HCD EXCHANGE

Generating and Using Insights in ASRH Programs: The Role of Human-Centered Design (HCD)

A Landscape Analysis: Report 1
May 2022

HCD EXCHANGE

Since 2020, the HCDExchange has worked to advance learning and practice related to the integration of human-centered design and adolescent sexual and reproductive health (HCD+ASRH). We are a Community of Practice that brings together young people, program implementers, designers, evaluators and funders. It is our collective mission to uncover, drive and share learning in this emergent area of global health programming and address sexual and reproductive health needs and fulfill rights in low-resource settings.

JSI Research & Training Institute, Inc. (JSI) and inSupply Health are the grantholders. JSI is a global health consulting and research organization dedicated to advancing health equity and improving the health of individuals and communities. inSupply Health is a JSI affiliate based in East Africa. inSupply designs people-centered, scalable, sustainable health solutions.

Contents

Foreword

This landscape analysis report is part of a series of learning products completed during the first phase of HCDExchange (2020–2022). It focuses on the experience of generating adolescent insights in HCD+ASRH programming and applying them in developing SRH solutions and improving SRH outcomes. Findings are based on a selection of projects implemented in sub-Saharan Africa and South Asia from 2015 to 2022. The landscape analysis is intended to fill a gap in documentation and curated learning on the application of HCD to ASRH to guide practice and future investment.

Acknowledgments

Acronyms

ASRH   Adolescent Sexual and Reproductive Health

AYSRH   Adolescent and Youth Sexual and Reproductive Health

A360   Adolescents 360

HCD   Human-Centered Design

HCD+ASRH   Human-Centered Design in Adolescent Sexual and Reproductive Health

IPPF   International Planned Parenthood Federation

LMIC   Low and Middle Income Countries

MIC   Middle Income Countries

MSI   Marie Stopes International

SSA   sub-Saharan Africa

SA   South Asia

SRH   Sexual and Reproductive Health

UNICEF   United Nations Children's Fund

WHO   World Health Organization

NGO   Non-Governmental Organization

A Glossary of Terms can be found in Annex 1.

Executive Summary

Introduction

The integration of human-centered design (HCD) in global health practice is an emerging area of exploration and learning. To advance learning on the application of HCD in adolescent sexual reproductive health (HCD+ASRH), the HCDExchange conducted a landscape analysis examining the generation and use of adolescent insights through HCD. The landscape analysis focuses on HCD+ASRH programs and experiences in sub-Saharan Africa and South Asia. The results of this analysis are presented in two complementary reports. This report, Report 1, addresses the purpose and process of generating and applying adolescent insights through HCD in the context of ASRH programming. It also discusses the value of using an HCD approach, and briefly illustrates solutions that have emerged from HCD+ASRH programs in the last ten years. **Report 2** illustrates and discusses the types of insights generated in HCD+ASRH programs reviewed in this landscape analysis, categorizing them as insights related to adolescent needs, desires and preferences.

For the purposes of this report, **an adolescent** is defined as any person between ages 10 to 19 years. Documents also refer to youth, or persons aged 15 to 24 years and the term 'young people' combines the adolescent and youth age groups to include persons aged 10 to 24 years (World Health Organization, 2006). **Insights** refer to information that helps ASRH practitioners and designers gain a detailed and personal understanding of the target population.

Process and Methodology

Four learning questions were used to guide data collection and analysis:

1. How does the generation and use of adolescent insights take place in the HCD process and what kinds of insights emerge at each stage of the process?

2. What ASRH design solutions worked and in which context? How have adolescent insights been used to improve ASRH design solutions?

3. What kinds of adolescent insights have been gleaned over the last ten years and how have they been used to guide HCD+ASRH programming?

4. How do adolescent insights compare across settings (region/country), gender, age and marital status?

Researchers conducted a rapid review of published and gray literature including 28 documents that met the review criteria. They drew mainly on the experience of 11 interventions and experiences in 11 countries in sub-Saharan Africa and South Asia. Limitations included lack of available written material that we attribute to the nascent stage of HCD+ASRH programming, as well as the lack of consistent and agreed terminology to describe and study the practice of insights generation in HCD+ASRH. We also observed some institutional hesitancy to share details around the methods and results of design research and adolescent insights generation, and the contribution of insights generation to ASRH interventions and outcomes.

Insights generation and use

Insights generation in HCD: The process of generating insights is not a discrete step in the application of HCD. Rather, HCD is often described as a continuous learning approach that integrates both the generation and use of insights throughout each stage of the process (Itad, 2017). Implementers and designers reported that they generated adolescent insights at different stages of the program cycle for different purposes. Adolescent insights generated in the early stages of the HCD process (inspiration and ideation) tend to focus on the user's journey, mindset, decision-making ability, socio-cultural norms, intrinsic and extrinsic motivations as well as barriers to accessing ASRH services and products (Atchison et al, 2018). At the prototyping[1] and testing phases, insights generated help design teams gain a better understanding of the user or target group

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1 Prototyping is the process of simulating experiences around proposed solutions to explore how people engage in them.

in the context of the solution by identifying their priorities, the solution's advantages and disadvantages, and any potential barriers to accessing and using the solution that the adolescent might face within their context (Cole and Mehta, 2018). At the implementation phase, insights together with monitoring data, user feedback and program learnings are gathered to keep evolving the solution to make it increasingly relevant for the target group (Newport et al., 2019).

HCD mindsets and principles in insight generation: Four key HCD mindsets and principles shape the insights generation process.

Empathy: Insights generation through HCD allows practitioners to gain empathy for the end user (Cole, Cutherell, and Phillips, 2020; Itad 2017; IDEO, n.d.). Empathy as a core design mindset goes beyond the inspiration phase to enrich other design phases. Designers apply HCD techniques and tools that enable them to empathize with the user's needs and desires which in turn helps them create meaningful solutions.

Iteration: Iteration is core to the design process and is informed by the mindset of learning and failing fast (Itad, 2017; Sutton, 2018). Beyond the formative stages of the design process, designers continuously generate insights by seeking feedback from users through rapid prototyping[2] to iterate and refine the design of a solution. They may also employ iterative learning at the implementation phase to assess community responses to a solution to check for viability and feasibility (USAID et al., n.d.; Itad, 2017).

Immersion: Use of immersive techniques help program designers to place themselves in the users' context and to understand their experiences.

Act of making: A making mindset is defined as the act of creating a solution 'so that it can be communicated to others' in a way that helps them test and evaluate the idea to make it better (IDEO, n.d.). Designers employ the mindset of 'making' when creating tools and prototypes to generate and refine insights and inform solutions.

The role of insights across the HCD process: Programs reviewed in this landscape provided numerous examples of how insights are used throughout the HCD process. During the inspiration phase, designers

set out to frame problems and understand challenges and opportunities based on adolescent lived experience. They use insights to frame or reframe program objectives and identify and understand specific target groups. At the ideation stage, insights are framed to help conceptualize early-stage (e.g. low-fidelity) prototypes (Itad, 2017). More specifically, designers and program managers use insights in the ideation phase to develop the value proposition, concept and strategy of a solution, and to develop ideation tools that capture diversity across adolescents along with user journeys. At the prototyping and testing stage, solutions are refined through constant feedback and iteration, moving from low-fidelity to high-fidelity prototypes. Insights are generated through testing of prototypes to iterate and refine solutions. Insights are also used as indicators to understand if a solution is desirable, viable and feasible. At the implementation phase in the HCD process, design solutions are rolled out in the context of a larger project or program. Program implementers may then choose to pilot solutions, and use insights from the pilot to adapt the solutions further, depending on how adolescents and their communities receive them.

Case examples of ASRH solutions generated through HCD: The process of generating insights and deriving solutions from insights is not linear or streamlined. Among the programs reviewed, we found little evidence of direct links between one insight and one solution. Rather, insights generation offers a process and a foundation for solution framing and development that evolves over time. The report presents examples of HCD-generated insights and ASRH solutions that emerged to illustrate the holistic use of insights in the context of HCD+ASRH programming. The list of solutions included in the report are:

- Smart Start in Ethiopia
- Kuwa Mjanja in Tanzania
- Matasa Matan Arewa in Northern Nigeria
- 9ja Girls in Southern Nigeria
- Future Fab in Kenya
- Beyond Bias in Burkina Faso, Pakistan and Tanzania; and
- Project Imagine in Niger and Bangladesh.

Value of HCD-generated insights

HCD was found to add value in the process of insight generation and use in ASRH programming in four ways:

- HCD takes a whole person approach when generating insights to develop solutions that are aligned to user needs and desires.

- HCD frames insights in a way that promotes the ideation of solutions.

- HCD-generated insights are directly applicable to the solution, particularly at the prototyping and testing phases since they are generated in the context of the solution itself.

- HCD-generated insights uncover learnings that define the 'how' of a solution in the context of the adolescents' life and environment.

Conclusions

The generation and use of adolescent insights lies at the heart of HCD and shapes its role in advancing ASRH outcomes and rights. In exploring the HCD principles that guide insights generation and use, this landscape analysis begins to explain how and why HCD adds value to ASRH programming. Detailed documentation of a range of projects and project design processes illustrate and analyze the journey of insights at different stages of the HCD process. Brief observations and suggested areas for further research and exploration in the integration of HCD+ASRH programming are found below.

Key observations

The value of HCD lies in how insights are framed

The role of HCD in generating novel insights about adolescents' experience with and perceptions of SRH and health services varies across the programs reviewed for this landscape analysis. The evidence suggests that HCD-generated insights may not always uncover 'new' knowledge about adolescents' SRH challenges. However, HCD adds value in framing these insights as themes, journey maps, personas and opportunity areas (e.g., posing the question: 'How might we?') that builds

empathy for adolescents. These insights increase practitioners' ability to view ASRH challenges from the perspective of the adolescents' SRH needs, desires and preferences, and to understand how SRH needs relate to adolescents' personal and societal aspirations, as they move into adulthood. This approach to understanding adolescents in context, and this framing of needs and desires provides a holistic picture of the adolescents' world, and opportunities to build with them potential solutions that are relevant and appealing.

HCD insights are highly contextualized

A challenge inherent in HCD processes is that insights, and the solutions they inspire, can be highly contextualized. HCD is often used to develop solutions for a specific context or a particular program, or to understand a specific user journey, which may limit the relevance of the solution in other settings and for other populations. However, as the body of HCD-generated insights grows, program managers are finding common insights themes across settings and groups that can be validated and refined for new programs, reducing the time needed to invest in a full insights-generation process.

Insights generation goes hand in hand with insight use

We found key differences in the way that insights are understood in the broader ASRH field compared to how they are understood and applied among HCD+ASRH practitioners. Similar to HCD processes, approaches to insights generation in the ASRH field focus on gathering information about the target population to define key perceptions, experiences and influences related to known SRH challenges in a specific context. In HCD, insights generation goes a step further to simultaneously develop solutions to address problems. An expert respondent noted that the way in which insights are framed in HCD makes the process particularly suitable for solution ideation. It inspires teams to think creatively within the boundaries of an adolescent's life. Thus, insights generation goes hand in hand with insight use. As practitioners go through the HCD process, their understanding of the user increases and becomes increasingly solution-fo-

cused. At the prototyping/testing phases, the process of insight generation and use happens synchronously through iteration and refinement of solutions to reach high-fidelity options to be integrated in the overall program.

Grounding and explaining HCD principles and mindsets

This landscape analysis confirms that HCD principles and mindsets, such as empathy and iteration, inform the generation of insights and their use in defining solutions that are appealing to adolescents as well as being contextually relevant and feasible. However, reports that speak about the value of design do not explain how design principles and mindsets drive this process. Without defining the pathways from creative processes that inspire empathy to the progressive refinement of solutions, we can only report on the perceived value of HCD from the perspective of those who have worked alongside designers and in HCD+ASRH programs. The potential for continued integration of HCD into program design requires a clear statement about why design works, supported by systematic documentation of the link between HCD and effective intervention design. As noted by Itad (2017) and confirmed in this landscape analysis, HCD principles and mindsets have the potential to help program teams develop robust ASRH products provided that there is an effort to explore and explain their usage further.

Areas for future research and exploration

The landscape analysis serves as a starting point for understanding the generation and use of adolescent insights within the context of HCD+ASRH programming. Additional areas for exploration and learning include:

Documenting insights throughout the HCD process

To continue to improve understanding of HCD insights generation and use, and their link to ASRH solutions and outcomes, there is a need to document the HCD process at all stages. We found more evidence of the kinds of insights generated in the inspiration phase than insights captured and used in the ideation and implementation phases. Insights generated in the later stages of the HCD process were solution specific, often related to preferences that informed the selection of high-fidelity prototypes. The kinds of insights generated to help prioritize solutions or eliminate competing solutions were often missing from documents and artifacts. Greater attention is needed to documenting, in detail, the design process, the learning that emerges and the rationale for solution-related choices.

Defining and using HCD mindsets and principles

This analysis notes that ASRH practitioners may not have a consistent understanding of HCD mindsets and principles and their purpose in the HCD process. This inconsistency relates to 1) use of different terminology to explain HCD and the stages of HCD; 2) lack of evidence on how design principles and mindsets are applied and for what purpose at different HCD phases and 3) the abstract nature of design-related concepts such as empathy, informed intuition, and being open (Itad, 2017). HCD+ASRH practitioners are expected to use these mindsets and apply them to the development of solutions. They also need to explain their purpose and value to program stakeholders and collaborators. Developing a shared nomenclature around HCD would help practitioners integrate HCD effectively into program design and implementation. Streamlining terminology will also support consistent documentation or evaluation of HCD+ASRH programs to increase the evidence base.

Building knowledge and alignment around HCD+ASRH

There is limited published material on the effectiveness of HCD or the value of adolescent insights generation in the context of HCD-influenced programming (Atchison and Mulhern, 2017; Murithi et al, 2021). Although the body of evidence on the role of HCD in ASRH programming is growing (Punton and Wallach, 2021), the lack of criteria for what constitutes effective design makes it difficult to evaluate its contribution and its limitations. Recent efforts to define success and the pathways that link HCD to health solutions and outcomes encourage practitioners to conduct additional research to guide future programming (LaFond and Cherney, 2021).

Introduction

The integration of human-centered design (HCD) into global health practice is an emerging area of exploration and learning. To advance learning related to the application of HCD in adolescent sexual reproductive health (HCD+ASRH), the HCDExchange conducted a landscape analysis examining **the generation and use of adolescent insights through HCD**. Members of the HCDExchange Community of Practice identified this topic as a key learning domain for increasing awareness and improving understanding of the role of HCD in advancing ASRH programming and outcomes.

The aim of the landscape analysis is to review, curate and share lessons from recent HCD+ASRH programming experience to better understand how HCD is used to generate and apply adolescent insights in ASRH programming. It focuses on experiences in sub-Saharan Africa and South Asia, capturing, where feasible, early-stage investment in this approach to ASRH programming.

The introduction of HCD into ASRH programming reflects program managers' and funders' assumptions of the value of taking a holistic, people-centric approach to ASRH. Through the application of HCD approaches, managers and funders aim to integrate the lived and shared experience of youth into program design and develop a comprehensive understanding and appreciation of young people's needs and desires related to health services and products (LaFond and Cherney, 2021).

HCD-generated insights from youth and their communities are intended to help drive improvement in service uptake and behaviors that promote SRH and wellbeing. Significant investments in HCD+ASRH programs in the past eight years have generated a large body of "insights" evidence on youth attitudes, motivations and behaviors related to SRH (Johnson, Sandhu, and Tyler, 2019).

This landscape analysis is presented in two complementary reports which frame and illustrate the topic.

This report, **Report 1**, addresses the purpose and process of generating and applying adolescent insights through HCD in ASRH programming. It discusses the journey of insights generation and use and the value of using an HCD approach from the perspective of practitioners and funders. It also illustrates briefly solutions that have emerged from HCD+ASRH programs.

Report 2 focuses on the types of insights generated in HCD+ASRH programs reviewed in this landscape analysis. Report 2 categorizes them as insights related to adolescent needs and mindsets, desires and preferences. It provides examples of the kinds of insights that emerged from HCD+ASRH programming, and discusses common themes and relevance to practitioners and funders.

This report begins with definitions of adolescents and HCD-generated insights to frame the discussion. It then presents the objectives of the landscape analysis as well as methods and limitations. Findings are presented in two parts: description and analysis of the generation and use of adolescent insights using HCD; and perceptions of the value of HCD-generated insights. The report concludes with a summary of learning related to the generation and use of adolescent insights with HCD and a short discussion of implications for future programming, investment and research.

How are 'adolescents' and 'insights' defined in HCD+ASRH?

AN ADOLESCENT is defined as any person between ages 10 to 19 years. Written documents also refer to youth, or persons aged 15 to 24 years and the term 'young people' combines the adolescent and youth age groups to include persons aged 10 to 24 years (World Health Organization, 2006). For the purpose of this document, we focus on adolescents as defined above unless we specify different age groups in the discussion.

INSIGHTS, as defined in documents and by interview respondents, refer to information that helps ASRH practitioners and designers gain a detailed and personal understanding of the target population. These are often categorized as adolescent needs, aspirations, desires and preferences. Practitioners highlighted that insights generated through HCD are often expected to introduce new, user-centered framing of a problem or an experience that will add value to the program.

Perceptions and definitions of insights

"*Insights are pieces of information that allow for new ways of looking at a problem and new understandings about the population we're trying to reach. It is information that is gathered through talking with that population, and then really listening to them, and trying to get beneath the surface sometimes of what is actually being said to what's driving behavior and action."*
- Technical Advisor, Ethiopia

"*Learnings that capture adolescent needs, experiences, attitudes around SRH and ASRH programs."*
- Research and Evaluation Lead, South Africa

"*An insight in HCD needs to be rooted in people's lives and lived experiences. It is something that brings the user voice to the forefront, and is actionable... I think in the HCD context an insight should seek to inspire action."*
- Designer, India

Learning objectives for the landscape analysis

→ Document adolescent insights from HCD+ASRH projects in sub-Saharan Africa and South Asia and the processes and approaches used to generate and apply insights.

→ Identify common themes and learnings, and compare learning across different stakeholders and geographies.

Learning Questions

1. How does the generation and use of adolescent insights take place in the HCD process and what kinds of insights emerge at each stage of the process?

2. What ASRH design solutions worked and in which context? How have adolescent insights been used to improve ASRH design solutions?

3. What kinds of adolescent insights have been gleaned over the last ten years and how have they been used to guide HCD+ASRH programming?

4. How do adolescent insights compare across settings (region/country), gender, age and marital status?
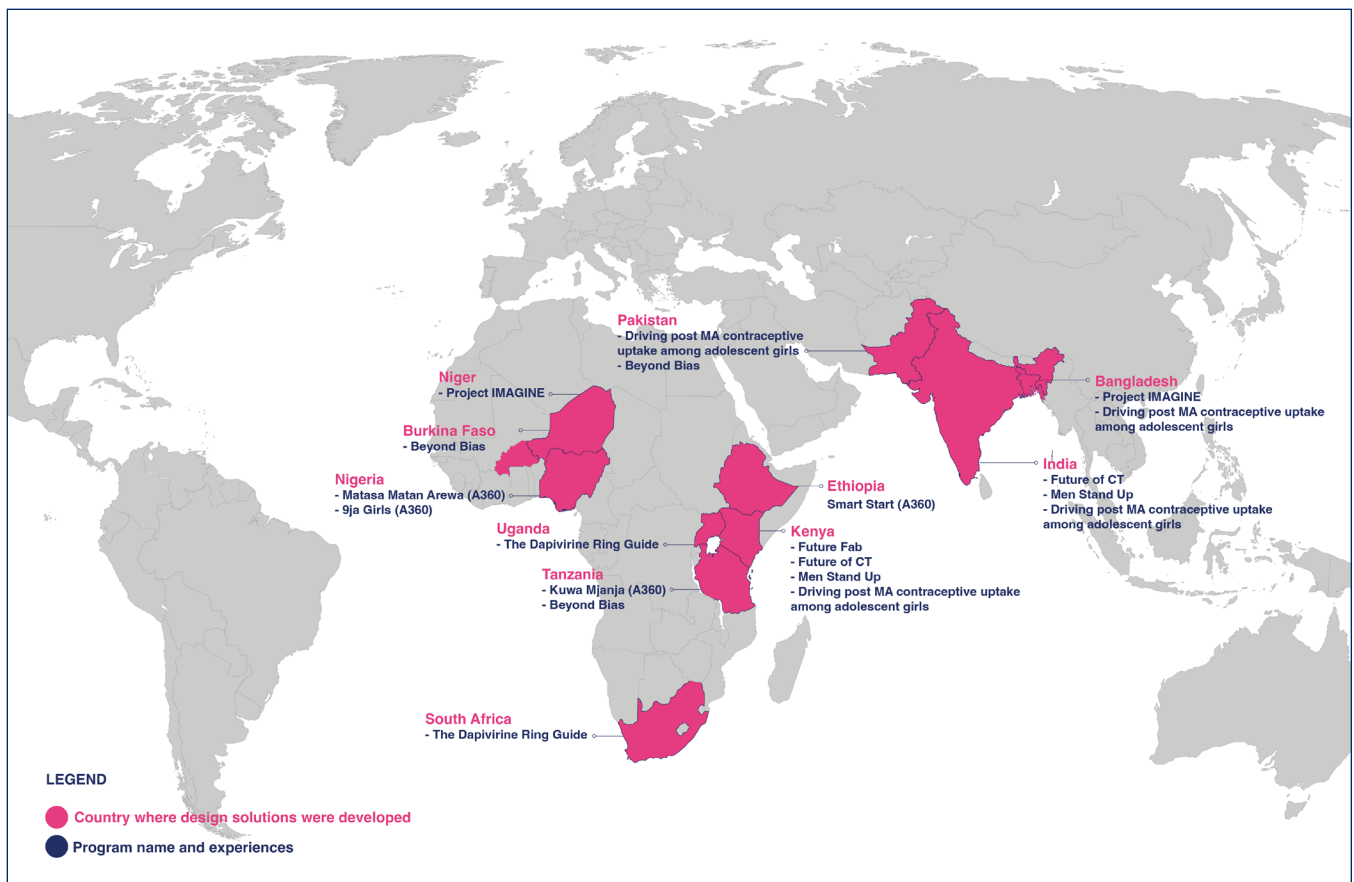
Methods

This landscape analysis took place over a period of four months and applied qualitative research methods to gather evidence from primary and secondary data sources. We conducted a rapid review of 28 documents available in the public domain and curated them to inform the analysis. We conducted 11 interviews with health and design practitioners, and program managers currently working in HCD+ASRH programs, focusing on key programs and insights generation experience to supplement information provided from secondary data.

The majority of written evidence in this review was sourced from publicly available program documents emanating from large multi-country programs, and primarily from anglophone countries in sub-Saharan Africa. Recognizing the geographic and linguistic limitations of the sources, we conducted a focused search for written material specific to HCD+ASRH in francophone Africa. We incorporated the few available materials identified into our review.

Thematic content analysis was carried out to synthesize and distill information presented in this report. Across the documents and experts consulted, we drew on 11 interventions and experiences in the following countries: Kenya, Nigeria, Ethiopia, Tanzania, Uganda, South Africa, Niger, India, Pakistan, Bangladesh and Burkina Faso (Figure 1).

Figure 1: HCD+ASRH interventions and experiences reviewed by country

Pakistan
- Driving post MA contraceptive uptake among adolescent girls
- Beyond Bias

Niger
- Project IMAGINE

Burkina Faso
- Beyond Bias

Nigeria
- Matasa Matan Arewa (A360)
- 9ja Girls (A360)

Uganda
- The Dapivirine Ring Guide

Tanzania
- Kuwa Mjanja (A360)
- Beyond Bias

Ethiopia
Smart Start (A360)

Kenya
- Future Fab
- Future of CT
- Men Stand Up
- Driving post MA contraceptive uptake among adolescent girls

Bangladesh
- Project IMAGINE
- Driving post MA contraceptive uptake among adolescent girls

India
- Future of CT
- Men Stand Up
- Driving post MA contraceptive uptake among adolescent girls

South Africa
- The Dapivirine Ring Guide

LEGEND

● Country where design solutions were developed

● Program name and experiences

Rapid review process

The rapid review (Figure 2) was carried out over a period of five weeks, beginning in February 2021 and ending in March 2021. Using WHO guidance[2] on Rapid Reviews, the team refined learning questions to narrow the scope of the literature search, applying the FINER criteria.[3] Next, the research team used search terms[4] to identify evidence using online search engines (including PubMed, EMBASE and Google Scholar). HCD+ASRH program websites and a research advisory service at JSI were also accessed to identify additional publications and documents on HCD+ASRH programming.
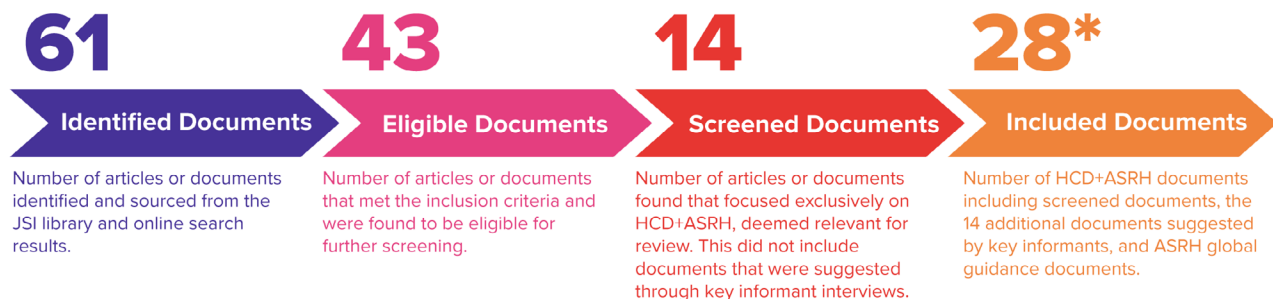
Figure 2: Rapid review process

STEPS FOR THE RAPID REVIEW PROCESS

1 → **2** → **3** → **4** → **5** → **6** → **7** → **8** → **9**

1. Refined focus
2. Established rapid review team
3. Set search limits
4. Noted design limitations
5. Conducted interviews
6. Documented search results
7. Appraised search results
8. Synthesized information
9. Developed out brief

The initial search produced 61 documents and the research team collated them to facilitate selection and review (Figure 3). The team applied pre-defined inclusion criteria to select the documents for review. Criteria included the population of interest, interventions developed, geographical setting and outcomes of interest (Annex 2), resulting in 43 eligible documents. We then applied a rigorous critical appraisal process to ensure relevance to the topic area (intersection of HCD+ASRH) and the learning questions resulting in 14 documents. Two team members appraised each document to ensure alignment with the inclusion criteria and learning questions. The research team added 14 additional documents to the literature review based on recommendations from key informants. A total of 28 documents were reviewed for the landscape analysis.

Figure 3: Rapid review document screening and selection

61 **Identified Documents**
Number of articles or documents identified and sourced from the JSI library and online search results.

43 **Eligible Documents**
Number of articles or documents that met the inclusion criteria and were found to be eligible for further screening.

14 **Screened Documents**
Number of articles or documents found that focused exclusively on HCD+ASRH, deemed relevant for review. This did not include documents that were suggested through key informant interviews.

28* **Included Documents**
Number of HCD+ASRH documents including screened documents, the 14 additional documents suggested by key informants, and ASRH global guidance documents.

*28 = 1 white paper l 2 global guidance documents l 10 journal articles l 15 program documents

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2   Tricco, A. C., Langlois, E. V, & Straus, S. E. (2017). Rapid Reviews to Strengthen Health Policy and Systems: A Practical Guide. https://apps.who.int/iris/bitstream/handle/10665/258698/9789241512763-eng.pdf;sequence=1

3   FINER criteria is used to refine broad research questions to make them focused and suitable for use in a simple, rapid review. FINER criteria for refinement check to see if the question is: Feasible, Interesting, Novel, Ethical and Relevant. For more on FINER criteria see: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6322175/#sec1-3title, Accessed in December, 2020.

4   A keyword search was done, applying a different combination of the following terms: "Human Centered Design" OR "Design" OR "HCD" AND "Adolescent Insights" AND "Adolescent Health" OR "Adolescent Sexual and Reproductive Health" OR "ASRH programs" OR "ASRH" OR "Adolescent rights" AND "youth program" OR "Youth engagement programs" OR "youth insights" AND "sub-Saharan Africa" OR "South Asia" OR "Global South."

From the final set of 14 documents, relevant textual and graphic information and excerpts were transferred and analyzed in Microsoft Excel. Information was then synthesized into brief summaries for each learning question. Finally, summaries from data extraction were used to refine the discussion questions used in interviews with practitioners and program managers.

Expert key informant interviews

Interviews with HCD+ASRH practitioners and program managers took place over a six-week period from April to May 2021. A purposive sampling strategy was applied to identify experts with experience in designing and implementing HCD+ASRH programs, particularly those who were involved with the projects we reviewed.
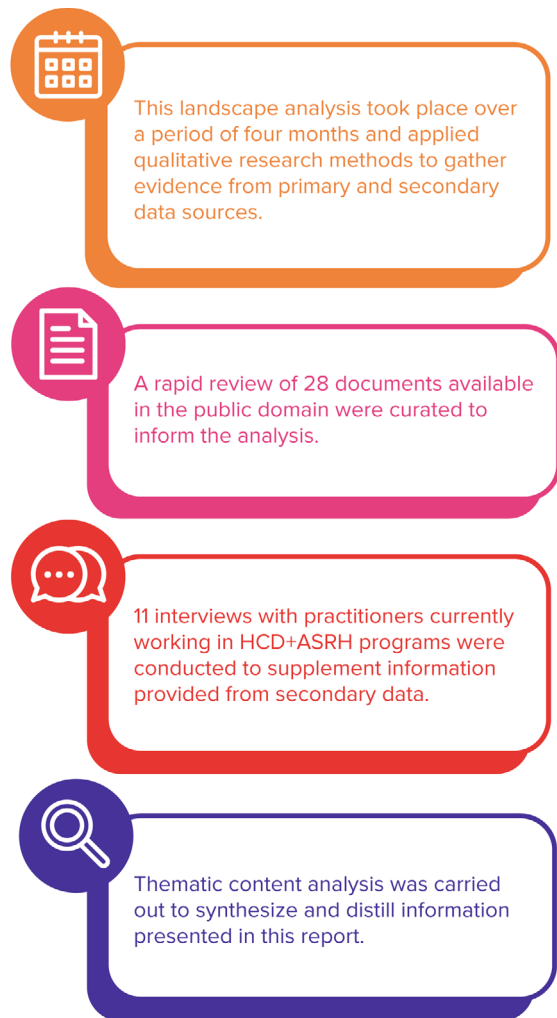
The HCDExchange Partner Database[5] served as the initial sampling frame to identify and recruit respondents. The research team then used snowball sampling to identify additional respondents that were not within the partner database (Suri, 2011).

A total of 11 interviews were conducted. Interview data from expert consultations was digitally recorded and transcribed using Otter.ai. A set of *a priori* thematic codes were applied to interview data and refined to include emerging themes from interview transcripts to complete the thematic analysis.

Figure 4: Methodology at a glance

This landscape analysis took place over a period of four months and applied qualitative research methods to gather evidence from primary and secondary data sources.

A rapid review of 28 documents available in the public domain were curated to inform the analysis.

11 interviews with practitioners currently working in HCD+ASRH programs were conducted to supplement information provided from secondary data.

Thematic content analysis was carried out to synthesize and distill information presented in this report.

Data synthesis

Data across the two sources (literature reviews and interviews) were triangulated noting frequencies of emerging themes, commonalities and differences in experience, as well as information gaps. Interviews helped augment reflections on learning and address information gaps identified during the literature review. The research team used the online Mural platform to synthesize the data across both sources (Figure 5).

Key learnings were extracted from the data that had been filtered by each learning question and placed onto the Mural board to allow the research team to gain a holistic view of the data.

Over the course of two synthesis workshops, the research team identified common themes, key take-aways and limitations related to each learning question.

Figure 5: Data analysis frame
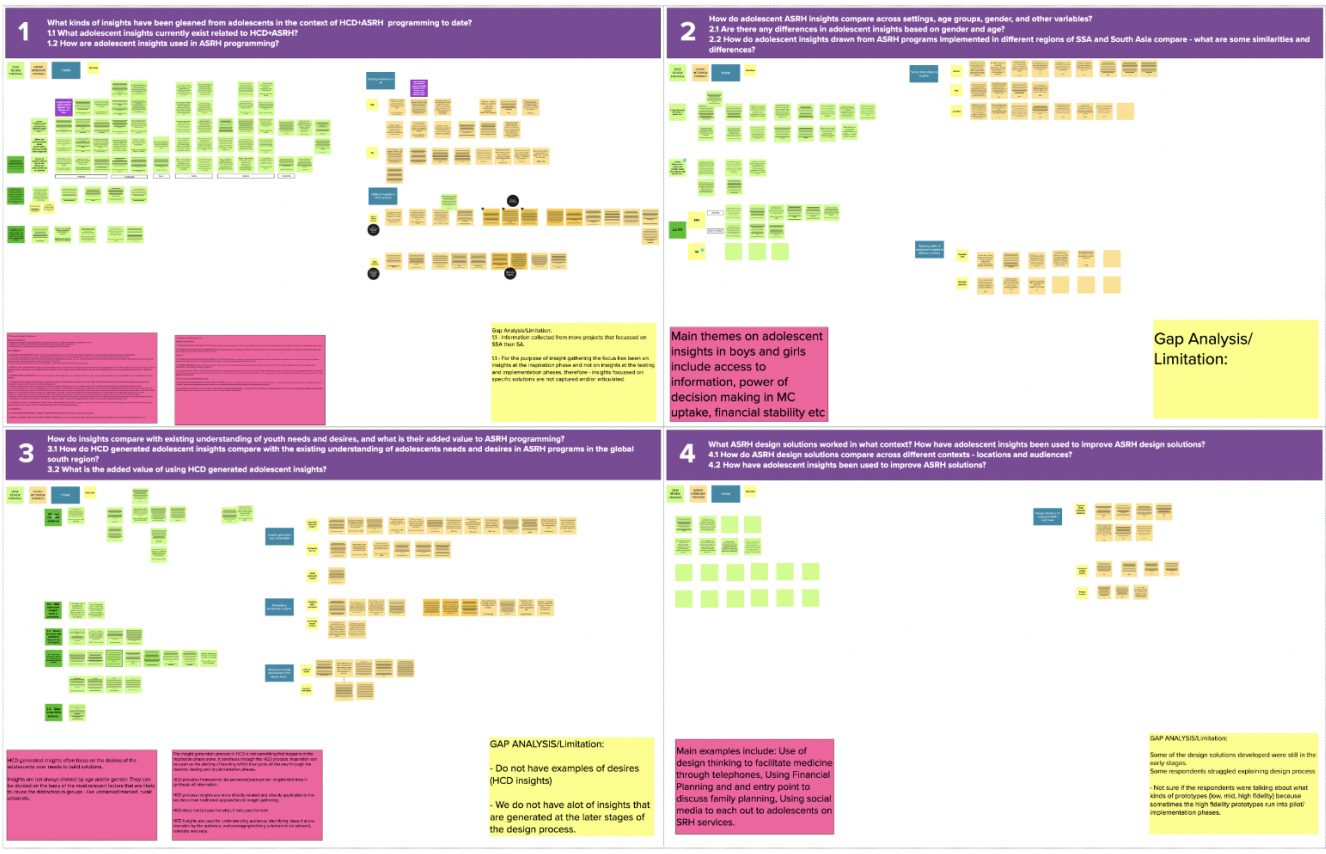
Limitations and mitigation

During the rapid review, we found limited and often incomplete documentation of HCD+ASRH programming. Written documentation on the learning related to the generation and use of adolescent insights in HCD+ASRH programming was also very limited. We attribute this limited availability of written documentation to the nascent stage of HCD+ASRH programming as well as the lack of consistent and agreed terminology to describe and study the practice of insights generation in HCD+ASRH.

We also observed some institutional hesitancy to share details around the methods and results of design research and adolescent insights generation, and the contribution of insight generation to ASRH interventions and outcomes. As noted previously, there were few written documents reflecting program experience in francophone Africa. In addition, the team could not fully address learning question four because written sources on insights did not consistently reflect variations with respect to geography, age, marital status and gender.

1. Insights generation and use in HCD+ASRH

The findings related to insights generation and use in this section:

- Describe the purpose and process of generating and using insights in HCD+ASRH programming.

- Discuss how HCD principles of empathy, iteration, immersion, and the act of making are applied in insights generation and use.

- Discuss the way in which insights are applied in HCD+ASRH programming.

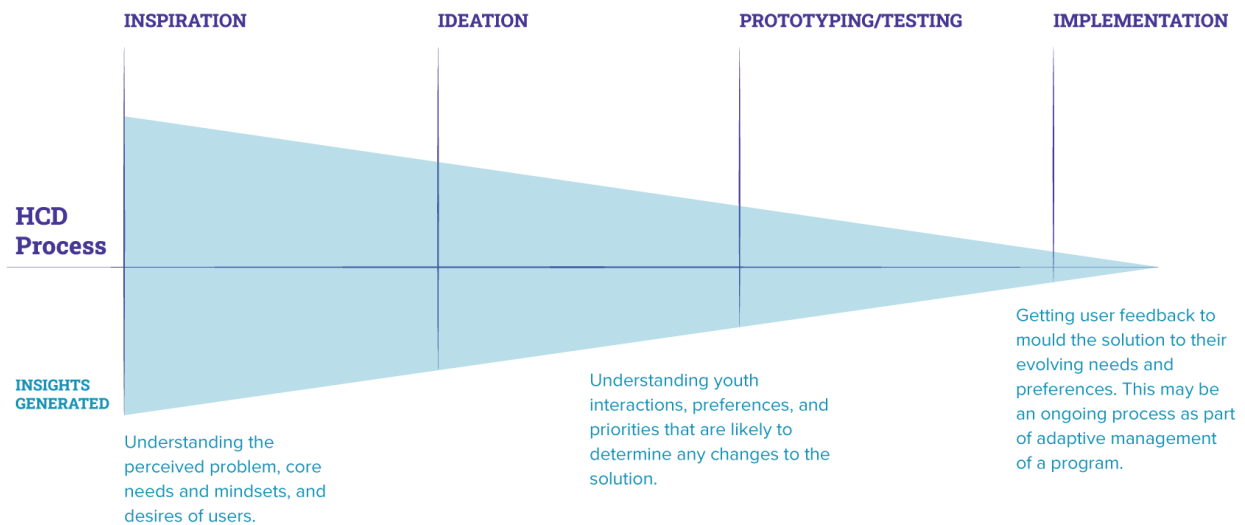- Provide case examples of ASRH design solutions generated through HCD.

1.1 Insight generation in HCD

The process of generating insights is not a discrete step in the application of HCD. Rather, HCD is often described as a continuous learning approach that integrates both the generation and use of insights throughout each stage of the process. It starts at the formative stage of the design process and continues across the program cycle, following the four stages of design (Itad, 2017). Among the programs reviewed, implementers and designers generated adolescent insights at different stages of the program cycle for different purposes. The focus of insight generation was defined based on the kind of information needed at different stages of programming (USAID, Pepfar, and Center for Accelerating Innovation and Impact, n.d.; Malakoff, Cutherell and

Coppola, 2021; Cutherell and Cole, 2019; Itad, 2017). This approach contrasts with formative research strategies used to define needs and engage program participants in traditional ASRH programming which is often limited to the initial stages of program planning. Figure 6 illustrates how adolescent insights are generated and utilized across the four design phases in HCD+ASRH programs: Inspiration; Ideation; Prototyping/Testing and Implementation.

Adolescent insights generated in the early stages of the HCD process (inspiration and ideation) tend to focus on the user's journey, mindset, decision-making ability, socio-cultural norms, intrinsic and extrinsic motivations,

Figure 6: Insights generation in HCD

INSPIRATION   IDEATION   PROTOTYPING/TESTING   IMPLEMENTATION

HCD Process

INSIGHTS GENERATED

Understanding the perceived problem, core needs and mindsets, and desires of users.

Understanding youth interactions, preferences, and priorities that are likely to determine any changes to the solution.

Getting user feedback to mould the solution to their evolving needs and preferences. This may be an ongoing process as part of adaptive management of a program.

as well as barriers to accessing ASRH services and products (Atchison et al, 2018; USAID et al., n.d; Choi, Pizatella-Haswell and Hope, 2017). At the prototyping and testing phases, insights generated typically help design teams gain a better understanding of the user or target group in the context of solutioning by identifying their priorities, the solution's advantages and disadvantages and any potential barriers to accessing

and using the solution that the adolescent might face within different settings (Cole and Mehta, 2018). At the implementation phase, insights together with monitoring data, user feedback and program learnings, are gathered to keep evolving the solution to make it increasingly relevant for the target group (Newport et al, 2019). An evaluator respondent reported their perceptions of the journey of insights generation:

" *Collecting insights in the initial phase in the design process can cover a lot broader ground [than insights collected at the later stages of the program cycle]. Whereas research and evaluation at the later stages [of the design process] generally tends to have more focused objectives."*

- Research and Evaluation Lead, South Africa

1.2 HCD mindsets and principles in insight generation

Documents and interview respondents noted that four key HCD mindsets and principles shape the insights generation process: **empathy, iteration, immersion** and the **act of making**.

| Empathy | Iteration | Immersion | Making |

HCD methods and tools used in the design of ASRH programs share similarities with those used in qualitative research (Itad, 2017). However, the application of HCD mindsets, such as empathy, optimism, iteration, creative confidence, making, embracing ambiguity and learning from failure, go beyond analysis to contribute directly to creating solutions that are desirable to the user (e.g., adolescents) (Itad, 2017; Bill & Melinda Gates Foundation, and USAID Center for innovation and impact., n.d.). Several respondents felt that in applying these mindsets and principles, HCD helps identify ways to contextualize an existing product or intervention to a setting or a user group; however others suggested that HCD can contribute to creating novel ASRH solutions for adolescents. All respondents strongly agreed

that where design thinking and HCD techniques were applied in ASRH solution development, there was a greater chance that users would find solutions to be desirable and acceptable.

A closer look at the four design mindsets in insight generation

Empathy

Published and program materials frequently reported that insights generation through HCD allows program planners and implementers to gain empathy for the end user (Cole, Cutherell, and Phillips, 2020; Itad 2017; IDEO, n.d.). Respondents corroborated the significant value of empathy as a core design mindset that goes beyond informing the inspiration phase to enrich other design phases. Designers apply HCD techniques that enable them to empathize with the underlying feelings, needs and desires of the user which helps them create meaningful solutions. In applying approaches such as 'ethnographic immersions' that place the practitioners in a position of empathy, the program team develops a deep and authentic understanding of an adolescent's world (Itad, 2017).

Inspiration: Empathy at the inspiration phase is "the foundation for the 'informed intuition' that is required

to identify opportunities and generate ideas to take advantage of these opportunities during the next phase" (Itad, 2017. p.42). Tools created to generate adolescent insights throughout the design process reflect the design mindset of empathy. Designers develop tools to reflect the cultural context and perceptions of the audience, and adjust the tools based on input from the field to improve their relevance for generating deep learnings and perspectives (Itad, 2017). Interview respondents noted that empathy as a mindset informs not only the inspiration phase but also other design phases.

Iteration

Iteration is core to the design process and is informed by the mindset of learning and failing fast (Itad, 2017; Sutton, 2018). The iteration mindset at the design phase distinguishes HCD+ASRH programs from those that do not use HCD (USAID et al., n.d.; A360, 2020; Bill & Melinda Gates Foundation and USAID Center for Innovation and Impact., n.d.). Beyond the formative stages of the design process, designers continuously generate insights by seeking feedback from users through rapid prototyping[6] to refine the design of a solution.

They may also employ iterative learning at the implementation phase to assess community responses to a solution to check for viability and feasibility. (USAID et al., n.d.; Itad, 2017) Respondents noted that the routine iteration of prototypes informed by adolescent feedback helps strengthen understanding of existing insights, and uncover new ones. Iteration in this context provides designers with alternative ways to learn more about adolescents in order to improve ASRH solutions.

> The A360 *9ja Girls* program in Southern Nigeria used an adaptive implementation approach to gather and use insights throughout the program cycle, applying the principle of iteration and learning continuously (Cole, Cutherell, and Phillips, 2020).

Immersion

Use of immersive techniques help program designers to place themselves in the user's context and perspective to understand their experience.

> The Future Fab program employed immersive techniques to refine understanding of the user (Marie Stopes Kenya, n.d.). For example, designers engaged in immersive activities including, "spending time with Kenyan girls (shopping, interviewing and hanging out as they went about their daily lives); talking to influencers and stakeholders — youth, parents, service providers, and community members; and prototyping materials in partnership with girls" (Marie Stopes Kenya, n.d. p.4). The Future Fab program report highlighted immersion as a 'best practice', as it provided a deep understanding of girls' outlooks on contraception, not just from the girls but also from the community (Marie Stopes Kenya, n.d.). To supplement qualitative methods like interviews and focus group discussions, respondents shared that designers spent time conducting active and passive observation to understand adolescents in their ecosystem (Marie Stopes Kenya, n.d.). Interview respondents also emphasized the use of unobtrusive observations as part of immersion in HCD.

Act of making

Respondents and written sources cited the benefits of adopting a 'making' mindset inherent in the HCD process. A making mindset is defined as the act of creating a solution 'so that it can be communicated to others' in a way that helps them test and evaluate the idea to make it better' (IDEO, n.d.). Designers employ the mindset of 'making' when creating tools and prototypes to generate and refine insights and inform solutions. They apply creative techniques and innovative tools such as scenario building, photo narratives and storytelling that drive the process of solution building (USAID et al., n.d.; Cole and Mehta, 2018). At the prototyping phase,

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6 Prototyping is the process of simulating experiences around proposed solutions to explore how people engage with them.

Figure 7: Sexual and Reproductive Health Gallery

Get hands on

Sexual and Reproductive Health Gallery

Design researchers prepared a gallery of sexual and feminine health products to pique curiosity and gauge preferences about sexual health decisions and preferences. Beyond getting people giggling, this interactive icebreaker uncovered valuable cultural perceptions, myths, and personal stories that shape the product landscape that the ring would enter.

Image sourced from 'The Dapivirine Ring Guide: Human-Centered Design to Increase Uptake and Use' (USAID et al, n.d.)

prototypes of solutions themselves become tools to solicit user feedback (USAID et al., n.d.) and refine potential solutions.

Examples of tools used to generate insights for developing and refining solutions include a *'Sexual and Reproductive Health Gallery'* (Figure 7) that made adolescents curious and uncovered preferences, myths and misconceptions about sexual health decisions and preferences (USAID et al., n.d.). The same report also mentions use of digital platforms such as WhatsApp to host safe spaces for adolescents and youth to engage with one another as peers (e.g. *Lady Talk WhatsApp Group*) and to test WhatsApp groups as a solution prototype (USAID et al., n.d.).

1.3 The role of insights across the HCD process

Programs reviewed in this landscape provided numerous examples of how insights are used throughout the HCD process. A brief description of the role of HCD-generated insights and application of insights is depicted in Figure 8.

Inspiration phase

During the inspiration phase, designers set out to frame problems and understand challenges and opportunities based on adolescent lived experience. They use insights to frame or reframe program objectives and identify and understand specific target groups. In the programs reviewed for this landscape analysis, designers and program managers used insights in the inspiration phase to:

→ **Understand and frame issues and experiences that are relevant to the user:** Insights enhanced understanding of adolescent needs, desires, motivations and mindsets (Itad, 2017). Information pertaining to adolescent ecosystems were used to identify potential triggers and barriers that may encourage or discourage uptake of potential solutions developed later in the process (Cole and Mehta, 2018; USAID et al., n.d.).

→ **Identify the target group(s) for the solution:** Insights generated at the inspiration phase helped to obtain a clear focus of who will be served by the solution (Atchison et al, 2018).

Ideation phase

At the ideation phase, insights are framed to help conceptualize early-stage (i.e., low-fidelity) prototypes (Itad, 2017). In the programs reviewed for this landscape analysis, designers and program managers used insights in the ideation phase to:

→ **Develop the value proposition, concept and strategy of a solution:** Insights were used to frame problem statements (i.e. designers use 'How might we?' statements) in order to "to systematically and creatively brainstorm ways in which the program might respond to insights that emerged from field research" (Cole and Mehta, 2018, p.7). Respondents noted that ideation workshops offered an opportunity to co-design with adolescents, during which insights were generated and used to inspire concepts and inform solutions.

→ **Develop ideation tools that capture diversity across adolescents:** Designers created user personas based on differences in user demographics, contexts and life stages (USAID et al., n.d.; Quicksand and FHI 360, 2018). One respondent noted that personas were created to ensure that adolescents were not seen as a single, homogenous group, and that nuances such as context and demographics are taken into consideration in the process of ideation and solution development.

→ **Develop ideation tools that capture user journeys:** Adolescent insights were used to create journey maps that define a relevant process or journey that the end user may adopt (USAID et al., n.d.; Quicksand and FHI 360, 2018). This includes choices around how to access services, obtain information, or learn about the features of a service such as quality. Journey maps highlighted touch points, motivations, barriers, decisions, and choices. In taking this approach, designers were able to note potential challenges for the adolescent, and provide opportunities for identifying alternative or supplemental interventions to address a specific gap at different points of the journey (USAID et al., n.d.).

Prototyping/Testing phase

During this phase, solutions are refined through constant feedback and iteration, moving from low-fidelity to high-fidelity prototypes. In the programs reviewed for this landscape analysis, designers and program managers used insights during prototyping to:

→ **Iterate and refine solutions:** As concepts are identified, designers create rough prototypes to quickly test ideas. Prototype development focuses on what needs to be learned from testing, and explores which aspects can provide vital information about the solution (IDEO, n.d.). In A360, insights were generated when adolescents interacted with prototypes and provided reactions, feedback and suggestions (Cole et al, 2020). In Marie Stopes International (MSI) projects, designers followed initial testing with additional iteration, refinement and solution building, until the solution was ready to be presented back to the users (Itad, 2017).

→ **Ensure that the solution is both desirable and feasible:** Respondents noted that when generating insights in the context of testing solutions, insights are measured against certain criteria which indicate the desirability, viability and feasibility of solutions.

As reported in the process evaluation of *The Hewlett Foundation's strategy to apply human-centered design to improve family planning and reproductive health services in sub-Saharan Africa,* design encouraged application of intentional and thoughtful approaches to generate and rapidly test a wide range of ideas around the specific design challenge. This helped identify which potential solutions were desirable and feasible. Solution testing with users was focused on checks for desirability, while testing with stakeholders focused on feasibility (Itad, 2017).

"**We used insights from adolescents and women in the design of our chatbots and we really used these insights to shape content and the format of how best to present the information to resonate and appeal to the audience. This really helped in program design."**
- Project Director, India

Implementation phase

At the implementation phase in the HCD process, design solutions are rolled out in the context of a larger project or program. Program implementers may then adapt the solutions further, depending on how communities receive them. Insights in this phase may be used to:

→ **Pilot the solution:** In some cases insights were used to pilot design solutions and iterate them further. In some instances, mini-pilots were conducted ahead of the full pilot (Itad, 2017). During pilot exercises, stakeholders beyond those targeted by the solution were often included.

→ **Adaptive management:** Adaptive management is an approach to program implementation that employs a continuous process of learning. Practitioners continuously gather insights from users, and adapt solutions to ensure better fit for the user (Cutherell and Cole, 2019). Respondents reported that adaptability is a key consideration that must be taken into account when considering how to increase coverage or geographic spread. A360 provides examples where learnings during the pilot or implementation phase of the program were used to inform later-stage program iterations.

In Kuwa Mjanja, Matasa Matan Arewa, and 9ja Girls A360 introduced an opt-out moment for on-demand counseling in Tanzania and Nigeria. Opt-out moments were effective at addressing stigma, which adolescent girls indicated was a barrier to their contraceptive uptake. In Nigeria A360 additionally experimented with other ways to strengthen its counseling approach to reduce stigma, such as introducing a staggered approach to counseling throughout its session rather than just at the end." (Newport et al., 2019).

In Nigeria, A360 introduced 9ja Girls that employed a 'flying under the radar' strategy to increase contraception uptake amongst unmarried adolescents. This approach focused on vocational skills and aspirations to encourage acceptability of contraception which was a key outcome for the solution to reduce stigma for girls, whilst delinking it from the concept of family planning. This strategy improved services for girls yet there was risk of potential community backlash (Newport et al., 2019).

Figure 8: Role of insights in the HCD process
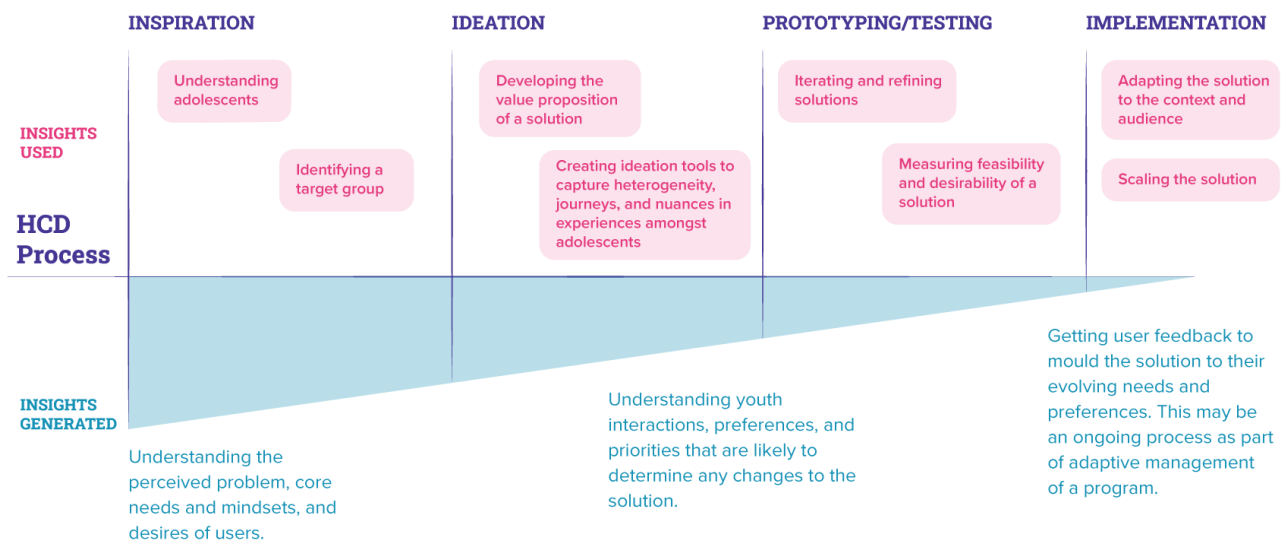
1.4 Case examples of ASRH solutions generated through HCD

The process of generating insights and deriving solutions from insights is not linear or streamlined. Among the programs reviewed, we found little evidence of direct links between one insight and one solution. Rather, insights generation offers a process and a foundation for solution framing and development that evolves over time. Frequently, program designers and implementers collect a range of insights, refine them and test them at different stages of the design process, before prioritizing solutions to be implemented in the context of a larger intervention or program. In this section we present examples of some HCD-generated insights and ASRH solutions that emerged from the application of the HCD process to illustrate the holistic use of insights in the context of HCD+ASRH programming.

A360

THE SMART START PROGRAM

COUNTRY

Ethiopia

TARGET GROUP

Married adolescents in rural areas

Insights: Evidence from the Smart Start program suggests that married adolescent girls in agrarian communities have a negative perception that contraception affects fertility, and are unable to easily access contraception. Both of these serve as barriers to contraception uptake. Design research also found young adolescent couples expressed a desire for joint decision-making related to use of contraceptives.

Examples of HCD processes employed: Semi-structured interviews were conducted by youth-adult teams using design research methods like storytelling, photo narratives and field observations. Prototypes were used to iteratively design, test and refine the solutions. Workshops that included young people and adults were undertaken to reach consensus on the meaning and significance of findings and make joint decisions on the changes that needed to be made to the protoype or solution.

Solution: Smart Start worked with married adolescent girls and their husbands to help them understand how delayed first birth and spaced pregnancies facilitate improved savings and capital to pursue their shared goals. Health Extension Workers (HEWs), the primary health care cadre in Ethiopia, were leveraged to provide counseling to girls, with or without their husbands. These sessions used financial planning to make contraception relevant to their life goals. The Smart Start approach leveraged existing community resources to generate community buy-in and support for the program.

Outcome: Evidence suggests that Smart Start resonated with girls and their husbands. The Ethiopian Federal Ministry of Health also reported that Smart Start increased the ability of the public health system to reach young couples meaningfully thereby improving programming for adolescents. From January 2018 to July 2019, over 45,000 girls received counseling through Smart Start. Of the girls eligible for contraceptive adoption (those who were not continuing users or pregnant), almost 75% voluntarily adopted a modern contraceptive method (Cutherell and Cole, 2019). These results were captured at the time of writing this publication. Results for the entire program period are available on the program website (https://a360learninghub.org/).

Sources: *(Cutherell and Cole, 2019) + (https://www.ideo.org/project/smart-start, Accessed on March 2, 2022)*

KUWA MJANJA

COUNTRY

Tanzania

TARGET GROUP

Unmarried Adolescents

Insights: The Kuwa Mjanja program found that unmarried adolescent girls in Tanzania lacked accurate and trusted sources for SRH information. The girls also expressed aspirations for their future, which included gaining financial autonomy.

Examples of HCD processes employed: Teams consisting of youth and adult researchers and designers conducted field research to gather findings to generate insights. These insights guided the creation of 'How might we?' questions that provided a systematic way to brainstorm ways in which the program might address the insights. These ideas informed prototypes that were iterated, tested and refined to develop a solution.

Solution: In Tanzania, Kuwa Mjanja tapped into a girl's self-defined priorities to help her understand how contraception aligns with and supports those priorities. Kuwa Mjanja provided income generating skills so girls could make their own money and gain life skills to balance their growing responsibility and navigate the social transition to adulthood. Within Kuwa Mjanja events (pop-up events in the community or in-clinic events) girls were supported to access contraceptive services by adolescent-friendly public sector providers through a private 'opt-out' counseling moment which served to reduce stigma around contraceptive access and use.

Outcome: From June 2017 to September 2018, the program delivered SRH information to over 80,000 Tanzanian girls aged 15-19 through Kuwa Mjanja events. Of those girls, 62% have adopted a modern contraceptive method (Cole and Mehta, 2018). These results were captured at the time of writing this publication. Results for the entire program period are available on the program website (https://a360learninghub.org/).

Sources: *(Cole and Mehta, 2018)*

MATASA MATAN AREWA (MMA)

COUNTRY

**Northern Nigeria
(Kaduna and Nasawara)**

TARGET GROUP

Married Adolescents

Insights: HCD research in the Matasa Matan Arewa (MMA) program found that married adolescent girls believed that contraception was a threat to their fertility and their dreams of motherhood. Their SRH choices were influenced by other stakeholders in their ecosystems, particularly their husbands. It was noted that girls expressed a desire to know how to take better care of their families, achieve their dreams and generate extra income.

Examples of HCD processes employed: Youth were recruited to be co-researchers alongside program designers and discipline-specific experts. Semi-structured interviews to understand adolescent girls during field research used "methods intentionally designed to generate empathy with respondents." Interviews were also conducted with other influencers in the girls' lives. Workshops were conducted for collaborative data analysis including young researchers and program designers. The body of insights was used to develop a technical strategy that informed the development of prototypes. Prototypes were tested in the field and refined based on decisions made collaboratively by youth-adult teams.

Solution: The MMA program focused on aligning contraception with goals that adolescent girls wanted to achieve for themselves and their families. Female mentors reached out to girls to encourage them to attend Life, Family and Health (LFH) classes that provided information about health, nutrition, contraception and life skills. Male interpersonal communication agents reached out to girls' husbands to encourage them to refer their wives to MMA sessions. Contraceptive services were provided to adolescent girls by public sector providers alongside A360-supported young providers in public facilities.

Outcome: MMA raised SRH awareness and acceptability in the community. From January 2018 to September 2020, 35,641 adolescent girls voluntarily adopted modern contraception through their interaction with the program. These results were captured at the time of writing this publication. Results for the entire program period are available on the program website (https://a360learninghub.org/).

Sources: *(Malakoff, Cutherell, and Coppola, 2021) + (https://vimeo.com/480856651; Accessed on March 2, 2022)*

A360

COUNTRY

Southern Nigeria (Lagos State)

TARGET GROUP

Unmarried Adolescents

9JA GIRLS

Insights: In Southern Nigeria, program designers and implementers learned that use of contraception outside of marriage was believed to encourage promiscuous behavior among girls and cause infertility. Providers often imposed their personal beliefs around abstinence until marriage. The girls' sense of isolation prompted a desire for safe spaces where they could learn more about their bodies and sexual health. Girls also felt anxious about their future and looked for ways to achieve their educational and financial aspirations.

Examples of HCD processes employed: Design research methods like storytelling, photo narratives, and direct field observations were used to generate insights. This was followed by insight synthesis which was done collaboratively amongst the youth and adults who formed the program team. Thereafter, prototypes of potential interventions allowed the program team to test ideas and respond in real-time to the insights generated from the field. Interventions were then refined based on findings from testing.

Solution: 9ja Girls worked with unmarried girls to make contraception immediately relevant to what a girl wants now. 9ja Girls 'Life, Love, and Health' (LLH) classes and outreach 'spice talks' engaged girls first around her goals, providing vocational and life skills, and then positioned contraception as a tool to help her achieve those goals. The 9ja Girls brand affirmed girls' aspirations by recognizing the individual choices and agency of each girl who interacted with the program. Girls were then supported to receive contraceptive counseling by public-sector providers and SFH young providers nested within public facilities.

Outcome: Since January 2018, the program supported public health facilities to reach more than 153,000 girls. On average, 74% of eligible girls reached through the intervention chose to take up a modern contraceptive method. These results were captured at the time of writing this publication. Results for the entire program period are available on the program website (https://a360learninghub.org/).

Sources: *(Cole, Cutherell and Phillips, 2020) + (https://www.ideo.org/project/9ja-girls; Accessed on 2 March 2022)*

FUTURE FAB

Insights: Insights generated through HCD surfaced perceptions among young people and their influencers that contraceptives were culturally prohibited, a source of fear and only for adults who are planning a family. Future Fab designers also found that youth in Kenya aspired to build a better life for themselves and wanted to take steps to plan their future.

Examples of HCD processes employed: Program teams used immersive techniques like interviews, field observations and "spending time with Kenyan girls" (Marie Stopes Kenya, n.d., p. 4) to understand them. Prototypes were built in collaboration with girls. The team used rapid prototyping to test early solution concepts with the communities to quickly adapt and refine them. Live prototyping was used to test marketing execution. In the case of live prototyping, high resolution experiments were conducted in the real world context to collect feedback from users over time.

Solution: The program team designed a youth-focused brand campaign called Future Fab that celebrates the success and talent of Kenyan youth and helps them achieve their dreams through improved uptake of high quality contraceptives. The campaign was executed using activation events, peer mobilizers and community health volunteers (who provided referrals). Pop up service delivery sites provided counseling and free contraceptive services.

Outcome: When comparing service delivery uptake before and after the establishment of Future Fab clinics, there was a significant increase in adolescent clinic visits. This suggests that marketing efforts were more successful in driving consumer demand than previous efforts that only reduced fees. The program reported a ten-fold increase in the average number of adolescent visits for services per clinic per week, with 80% of adolescents reporting some contact with Future Fab components (an event or a mobilizer).

Sources: *(Marie Stopes Kenya, n.d.)*

beyond bias › BEYOND BIAS

Insights: Service providers struggled to negotiate between professional and social norms, and their values often conflicted with their training. It was also noted that providers did not have enough time and space to cope with the 'clinical and emotional challenges' of working with youth. From the perspective of young people, friendly providers were preferred even if they did not offer them a choice of methods.

Examples of HCD processes employed: The Beyond Bias project brought together "experts in adolescent and youth sexual reproductive health (AYSRH), social and behavior change communication (SBCC), human-centered design (HCD), behavioral economics, and segmentation analysis" (Murithi, Gibbs and Hope, 2021, p. 2) to address the challenge of provider bias. HCD was used to get a contextualized understanding of provider mindsets, behaviors and attitudes in Burkina Faso, Pakistan and Tanzania. Providers and communities were engaged to generate and test ideas to

Pakistan
(Karachi District)

Tanzania
(Dar es Salaam)

TARGET GROUP

Health Service Providers

address bias. Ideas that resulted from the HCD process were compared with existing evidence and informed by insights gathered from the design and segmentation research. Key methods from the HCD approach employed were: ideation workshops that brought global and country experts together to generate ideas; rapid prototyping that helped test ideas and adapt them quickly to the requirements of the context and live prototyping which took place over a longer period of time in a real world context with the objective to better align it to the needs of its users.

Solution: Beyond Bias was a three-part solution: Summit, Connect, and Reward. Summit was a story-driven event that enabled providers to increase self-awareness of their biases and empathize with youth needs. Connect was a peer-supported learning forum where providers discussed ways to apply unbiased practices in their work. Reward was an incentive system for providers to provide services in a youth friendly unbiased manner. The incentive system was based on client feedback regarding provider behavior.

Outcome: The project aims to use a mixed-methods randomized control trial to assess changes in provider bias, contraceptive use, and sexual and reproductive health services.

Sources: (Murithi, Gibbs and Hope, 2021) + (https://reports.prb.org/breakthrough-research/beyond-bias-pbc-sbc/, Accessed March 4, 2022)

COUNTRY

Niger
(Zinder Province)

Bangladesh
(Kurigram District)

TARGET GROUP

Married Adolescents

PROJECT IMAGINE

Insights: Program reports from Niger and Bangladesh noted that girls and their husbands recognized the benefits of delaying a first birth. However the stigma around infertility and contraceptive use, socio-cultural and religious norms and pressure from various community members were reported to interfere with a girl's ability to delay a first birth. Girls' social isolation, lack of mobility and autonomy and perceived lack of alternatives to early motherhood contributed to their inability to choose when to conceive children. Insights also surfaced that adolescents' desire for economic and educational success conflicted with the pressure they felt to start a family.

Examples of HCD processes employed: Alongside formative research, HCD research was also conducted to gather insights. However an expert who was part of the program noted that:

"They [HCD design agency] almost in some ways repeated some of the formative research data collection [that had been done by the team at CARE]. So they went out to gather those insights, and gather input from the stakeholders. Some of it was maybe new information, because at that point, we had some solutions in hand that we thought would be useful as interventions. And so we could get feedback on those ideas from the adolescents and the other stakeholders."
- SRHR Project Director, Headquarters

Finally, ideas that seemed to have potential were prototyped, tested and refined to develop an intervention package for each country.

Solution: In both Niger and Bangladesh the project formed Girls' Collectives to provide social support and access to SRHR information, decision-making, communication skills and gender and social norms for adolescent girls. In Niger, the Girls Collectives also served as a platform for Village Savings and Loan groups to provide information on entrepreneurship and financial literacy. Alongside collectives for girls, 'Fada groups', built on existing informal mens' groups, engaged young men and husbands as allies to help delay first births. Community-based activities in Niger also included Community Dialogues & Action that served as spaces to discuss and act to transform norms and behaviours thatnegatively impact early childbearing. In Bangladesh, couples counseling on family planning was provided to newlyweds to increase access to information. As the sessions progressed, the couples participated in social events that helped them network and form a support system that allowed them to delay a girl's first birth. Across both countries the IMAGINE model works with health care workers to address their biases and misconceptions and build their skills in providing adolescent-centred SRH care.

Outcome: The IMAGINE program website notes that "results will be captured through ongoing monitoring and will be analyzed and summarized after implementation is complete" (care.org/imagine, Accessed March 4, 2022).

Sources: (CARE, n.d.) + (Samandari et al, 2019) + (Samandari et al, 2020) + (care.org/imagine, Accessed March 4, 2022)

2. Added value of HCD-generated adolescent insights in ASRH programming

In the course of documenting and curating experience on the application of HCD in ASRH programming, we explored practitioners' and evaluators' perceptions of the contribution of HCD with respect to intervention design. Respondents and written sources identified several ways in which HCD offers a novel approach to generating adolescent insights and applying them to solution development. Holeman and Kane (2020) describe "human-centered design as a flexible yet disciplined approach to innovation that prioritizes people's needs and concrete experiences in the design of complex systems". Design for Health highlights the value of design as a skill-set and a mindset with the potential to improve outcomes and processes, expand capabilities and increase equity (Bill & Melinda Gates Foundation and USAID Center for Innovation and Impact, n.d.). HCD approaches were said to add value specifically in their contribution to user-informed and user-driven solution development. HCD supports the exploration of possibilities and nudges ideation for innovative solutions that are tailored to fit unique end users (Holeman and Kane, 2020). Caveats and caution with HCD expressed in the literature and by respondents relate to the lack of objectivity in HCD processes when compared to traditional approaches to data collection and program design. Design reorients the focus of measurement and engagement toward the desires of the end user. As noted by Holeman and Kane (2020, p. 485), "In design-oriented research, understanding is always in the service of imagining a better future, which means that objectivity and controlling bias are not the highest aims."

We summarize below, four ways that HCD was reported to add value in ASRH programming:

- taking a 'whole person' approach

- framing insights to promote solution ideas

- defining the 'how' of a solution

- insights directly lead to solution development

HCD-generated insights take a 'whole person' approach

Respondents reported that HCD approaches to insights generation take a holistic approach, going beyond individual adolescent perceptions and desires to consider the social drivers of adolescent behavior. This information provides a context for learning about ASRH and opens up potential pathways to motivate adolescents to adopt SRH interventions. HCD insights also captured complexities within the lives of adolescents alongside interdependencies, to develop a deep understanding of their context (IDEO, n.d.).

" *I think what we know through HCD as a practice, is that people's lives are not in silos. So adolescent boys and girls lead rich and textured lives, and there are several things that interplay with each other in their lives. Whether it be friendships, relationships, family, their mental health, along with all the other things about making that transition from school to work, it might be setting out into the world on their own, or the experience of being at the foothills of adulthood. All these things come into play. Even just things like what they do for entertainment, how they connect with their peers… Maybe that's something that ASRH work needs to take more into account. We need to stop thinking of SRH in silo… Instead, how do we think about the intersections that SRH has with other aspects of their life, and other aspects that can make them successful and confident young people who are ready to step out into the world and become successful adults."*
- Designer, India

" *One thing that stands out to me is that we're willing to go beyond SRH, and take this 'whole' person approach, and I think that's what our breakthrough in Ethiopia was. The idea that actually, we have to go beyond sexual reproductive health to something*

that really matters to these young people and connect SRH to this thing that is already front of mind for them."
- Technical Advisor, Ethiopia

HCD frameworks help practitioners use insights to ideate solutions

In the evaluation of the Hewlett Foundation's investments in HCD+ASRH programming, insights were used to create frameworks that defined the boundaries and articulated the nuances of the context in which adolescents lived. This framing supported subsequent ideation and solution development (Itad, 2017). HCD approaches provide useful tools to help guide insight synthesis, clarifying key themes, patterns and priorities (USAID et al., n.d.; Itad, 2017; Bill & Melinda Gates Foundation and USAID, n.d.; IDEO, n.d.). Common frameworks that are used to organize data include journey maps, relational maps[7] and 2x2s[8] which are used to draw out critical insights and generate ideas. Related activities employed in A360 included brainstorming, mashups, bundling ideas and drawing (Itad, 2017). A respondent speaking about a post-abortion care project stated:

" *We were able to create journey maps for all our potential users, and from the journey map we noted the possible intervention areas for each potential user. So the journey map covered the pre-medical abortion period, the medical abortion period which also has the conception period. Who do they [adolescents] talk to after they know they're pregnant? Where do they seek help, and after getting medical abortion, what kind of conversation do they like to talk about? How do we now use that kind of journey, to be able to identify the best ways to intervene or pitch our intervention. So from the insights we created two things. One is the personas which give us a deeper meaning and a deeper understanding for our potential users, and the second is the journey map."*
- Creative Strategist, Kenya

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7   A map that highlights the relationship of the adolescent with members and stakeholders in their ecosystem.

8   A 2x2 grid is used to understand solutions based on specific parameters and how they compare with each other. Typically this is used to measure solution concepts based on desirability and feasibility.

In Uganda and South Africa, a USAID-funded SRH program demonstrated that HCD insights shaped the SRH journey of potential Dapivirine (DPV) ring users to support HIV prevention. This journey mapping generated key insights at various stages and illustrated the diverse range of user responses to SRH experiences across the health journey. The process produced stylized personas[9] to reflect the range of adolescent needs and to tailor solutions. Common themes, the journey maps and personas served as key jumping off points for the development of design concepts and strategies (USAID et al., n.d.).

HCD-generated insights are directly applicable to the solution

At the prototyping/testing phases, designers seek feedback on solutions as they move toward widespread implementation. Rapid prototyping helps generate and refine insights and further iterate on solution concepts. Some written materials noted the comparative advantage of applying insights generated through the HCD process versus those generated through traditional qualitative research methods, particularly during the prototyping/testing phase. At this phase, insights are generated in response to a prototype and are therefore directly relevant to refining the solution. "Selecting a few prototypes to build introduces questions of technical practicality and involves focusing on a way forward. Testing prototype interventions in practice will again generate new insights and reasons for course correction, while refining in light of these tests enables designers to iterate towards increasingly worthwhile artifacts" (Holeman and Kane, 2019, p. 484).

" *The insights on specific designs of curriculum and programs that come from HCD methods are often directly useful and directly applicable to those programs and curriculums, compared to traditional qualitative methods where the focus might not be the adolescent health journey specifically and might just not be as directly applicable or useful."*
- Research and Evaluation Lead, South Africa

HCD-generated insights help identify the 'how' of a solution

Some respondents noted that HCD did not always surface new solutions to known challenges. However, the process generated solutions that worked better than other interventions because they leveraged deep understanding of the users' context or behavior, and applied this knowledge to implementing the solution. HCD-generated ideas on 'how' a solution could be integrated into the lives of adolescents:

" *The human-centered design process was able to identify what messages are really salient, or what way of facilitating [engagement with young people] really captures young people's attention. It was helpful in identifying the smaller pieces or components of 'the how of delivery', not the what."*
- SRHR Project Director, Headquarters

Conclusions

The generation and use of adolescent insights lie at the heart of HCD and shape its role in advancing ASRH outcomes and rights. In exploring the HCD principles that guide insights generation and use, this landscape analysis begins to explain how and why HCD adds value to ASRH programming. Detailed documentation of a range of projects and project design processes illustrate and analyze the journey of insights at different stages of the HCD process. Brief observations and suggested areas for further research and exploration in the integration of HCD and ASRH programming are found below.

Key observations

The value of HCD lies in how insights are framed

The role of HCD in generating novel insights about adolescents' experience with and perceptions of SRH and health services varies across the programs reviewed for this landscape analysis. The evidence suggests that HCD-generated insights may not always uncover 'new' knowledge about adolescents' SRH challenges. However, HCD adds value in framing these insights as

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9   A user persona is a semi-fictional character created to represent different user types that the solution aims to target. These are created on the basis of insights generated.

themes, journey maps, personas and opportunity areas (e.g., posing the question: 'How might we?') that builds empathy for adolescents. These insights increase practitioners' ability to view ASRH challenges from the perspective of the adolescents' SRH needs, desires and preferences, and to understand how SRH needs relate to adolescents' personal and societal aspirations, as they move into adulthood. This approach to understanding adolescents in context, and this framing of needs and desires provides a holistic picture of the adolescents' world, and opportunities to build with them potential solutions that are relevant and appealing.

HCD insights are highly contextualized

A challenge inherent in HCD processes is that insights, and the solutions they inspire, can be highly contextualized. HCD is often used to develop solutions for a specific context or a particular program, or to understand a specific user journey, which may limit the relevance of the solution in other settings and for other populations. However, as the body of HCD-generated insights grows, program managers are finding common insights themes across settings and groups that can be validated and refined for new programs, reducing the time needed to invest in a full insights-generation process.

Insights generation goes hand in hand with insight use

We found key differences in the way that insights are understood in the broader ASRH field compared to how they are understood and applied among HCD+ASRH practitioners. Similar to HCD processes, approaches to insights generation in the ASRH field focus on gathering information about the target population to define key perceptions, experiences and influences related to known SRH challenges in a specific context. In HCD, insights generation goes a step further to simultaneously develop solutions to address problems. An expert respondent noted that the way in which insights are framed in HCD makes the process particularly suitable for solution ideation. It inspires teams to think creatively within the boundaries of an adolescents' life. Thus, insight generation goes hand in hand with insight use. As practitioners go through the

HCD process, their understanding of the user increases and becomes increasingly solution-focused. At the prototyping/testing phases, the process of insight generation and use happens synchronously through iteration and solution refinement to reach high-fidelity options, that can be integrated in the program.

Grounding and explaining HCD principles and mindsets

This landscape analysis confirms that HCD principles and mindsets, such as empathy and iteration, inform the generation of insights and their use in defining solutions that are appealing to adolescents as well as being contextually relevant and feasible. However, reports that speak about the value of design do not explain how design principles and mindsets drive this process. Without defining the pathways from creative processes that inspire empathy to the progressive refinement of solutions, we can only report on the perceived value of HCD from the perspective of those who have worked alongside designers and in HCD+ASRH programs. The potential for continued integration of HCD into program design requires a clear statement about why design works, supported by systematic documentation of the link between HCD and effective intervention design. As noted by Itad (2017) and confirmed in this landscape analysis, HCD principles and mindsets have the potential to help program teams develop robust ASRH products provided that there is an effort to explore and explain their usage further.

Areas for future research and exploration

The landscape analysis serves as a starting point for understanding the generation and use of adolescent insights within the context of HCD+ASRH programming. Additional areas for exploration and learning include:

Documenting insights throughout the HCD process

To continue to improve understanding of HCD insights generation and use, and their link to ASRH solutions and outcomes, there is a need to document the HCD

process at all phases. We found more evidence of the kinds of insights generated in the inspiration phase than insights captured and used in the ideation and implementation phases. Insights generated in the later phases of the HCD process were solution-specific, often related to preferences that informed the selection of high-fidelity prototypes. The kinds of insights generated to help prioritize solutions or eliminate competing solutions were often missing from documents. Greater attention is needed to documenting, in detail, the design process, the learning that emerges and the rationale for solution-related choices.

Defining and using HCD mindsets and principles

This analysis notes that ASRH practitioners may not have a consistent understanding of HCD mindsets and principles and their purpose in the HCD process. This inconsistency relates to: 1) use of different terminology to explain HCD and the stages of HCD; 2) lack of evidence on how design principles and mindsets are applied and for what purpose at different HCD phases and 3) the abstract nature of design-related concepts such as empathy, informed intuition and being open (Itad, 2017). HCD+ASRH practitioners are expected to use these mindsets and apply them to the development of solutions. They also need to explain their purpose and value to program stakeholders and collaborators. Developing a shared nomenclature around HCD would help practitioners integrate HCD effectively into program design and implementation. Streamlining terminology will also support consistent documentation or evaluation of HCD+ASRH programs to increase the evidence base.

Building knowledge and alignment around HCD+ASRH

There is limited published material on the effectiveness of HCD or the value of adolescent insights generation in the context of HCD-influenced programming (Atchison and Mulhern, 2017; Murithi et al, 2021). Although the body of evidence on the role of HCD in ASRH programming is growing (Punton and Wallach, 2021), the lack of criteria for what constitutes effective design makes it difficult to evaluate its contribution and its limitations. Recent efforts to define success and the pathways that link HCD to health solutions and outcomes encourage practitioners to conduct additional research to guide future programming (LaFond and Cherney, 2021).

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Annex 1 Glossary of terms[10]

Adolescents: any person between ages 10 to 19

Youth: any person between ages 15 to 24.

Young people: any person aged 10 to 24.

Co-design: Co-designing is a process of creating solutions along with the users you are trying to affect. Activities can be used to define a complete solution or just to gather input and feedback on small features of products or services. *(Related terms: co-creation; participatory design)*

Design: Design is the process of developing informed, sensitive, inclusive, purposeful and innovative solutions that embody functional and aesthetic demands based on the needs of the intended users and their ecosystem. Design is applied in the development of goods, services, processes, messages, and environments. *(Related term: Human-centered design)*

Design thinking: Design thinking is an approach to innovation that draws from the designer's toolkit to integrate the needs of people; the possibilities of technology; and the requirements for business success. Design thinking, skills, and practices should be thought of as being appropriate to all disciplines including design.

Insights: Ideas or anecdotes expressed as succinct statements that serve to interpret patterns in research findings. Insights offer a new perspective, even if they are not new discoveries. They are inspiring and relevant to the design challenge. *(Related terms: sensemaking; synthesis)*

Human-centered design: Human-centered design (HCD) is the process of integrating human perspectives in all steps of the problem-solving process. The aim is to better understand an issue from the human perspective and focus on how it looks and feels to users and stakeholders within their environment and context.

Persona: A representative identity that reflects one of the user groups. It is a representation of a user segment with shared needs and characteristics.

Prototype: A model or artifact built to test a concept with users to learn from them and use insights to improve development of the prototype. Prototype development process helps designers reflect on key aspects that determine how well a solution will work in real life conditions rather than theoretical conditions.

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10   Sources: http://www.designkit.org/methods/33, Accessed on February 5, 2022; DesignforHealth: Glossary of Terms - Glossary+of+Design+Terms.pdf

Annex 2: Inclusion Criteria

Inclusion Criteria for Written Resources	
Population, or participants and conditions of interest	This includes academic institutions, youth organizations, designers, ASRH/HCD+ASRH practitioners/ projects, government agencies.
Interventions	ASRH projects and solutions implemented or developed through HCD or related approaches such as design thinking and behavioral economics; includes proto-type development (all stages).
Outcomes of interest	Increased uptake of youth-centric ASRH products and solutions; increased adoption of HCD in practice, specifically as it pertains to addressing youth needs and/or ASRH (project design, interventions, etc.); robust Monitoring Evaluation and Learning system with indicators/metrics to support HCD+ASRH.
Geographic setting (context)	This includes geographic regions of the Global South (LMICs); include Global North resources that can be adapted for use in LMICs.

Photo credit: Paula Bronstein/Getty Images/Images of Empowerment