultimately disrupted the traditional mainframe culture. In support of this strategy the Foundation has partnered with FHI 360, a design & innovation agency (TBC) and a social innovation consultant, Pabla van Heck, as project manager, to conduct a market assessment and host ideation events in two countries, Kenya and India, chosen because they represent diverse geographic, sociocultural and economic settings within which contraceptive methods are used.

**Aims:** The overall objectives of the study were to:

1) Identify unmet product needs and develop (audio-)visual and written materials that generate empathy with the end-user, their context and challenges with contraceptive use (stage 1)
2) Co-create new product ideas with the representative target groups (stage 1)
3) Generate and refine these (and additional) product concepts with a diverse group of global and local contraceptive technology experts, representing clinical, R&D (pharma/tech) and market knowledge (stage 2).

**Theory or approach used:** While the idea of placing prospective users at the center of the design process has been around for decades, the HCD movement has developed a unique framework to describe the processes. Three main phases of design include: 1) inquiry; 2) ideation; and 3) implementation. The specific terminology used by individual design firms differs; most HCD approaches emphasize use of participatory methods, a focus on the emotional triggers for behavior, as well as rapid iterations of data collection, development and testing prior to reaching a final design solution.

**Methods**: The project included two sets of activities, including 1) in-country market assessments and 2) ideation events.

1) The market assessments were conducted by three multidisciplinary teams; each team focused on a different target group – adolescent & young women, women in their late 20s and 30s, and women who might be limiting childbearing, in their 30s and older. Each team engaged a wide range of women, partners and other stakeholders in scheduled and intercept interviews or group discussions. Discussions were facilitated by use of card sorting, product encounters, journey mapping and co-

creational activities. Data from these activities were rapidly "down-loaded" into word documents or excel spreadsheets. Contexts were documented through photographs and videos.

2) A 3-4-day Ideation Event was held within 5-8 weeks after the end of each market assessment, during which a multidisciplinary group of 50-75 participants familiarized themselves with end-user challenges to contraceptive use and developed new "blue-sky" concepts that could be pursued in future product development ventures. The information gathered during the assessments was used as inspiration to stimulate the generation of end-user, insight-driven propositions. In each country, participants represented various sectors, including global pharmaceutical/medical device companies, tech start-ups, local public health programs, private service providers and international procurement agencies, among others.

**Contributions of the methodological approach:** The market assessment generated rich "collateral", including short video clips, posters, booklets and other materials that were used by the Ideation Event participants to come up with concepts for next generation contraceptive technologies. Design considerations for the concepts were based in needs and preferences of users, rather than technology driven criteria which may lead to the pursuit of new, out-of-the-box approaches.

**Citations:** Several dissemination formats are being discussed. They include:

- Side deck presenting project objectives and approach, key insights from the market assessment synthesized across two country settings, and description of opportunity areas for contraceptive development with illustrative concepts
- Process deck describing overall process used to arrive at concepts, including some reflection from SBR and HCD team members about what worked and didn't
- A microsite that stores all country-specific and synthesized materials
- A long-form report that can be shared electronically or in hard copy

**Key study staff:** FHI 360: Elizabeth Tolley, Heather Vahdat, Anna Lawton; Quicksand: Babitha George, Neha Singh, Selvan Thandapani, Rikta Krishnaswamy, Oshin Siao Bhatt; Independent Consultant: Pabla van Heck

**Suggested Citation:** Tolley, EB. (2017). Traditional Socio-Behavioral Research And Human-Centered Design: Similarities, Unique Contributions and Synergies.