Chapter 4.2

The Power of People-Centered Nutrition Interventions

Sera Young
Assistant Professor of Anthropology, Northwestern University, Evanston, Illinois, USA

Rolf Klemm
Vice President of Nutrition, Helen Keller International (HKI) and Senior Associate in the Program in Human Nutrition, Department of International Health, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, USA

Shawn Baker
Director of Nutrition, Bill & Melinda Gates Foundation, Seattle, WA, USA
“You can’t solve a problem on the same level that it was created on. You have to rise above it to the next level.”

Albert Einstein (1879–1955), German-born theoretical physicist who developed the general theory of relativity.

Key messages

• Nutrition problems are often more complex than they appear.
• People-centered design can effectively inform nutrition interventions and help ensure that the needs of end-users are better served.
• People-centered design is based on design thinking, which includes end-users in the selection and design of services, and products and behaviors.
• Design thinking is based on a five-step process: understand, define, ideate, make tangible, and iterate.
• Anthropology and allied social sciences can offer analogous methodologies for approaching the people-centered design of nutrition interventions.
• Putting people at the heart of nutrition interventions often requires hard work and creativity, but delivers better results in the long run.

“Meeting people where they are”

In a 2013 interview with Wired Magazine, Melinda Gates went on record as saying that people-centered design is in her opinion the single innovation that is changing the most lives in the developing world. She explained people-centered design as: “Meeting people where they are and really taking their needs and feedback into account. When you let people participate in the design process, you find that they often have ingenious ideas about what would really help them. And it’s not a onetime thing; it’s an iterative process.”

Melinda Gates’s co-interviewee, the anthropologist and physician Paul Farmer – co-founder of the international social justice and health organization Partners In Health (PIH) and Professor at Harvard University – followed up this observation with an example of how people-centered design works in practice: “In Haiti I would see people sleeping outside the hospital with their donkey saddle under their neck — they’d been waiting there for days. And no one was asking them, ‘What are you eating while you’re waiting? What is your family eating while you’re gone?’ We have to design a health delivery system by actually talking to people and asking, ‘What would make this service better for you?’ As soon as you start asking, you get a flood of answers.”

“The first time I went to Haiti and saw Paul in 2003,” continued Melinda Gates, “he said, ‘How can we expect them to take these pills if they have nothing to eat?’ He decided that they needed healthcare workers who could follow patients, and that they had to be people from the community.”

In other words, solutions were needed that addressed problems beyond the one that had been identified (in this case, medication adherence). Although this conclusion may sound obvious, the process of understanding what the problems actually are, and of developing appropriate solutions – i.e., design thinking – can be quite challenging. In fact, there are far more examples of public health solutions that ignore the end-user than of ones that are built with the end-user in mind. For this very reason, the goal of this chapter is to convey the relevance of people-centered design to nutrition interventions, and to share some strategies for putting people at the heart of nutrition interventions.
Design thinking

In its modern incarnation, people-centered design has its roots in technology, with antecedents in cooperative design, which originated in Sweden during the 1970s and gave designers and users an equal share in the design of IT systems. Participatory design and contextual design are also near cousins of cooperative design. Crucially, however, people-centered design as it is applied to nutrition is not technology-driven. As Atul Gawande (professor at the Harvard School of Public Health and also the Department of Surgery at Harvard Medical School) puts it, “People talking to people is still how the world’s standards change.”

Although its origins are in the engineering world, design thinking is a term that has achieved much wider currency in the past decade, thanks to both the business press and popular media. In fact, it is now being discussed in forums as different as software design, personal growth, and clinical trial development.

While specific details of the approach to design thinking may vary, design thinking is basically a process whereby decisions about services, products and behaviors are built on a deep and clear understanding of peoples’ context, needs and desires. Crucially, it includes end-users in the selection and design of services, products and behaviors, usually employing an iterative process to do this.
There are five basic steps to design thinking:

**Step 1: Understand the issue**

**Step 2: Define the problem**

**Step 3: Ideate**

**Step 4: Make tangible**

**Step 5: Iterate relentlessly**

Although we have not seen the term “design thinking” used widely in public health nutrition, there are many parallels with what social scientists have been doing for decades (see especially Nichter et al., 2004). In what follows, we have mapped these perspectives and data collection techniques onto the above five design thinking steps. It is our hope that this will facilitate nutrition interventions that place people truly at their core.

**Step 1: Understand: formative research strategies to understand the issue**

“Formative research” is a term used across many disciplines to refer to the use of qualitative and quantitative methods to inform the development of some sort of product, from stump speeches to research surveys. Standard ethnographic techniques have come to be used frequently in formative research.

Qualitative approaches such as ethnographic interviews, participant observation, and focus group discussions are the approaches commonly used to describe what can perhaps best be termed the “lived experiences” of any given phenomenon. Quantitative ethnographic techniques such as surveys, behavioral checklists, and ranking or grouping exercises are also useful formative strategies, but because qualitative approaches are more commonly used, we will focus on these here.

**a. The ethnographic interview**

Unstructured or semi-structured interviews are a hallmark ethnographic technique. Generally, such interviews are conducted with those who are experiencing the topic at hand (e.g., anemia during pregnancy), as well as those who are somehow connected to the problem (e.g., traditional healers, clinic staff, medicine vendors, family members).

Examples of ways to begin unstructured interviews about infant feeding practices are as simple as: “Tell me about the lack of blood during pregnancy.” Indeed, an ethnographic interview need not always be formal; it can even sound like a casual conversation. As interviews become more structured, i.e., guided by a topic list or even a set list of questions, it is important to remember that their purpose is to uncover important themes or experiences that may not be susceptible to determination *a priori* (i.e., they may not be on the checklist). Thus, the researcher must become skillful at keeping the interview germane to the research question while following novel threads that will allow new findings to emerge. There are no rules about the duration of an interview, but 90 minutes seems to be the point at which fatigue or inconvenience begin to set in.

Ethnographic interviews may occur over multiple encounters, and the rapport between researcher and respondent will probably evolve over time. As the ethnographic researcher establishes rapport among members of the target culture, interviews may become more formal and more structured. Doing this too quickly may result in informants feeling interrogated, however. Alternatively, a structured interview may feel more comfortable before the interviewer and interviewee know each other well. Follow-up conversations may then become more informal, expanding on what was already formally inquired about, with the respondent feeling more at ease and therefore able to provide richer insights.

**b. Observation**

Observation is another useful ethnographic technique in formative research. Observation may happen at a distance, in the form of sitting, observing, and writing notes on e.g., exchanges at a prenatal clinic, in an open-air market, at a daycare center, or in a family’s home. It may also be more participatory, in which the researcher acts as well as observes, e.g., joins breastfeeding support groups. Ethnographic observation can be labor-intensive, but the observations can be extremely valuable for exploring previous confusions or sparking additional lines of inquiry.

**c. Visual techniques**

Space precludes enumeration of all possible visual techniques for studying nutritional problems, but an overview would be incomplete without the mention of at least one. Photovoice – see following trio of photographs – is a participatory technique in which images relevant to the area of exploration are photographed by participants. These photos are then discussed in one-on-one and group settings. We have successfully used Photovoice to explore how food insecurity impacts infant feeding strategies in Kenya and Uganda.
PhotoVoice is one possible visual technique for “understanding the issue,” the first step in people-centered nutrition interventions.

In the first Photovoice encounter, participants are lent cameras. They then take photographs about the topic under discussion over a period of time, e.g., two weeks. In the second phase, pictured here, these photos become the centerpiece of the interview. Here, a mother (sitting on the right, with her infant on her lap) is explaining to a study staff member (left) why she has taken a photo.
Source: Angela Arbach

The third phase of the Photovoice activity is a focus group discussion, in which participants select two or three photos that they have taken with a view to talking about these. Here, women are discussing their experiences of how food insecurity impacts the way they feed their infants.
Source: Beryl Oyier

On conclusion of the Photovoice study, a participant receives a certificate of appreciation and a copy of the photos she took for the study.
Source: Angela Arbach
Grandmothers promote maternal and child health: the role of Indigenous Knowledge Systems Managers

In virtually all societies, the managers of indigenous knowledge (IK) systems that deal with the development, care and wellbeing of women and children are senior women, or grandmothers. In that function, grandmothers are expected to advise and supervise the younger generations. However, most development programs neither acknowledge their influence nor explicitly involve them in efforts to strengthen existing family and community survival strategies.

There is a need to broaden the concept of indigenous knowledge in development programs: first, to view IK in the context of community and household systems; and second, to consider both beneficial and harmful practices in indigenous knowledge systems related, for example, to health, nutrition or initiation rites.

Methodology to strengthen grandmothers’ role as knowledge managers

In community programs, first in Southeast Asia and later in West Africa, the “generic grandmother-inclusive” methodology12 was developed by The Grandmother Project (an American non-profit NGO) for working with grandmother networks to strengthen their role and knowledge in promoting optimal practices related to maternal and children health and wellbeing. The five key steps in the methodology are:

1. Rapid assessment of grandmothers’ role and influence in the household and community related to the issue of interest
2. Public recognition of grandmothers’ role in promoting health and development of families and communities
3. Participatory communication/education activities that engage first, grandmothers, and second, other community members, in discussion of both traditional and modern practices
4. Strengthening the capacity of grandmother leaders and networks to promote improved practices with other grandmothers, in families and in the community-at-large and
5. Ongoing monitoring and documentation for learning.

Through process documentation and evaluation, a number of other positive and unanticipated outcomes of the grandmother-inclusive methodology were documented among different community groups. Here are examples of changes observed following use of the non-formal education and empowerment approach:

Grandmothers:
- Greater sense of confidence and of empowerment in the community
- Stronger sense of solidarity between grandmothers
- Emergence of grandmother leaders
- Grandmother leaders encourage other grandmothers to consider new ideas

Male community leaders:
- Increased respect for grandmothers’ advice combining “indigenous” and “modern” knowledge
- Increased public recognition of grandmothers’ contribution to women’s and children’s wellbeing

Household level:
- Positive changes in grandmothers’ advice to younger women and men
- Increased confidence of other household members in grandmothers’ advice

A family group in Nepal. Grandmothers have a key role to play in promoting maternal and child health.
Source: Sight and Life.

Continued overleaf
The Scaling Up Nutrition (SUN) Movement has heightened the world’s focus on integrated nutrition interventions. In 2013, the Government of Malawi, with support from the World Food Programme and partners, initiated such an intervention in Ntchisi District. Aimed at reducing the prevalence of stunting, the intervention had several components, including the provision of a small-quantity, lipid-based nutrient supplement (SQ-LNS) for children aged 6 to 23 months.

This study aimed to answer the following questions:

• What cultural perceptions and household behaviors exist in relation to childhood illnesses, concepts of healthy growth and development, and food utilization?

• How can an ethnomedical model, which describes a local body of knowledge about a specific illness or group of illnesses, be developed for salient nutrition-related illnesses in this setting?

• What are community members’ attitudes toward an SQ-LNS that will be introduced as part of the integrated nutrition intervention in this setting?

Data were collected from February until May 2013 in all seven traditional authorities (geographic areas) of Ntchisi District, which lies in the Central Region of Malawi and is home to approximately 250,000 residents.

Caregivers had positive impressions of the SQ-LNS, and children aged 6 to 23 months were highly accepting of its flavor, a driver of product sharing and overuse that occurred within and between households. Community members suggested that sustained compliance will be more feasible with development of culturally appropriate packaging that includes the sachet language in Chichewa as well as locally developed images and clearer instructions for use. Most people asked for larger quantities of the SQ-LNS, comparing it to the locally produced ready-to-use therapeutic food (RUTF) Chiponde, which is already being used in Ntchisi for the treatment of acute malnutrition and has a weight of 92 g.

When asked directly for their perceptions of the SQ-LNS, 10 caregivers said that the product was a medicine, three that it was a food, and five that it had qualities of both a food and a medicine. They either called the product by its name, referred to it as Chiponde [an area of Malawi], or called it “chakudya,” Chichewa for “food.” Nine of 12 caregivers indicated that they would pay a nominal price for a sachet of the product if it was introduced through a market-based system, citing their children’s health as the reason for this willingness.

The study revealed that the SQ-LNS was accepted as an energy-giving food, but that health education and communications tailored to local understanding of nutrition and health are necessary to ensure its appropriate utilization.


### Case Study

**Identifying the sociocultural barriers and facilitating factors to nutrition-related behavior change: Formative research for a stunting prevention program in Ntchisi, Malawi**

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Step 2: Define the problem using ecological frameworks

Step 2 of the design process is all about defining the problem. The incorporation of an ecological model is a systematic way to ensure that the scope of the understanding outlined in Step 1 is complete.

There are a number of ecological models from which to choose, including the Ecological Model of Food and Nutrition,\(^13\) and the Socio-Ecological Framework.\(^14,15\) Both attempt to identify the multiple social and environmental factors that affect nutritional issues in a simple but holistic schema.

Figure 1 | An ecological model of food and nutrition

While aspects of society are not nearly as tidily compartmentalized as Figure 1 might imply, this scheme of relationships is a useful heuristic tool for drawing attention to and organizing the complexities of human nutrition. Some sectors will ultimately be much more important than others, but one must consider the potential role of each at the outset.

Step 3: Ideate: Focus group discussions to generate ideas

Ideation, or brainstorming, is the phase in which new ideas are generated. This phase is perhaps the most difficult to base on examples from prior endeavors in public health nutrition, both because brainstorming sessions are difficult to share, and because new ideas often arrive in an ethereal way. However, focus group discussions are a forum conducive to both generating a number of ideas and receiving feedback about them quickly.

Focus group discussions are an approach to formative research in which the researcher gathers together a group of people (usually 6–8) to discuss a common issue.\(^16\) A facilitator moderates the discussion, keeping participants focused on the topic of interest while promoting dialogue and discussion.

There are a number of advantages to focus group discussions. Given that people commonly work and discuss in groups, focus group discussions can be a very comfortable mode for sharing ideas. They are also a method for hearing the opinions of many individuals in a very short period of time.\(^15\) Further, the group’s responses to other participants’ comments are often very informative, and they can be a metric of how resonant that experience is.

However, focus group discussions may be less appropriate for sensitive issues or the discussion of private matters. They can also be uncomfortable for individuals who have differing opinions or experiences than the majority of the group, potentially resulting in an individual remaining quiet. Focus group discussions have been conducted with many vulnerable populations and about many complex subjects. Ultimately their appropriateness must be determined by the research team, and their success relies heavily on the skill of the facilitator. Finally, logistically, they can be difficult to organize.
It is much harder to make nutrition interventions tangible through prototyping than it is to, say, create software prototypes. However, a prototype of a nutrition delivery pathway can be built using a Program Implementation Pathway (PIP).

The Program Implementation Pathway is the pathway from an intervention input through programmatic delivery, and household and individual utilization, to its desired impact. One can conceptualize a nutrition intervention as a flow, in which the nutrient(s) and/or the information (e.g., behavior change communication materials) enter into the delivery system and move through a sequence of steps that lasts all the way until the deliverable is consumed or used by the intended beneficiary. As inputs are placed into the stream, they can encounter problems, even in programs that have been very carefully planned.

A bottleneck can be very serious, and may bring an intervention to a complete halt. An obvious example is a break in a vaccine cold chain, in which the vaccine is no longer functional. Everything that follows after the break may be fine, but the intervention itself is a failure. A partial blockage is much more common in nutrition interventions. This can take various forms, including blockages internal to the delivery system as well as blockages in the (household) utilization system. Both the pathways and the barriers and promoters of the “flow” through the pathway can be imagined/trialed/prototyped.

Some common problems in programs in the delivery system that are formally reported in program reports or evaluations, or informally acknowledged by program administrative staff, reflect partial blockages. Examples of delivery system partial blockages include:

- Supplements not being routinely available at delivery points;
- Staff turnover leading to gaps in knowledge about management of the delivery process;
- Frontline workers not understanding the purpose or intent of the program;
- Frontline workers not being well trained in delivering the supplement or not knowing how to give instructions on how to use it; and
- Frontline workers delivering incorrect information in the course of behavior change communication activities.

At the household level, there can also be a number of partial blockages. These include:

- The intervention failing to reach the households where the need is greatest;
- For interventions that involve an intermediary to the beneficiary (e.g., infants and young children), caregivers not understanding how to give the supplement or how to prepare and feed the recommended foods;
- Other household members interfering with the actions the caregiver needs to carry out; and
- Caregivers giving the intervention a try but failing to continue it for various reasons.

The concept of Program Implementation Pathway as a tool for program monitoring and evaluation is gaining recognition in nutrition. For example, in a project in Haiti designed to test a preventive versus a curative approach to reducing infant and young child malnutrition, the PIP was used progressively and iteratively over the course of the study. It provided the framework for designing both the “process evaluation” after the intervention was fully implemented, and the end-line evaluation to assess the success and comparative impact of the two different models. Other recent examples include in Vietnam the pathways by which the Alive and Thrive campaign impacted infant and young child feeding practices in Vietnam.

We would argue that evaluative ethnographic techniques can, and should, be used throughout the lifespan of the nutrition intervention: before its implementation (see Step 1), during implementation (i.e., as a strategy for process evaluation), and after the intervention has concluded (i.e., as impact evaluation).
In recent years, home fortification with micronutrients in the form of powders, crushable tablets, and lipid-based spreads has been recognized as a promising approach to prevent micronutrient deficiencies in vulnerable population groups, such as young children who cannot swallow tablets. In particular, the use of micronutrient powder – a mix of vitamins and minerals in powder form that can be added to food just before consumption – has gained popularity since its inception in the late 1990s due to ease of use and low cost.

There has also been abundant scientific evidence from diverse settings demonstrating the efficacy of micronutrient powder in the treatment and prevention of anemia, primarily among young children. In general, micronutrient powder is packaged in single-dose sachets targeted to provide 1 RNI (Recommended Nutrient Intake) of micronutrients per person per day.

In continuing efforts by the United Nations World Food Programme (WFP) and the United Nations High Commissioner for Refugees (UNHCR) to address the high prevalence of undernutrition and micronutrient deficiencies among refugees, a large-scale micronutrient powder program targeting the entire population (approximately 50,000) of the Kakuma Refugee Camp in Kenya was initiated in February 2009. This was enabled by the partnership of WFP and DSM known as “Improving Nutrition – Improving Lives.”

The objectives of the micronutrient powder program were to reduce the prevalence of micronutrient malnutrition among the refugees by the 17-month provision of home fortification with micronutrient powder, and to determine the feasibility of distributing micronutrient powder in combination with general food rations in a refugee camp setting. The program provided each individual with a once-a-day micronutrient powder sachet with the brand name MixMe™ (DSM Nutritional Products Ltd., Kaiseraugst, Switzerland) containing a low dose of iron and 15 other vitamins and minerals for a period of 17 months. One box containing 30 micronutrient powder sachets for each family member was distributed monthly, together with standard food rations.

During the course of the program, uptake of the micronutrient powder at distribution points dropped nearly 70%, from 99% to a low of 30%, and remained at 45% to 52% despite increased social marketing efforts.

A study was therefore initiated to identify factors leading to the low uptake of micronutrient powder through a qualitative inquiry. In-depth interviews were conducted with community leaders, stakeholders, implementing partners, and beneficiaries. Direct observations of food preparation

**Case Study**

**Understanding low usage of micronutrient powder in the Kakuma Refugee Camp, Kenya: Findings from a qualitative study**

![A pregnant woman in Kakuma Refugee Camp, Kenya, with a sachet of the micronutrient powder MixMe™. Source: Sight and Life](image)

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and child feeding were conducted. Focus group discussions were employed to examine perceptions and practices of beneficiaries regarding micronutrient powder use.

The study concluded that superficial formative research and lack of interagency coordination had led to insufficient social marketing prior to the program. In addition, community health workers were inadequately trained. This resulted in inadequate communication regarding the health benefits and use of micronutrient powder to the beneficiaries. Reliance on personal experiences with micronutrient powder and issues with its packaging, in part, led to confusion and deleterious rumors, resulting in decreased uptake of micronutrient powder at distribution points.

From this study it can be concluded that a successful micronutrient powder program requires careful design, with emphasis on conducting thorough formative research, ensuring the involvement and commitment of all stakeholders from the outset, investigating the role of cultural factors, and ensuring provision of sufficient, adequate, and timely information to the beneficiaries.


**Conclusion**

Melinda Gates and Paul Farmer articulated a truism when pointing out the need to “meet people where they are,” but this is not as easy to do as it might at first appear. While it might seem clearly essential to take into consideration the lived experiences of people when designing proposed improvements, this complex proposition can best be achieved through hard work, creativity, and a commitment to Design Thinking to create and maintain people-centered nutrition interventions.

**Our personal view**

**Sera Young, Shawn Baker and Rolf Klemm**

**Learning from failures as well as successes**

Design thinking encourages us to “fail fast, fail often and fail early.” But how exactly should one define failure?

Currently, there are roughly three types of information used to design a nutrition intervention or program. These three types of information pertain to biomedicine (e.g., disease burden, intervention efficacy), context (e.g., social norms, family structure, access behaviors), and delivery systems (e.g., clinic infrastructure, front line workers, private sector). Successful programs are those that are responsive to the constraints and opportunities implicit in each of those three domains. We think that these three considerations are necessary, but not sufficient, to prevent a program from failing.

We argue for a fourth consideration for nutrition program design, which is meeting the end user’s needs. In most cases, mothers (and their children), especially those in low-resource settings, are the target for interventions. But many interventions are not mindful of the burden they place on women, and specifically on their most valuable asset, which is their time. Fetching nutritional supplements from a far-off clinic, sitting through long behavior change sessions, preparing special complementary foods, and even exclusive breastfeeding, all take an extraordinary amount of time from the person who is often the first to wake up and the last to go to sleep each day.

Programs and interventions that are mindful of the end-user and her priorities have the greatest likelihood of success. And as such, we implore that end-user perspectives should be used to modify the intervention or product, right from the earliest stages, so as to create the greatest chances for nutritional success.
Further reading


References

9 Ibid.
17 Ibid.
19 Ibid.