I, Bhooma Srirangarajan, hereby submit this original work as part of the requirements for the degree of Master of Design in Design.

It is entitled:
Visualizing Primary Design Research:
Analyzing interviews in primary design research using, qualitative research and ethnographic principles and graphic design to communicate the results.

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Visualizing Primary Research:
Analyzing Interviews in Primary Design Research Using,
Qualitative Research and Ethnographic Principles and
Graphic Design to Communicate the Results

A thesis submitted to the Graduate School of the University of Cincinnati in partial fulfillment of the requirements for the degree of Master of Design

in the department of Design, Architecture, Art and Planning

by

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Abstract

One of the biggest challenges for designers today is to effectively communicate and validate the research they have conducted during the course of a design project. The following thesis proposes a method to visually communicate primary research to users who may or may not have domain knowledge about the subject and context within which a design(s) endeavor is proposed.

Primary research is often the most difficult to communicate as it is an amalgamation of a variety of data collection methods like, observation, interviews, oral surveys, digital surveys, co-creations, etc. In order to make sense of the collected data and organize it within a paradigm that encourages and supports design solutions, the data needs to be analyzed for its content. To prove this hypothesis, first, a systematic evaluation method, building on the principles of ethnography and content analysis, has been theorized to analyze the data. The ethnographic study includes the observation of: history, attitude (climate), terrain, habitat and desires, of a user group. A combination of two content analysis methods, the direct approach and the conventional approach has been proposed. The direct method of content analysis allows users to be armed with a theory about the context of the problem, while collecting data, promising a scope for innovation. The conventional approach, on the other hand, promises the possibility of finding new issues through coding and analysis of data. Next, the information is designed into an infographic using icons and layers, which have then been tested with two small control groups. The first, with no previous knowledge about the area of research, and the second, with limited awareness about the information that has been collected, albeit not directly involved in conducting said research. Using the research conducted in the Live Well Collaborative along with the Cincinnati Children's Hospital
and Medical Center’s iTransition team, this paper illustrates the use of a skeletal structure to analyze the data collected from the interviews. The structure is designed using the aforementioned ethnographic principles to ensure a comprehensive and unbiased insights. The insights are designed onto a predetermined framework informed by graphic design and communication sensibilities in order to best communicate the results. The graphic model consists of three layers of information: Framework layer, Immediate Information layer and Insights/Themes & Annotations layer. The Framework layer explains the category of information designated to each quadrant, the Immediate Information layer contains information that has been directly communicated to the interviewers by the participants and the Insights/Themes & Annotations layer contains information that has been gleaned by the research team supported by useful callouts. This layer contains information extracted through analysis of the interactions: reading of subtext, body language, language use etc.

This paper proves that visually designing the analyzed information collected during primary research, using icons and layering the information using a defined structure, will convey the insights from primary research more effectively.
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Primary research is an essential and crucial phase of design research. Primary research is defined as any research product that is new and a direct result of investigations conducted by the individual or team. “Techniques of original data collection or research direct from the target respondents. Primary research is different from secondary research in that secondary research uses data or research that has already been collected. Primary research includes qualitative and quantitative research and can include surveys, focus groups, questionnaires, and interviews.” (Doyle, 2011)

There are several methods of conducting primary research and the methods used for each design project are chosen carefully based on the requirements described in the design brief. Primary research data can be collected by conducting interviews, focus groups, co-creation sessions, observation sessions, surveys, questionnaires, to name a few. The following quote mentions a few ways to document these sessions: “This can be conducted with materials ranging from a pen and paper, to cameras or camcorders. Primary research is often the best way to start working on a project, as it is active and involves you moving quickly and plotting out initial ideas.” (Leonard, Ambrose, 2012).

Insights are very often generated and enriched through interactions with the users and the stakeholders. “An “insight” here is defined as an interesting revelation or learning that emerges out of observing people's actual behavior. Insight is an interpretation of what is observed, and is often the result of asking the question “why?”” (Kumar, 2012).

The chosen design direction is often a reflection of what is learned in the research phase and information gathered during primary research enriches the design solution thus produced.
Each designer has a combination of methods they use as a way of documenting the primary research they participate in. They may make notes, transcribe their interactions, annotate their transcriptions, voice record their observations, make a flow chart of insights and so on. They might follow all the steps or might choose to do only a few of the above mentioned tasks depending on need and time constraints. But these notes are unique and specific to the person or team making them and not always designed for future use. As such, the important stakeholders and other design teams may find it difficult to benefit from the meticulous work that has been conducted. “Carrying out their own research allows the marketing organization to address issues specific to their own situation. Primary research is designed to collect the information the marketer wants to know and report it in ways that benefit the marketer” (“Primary Research”, 2014). If the data and insights from primary research are recorded effectively, other design teams could also potentially work on their project using this research as a platform to begin new research. However, due to the non-structured process of documentation it might be difficult for the audience to navigate through the research. There is a communication gap between the author of these research insights and the various audiences who might use them.

To summarize, primary research is new information that has been generated by the designer or the team. There are different types of primary research and each design project requires the primary research to be structured around the project brief. Each design team or designer utilize their own combination of methods to document the primary research they have conducted. Currently this information is not designed for potential stakeholders or future design teams and thus leads to a disuse of valuable information. A structured approach towards documenting primary research and the
insights that are subsequently pulled from the research is what this paper hypothesizes. If such a solution is readily available, research findings may be useful and accessible to more people.
Chapter 2 – Hypothesis

In the document “Statistics on Visual Learners” published in 2012, it is an established fact that visual learning is more effective than any other means of learning. Nearly 65 per cent of the population consists of visual learners. In 2001, 3M discovered upon investigation that learning improves 400 per cent upon using visual aids and that the human brain process visuals nearly 60,000 times faster than text. Nearly 40 per cent of the nerve fibers that are connected to the human brain are also connected to the retina. (“Statistics on Visual Learners”, 2012) “Visualization helps make sense of data that may have seemed previously unintelligible. Leonardo da Vinci, in recognizing the impossibility of recording volumes of data, translated words into drawings from different aspects. As history repeats itself, we may find that a great deal of information is better presented visually rather than verbally.” (Strokes, 2002).

Every design project goes through specific steps in their research phase. The model displayed in Figure 1 adapted from Leonard and Ambrose, was followed for the purposes of this thesis, describes the process eloquently. (Leonard, Ambrose, 2012). Using this research model, the following thesis suggests a process for the graphical

![Figure 1](image-url)
representation of the research, specifically, primary research. The white text in Figure 1 indicates the areas where the new model would be inserted and implemented.

The primary research conducted for each design project is decided upon after deliberation, consideration and based on the design brief, the project aim, the target audience and the end user. Primary research that is targeted towards enriching design solutions and adheres to the requirement of the project brief allows design teams to justify their concepts and validate the design directions with other teams like the marketing teams, finance departments and R&D departments etc.

The idea for a visual communication solution to communicate primary research arose during a project that was being conducted at the Live Well Collaborative. The sponsor, Cincinnati Children’s Hospital, had come to the Live Well with a problem that involved promoting medical adherence for teenagers who have Sickle Cell Disease. The team that works with teenagers with Sickle Cell Disease is called the iTransition team. This was the second project that the iTransition team had worked on with the Live Well Collaborative. This provided a suitable model on which to base the research for this thesis paper. The interview transcripts from the first project were used in the second project to familiarize the design team with the context in which they were working. However, the team found it difficult to go through all the interview transcripts as they were only recorded as text and much of the notes about the interviewers’ observations were not suitably recorded. This project was selected as an appropriate choice to test the hypothesis in this paper for a two reasons. First, the author of this paper was an active participant in the design project and especially in the primary research phase and has first hand knowledge about the different measures that were taken to collect data. And second, there was easy access to a sample target audience to test the model and
record the results. The first and the second project used multiple primary research methods allowing the model to be informally tested across interviews, observations and co-creations sessions (this paper reports the model and the results for interviews only).

During the course of the research into the condition and the lifestyle that these teenagers have to maintain, the design team conducted more than 17 interviews, 3 observations and 2 co-creation sessions and 1 evaluation session with patients and important stakeholders. Interviews, observations and co-creation sessions were documented through transcriptions, photographs and video recordings. These were then analyzed and the results were formulated into opportunity areas, which would influence the design direction the project would follow. However, only the analyzed results of the primary research were communicated back to the CCHMC team and the other information was not designed for future use. This results in a disadvantage for design teams who may wish to build upon the current project, as they are unable to follow the process of deduction. Providing the audience with the end product deprives them from being able to follow the progression of thought and idea, which enriches the journey of acquiring knowledge from the research that has been conducted.

Thus began the idea and hypothesis that there might be a visual system to communicate the results of the primary research to the sponsors and other design teams. A “checklist” was designed to help convert data into insight, i.e., facts received from interactions with the consumers into understandable and “designable” information. The checklist for studying design research was created using ethnographic research principles and the characteristics of the House of Quality Matrix method as guidelines (explained in detail in the chapter, ‘Prototypes & Model’). This paper details two parts to ensuring effective communication of primary research. First, using the
aforementioned ethnographic analysis process, designers can analyze the data collected from the primary research and second, communicate the results of said analysis using a predetermined framework that is informed by graphic design and communication sensibilities.

The rest of this chapter details the role that the proposed model in this paper plays in the analysis and research aspect of the hypothesis. The first step towards documenting and communicating primary research would be to analyze the data collected using the criteria provided. The next step would be to use icons to represent the data collected on the framework that has been outline in this document. The information has been divided into three layers: The Framework layer, the Immediate Information layer and the Insights/Themes layer. The Framework layer explains the category designated to each quadrant, the Immediate Information layer contains information that has been directly communicated to the interviewers by the participants and the Insights/Themes layer contains information that has been gleaned by the research team. This layer contains information that has been extracted through analysis of the interactions: reading of subtext, body language, language use etc.

Using the different layers, the user is able to understand the information in its chronological order. They are also able to compare the information with the other layers. Once the information has been viewed in its entirety with the comparisons highlighted, we can draw conclusions and map out potential design opportunities. Using the icons provided, arrange them on the Immediate Information layer based on the interactions with the participants and the categories that have been defined in the framework layer. The same process is followed for the insights/ themes layer, arranging the information based on the analysis of the interactions.
Having the primary research organized in this fashion also helps future designers follow the thought process that led to the design solutions for that particular project and gives them a simple and useful infographic about the primary research and the results from the research. On the other side, it helps the clients communicate the value of the design solution and the research to another. As designers, we have a unique advantage in being able to communicate using visual communication methods. By using our skills to communicate primary research we are able to validate our research methods and inform the users and the sponsors of our logical and methodical design process.
Chapter 3 – Methodology

Most often interviews and the focus of primary research is established by the design brief and the secondary research that is conducted for the project. Secondary research for the purposes of this thesis is defined as. “Secondary research includes investigation into ideas and processes already conceived and implemented by others.” (Leonard, Ambrose, 2012). With the help of existing data that is available and the information that is deemed important for our goals, the focus of the primary research is organized. Once the intention behind conducting primary research is established the types of research that can be conducted are narrowed down and finally chosen according to need.

The project described previously involving CCHMC was a patient centric project that clearly stated that it should involve patients in the designing and implementing of the proposed solution. Our focus was to investigate the source of discomfort or difficulty when it came to adherence to their medical regimen. Using the previous project, which has been conducted with the same CCHMC team, and their expert knowledge about the difficulties of living with Sickle Cell Disease, we were able to establish the presence of such an issue. The interviews centered on the root of the problem and the patients’ issues with the current solutions and reason for medical non-adherence. Armed with this information, the team was to find a design solution that helped promote healthy living that incorporated the regime required for Sickle Cell Disease into the patients’ lifestyle.

After consulting the important stakeholders from CCHMC, it was decided upon that the research methods that should be applied were interviews and co-creation session (in that order). These interviews were then scheduled based on patient availability, doctors’ preference and nurses’ attendance. Since, the patients were quite
connected with each other it was important to ensure that their comfort level was respected. A lot of the interviews were conducted when the CCHMC team organized group sessions. Though the interviews themselves were conducted with one patient at a time, the group sessions were a benefit, as interviewees felt less guarded and more willing to talk as they had had an opportunity to see the interviewers in a group setting. One of the keys to having a successful interview session with a person, specifically, someone who may be directly linked to the project at hand would be to ensure that the interview setting is one of familiarity and comfort. Therefore, for the CCHMC interviews, a member of the Sickle Cell Transition team was always present in the interview room. This also respected the need for supervision of these interviews as many of the interviewees were below the age of 21 and still under pediatric care. Thus, the 17 interviews were conducted over the course of 3 weeks. The interviews were documented through voice recorders and copious notes taken by the design team conducting the interviews. These interviews were then revisited using the data collected and analyzed for any further insights that can be gathered from them.

The following thesis proposes criteria with which to analyze these interviews. These criteria are a combination of principles that govern ethnography and content analysis.

### 3.1. Ethnography and Content Analysis

The research phase in any project often begins with an initial dive into secondary research to familiarize oneself with the subject. Once, rudimentary domain knowledge is acquired, the design team is better equipped to begin planning the primary research phase and have a more targeted approach towards in depth secondary research. Any
new knowledge that the team gathers is from the exploration that is undertaken during these phases. Ethnographic research is usually conducted during the primary research phase to better understand the background of the target audience, their practices in the past and the evolution of their current habits.

Ethnography is typically defined as, “A close cousin to phenomenology is a qualitative approach commonly called ethnography, distinguished by a focus on the culture of a society. This usually involves immersion in a culturally distinct group to study everyday life and relies on participant observation as a data collection method. Because qualitative researchers investigate phenomena that do not lend themselves to straightforward measurement, they may not know at first what should be observed, let alone whether the construct could be measured with any degree of meaningfulness.” (Suter, 2011). The goal of conducting such research is to discover new knowledge and to investigate unexplored regions of the domain to ensure that any solution that is being put forth is an improvement upon all other existing solutions. "We use observational and ethnographic research methods to learn about people in ways that are different from interviews or focus group studies. A key objective in this mode is to extract the most valuable insights from our observations.” (Kumar, 2012)

While ethnography falls with the qualitative research paradigm, without content analysis any useful information within the collected data may not be available in a format conducive to design thinking. “The ‘materials' generated by ethnography consist mainly of field notes, audio and video recordings, together with other displays of the setting's life. These materials are used to provide vivid exhibitions of the activities, which generated them…” (Crabtree, Rouncefield, et.al, 2012). As mentioned above, designers document primary research using these methods during the course of their
investigation. “…But data in this sense is not the critical thing which ethnographic work generates. It is the ethnographer's understanding of the setting from within which the exhibits are extracted, which is crucial… Data is indexical to a setting's work and it is our understanding of that work, particularly our disciplinary understanding that is important. In and of itself `data' i.e., the stuff we collect during fieldwork is meaningless. It has no value until we make it into something that illuminates a setting's work and its organization…” (Crabtree, Rouncefield, et.al, 2012). This proves that analysis of collected data is required in order to make sense of the facts and to organize the information that could prove most useful towards solving the problem at hand.

As mentioned, without “our disciplinary understanding” of the data it does not have a useful purpose. In order to make sense of the collected data and organize it within a paradigm that facilitates and supports design solutions, the data needs to be analyzed for its content. “Content analysis is a widely used qualitative research technique. Rather than being a single method, current applications of content analysis show three distinct approaches: conventional, directed, or summative…In conventional content analysis, coding categories are derived directly from the text data. With a directed approach, analysis starts with a theory or relevant research findings as guidance for initial codes. A summative content analysis involves counting and comparisons, usually of keywords or content, followed by the interpretation of the underlying context” (Hsieh, Shannon, 2005).

For the purposes of this project, we were able to establish a combination approach towards content analysis. The investigation is already armed with a theory i.e., there is a medical adherence issue with teenagers who suffer from Sickle Cell Disease, and therefore the requirements of the investigation are predetermined. So, the
team begins research on specific areas of interest that promise scope for design solutions. Thus, based on Hsieh and Shannon’s definition we may begin analyzing content using the directed method of content analysis. However, there is also the possibility of finding new issues that may be very specific to the medical adherence and we would be remiss as designers if we were not diligently combing our research for those. Therefore, it stands to reason that the text data collected from the interviews must also be coded and analyzed for insights using the conventional approach, as well.

Hence, the design team working on this project adopted a combination approach towards content analysis. Armed with the data and insights from the previous project and the new knowledge acquired from the research conducted for the current project, we were able to establish a richer and well-informed foundation for our design project. Using ethnographic principles and the three approaches towards content analysis (conventional, direct and summative), a set of categories were constructed that could help the design team study and aim their investigation towards targeted problem areas. Based on this framework each design team would impose their own specific set of categories as per their project objectives and the type of primary research that has been conducted. For the purposes of this project, only one form of primary research (interviews) has been used to test the framework and the model.
3.2. Framework for Analysis of Interviews

Figure 2 is a graphical representation of the different categories that were created for the CCHMC project. The use of the circle provides the necessary flexibility for other designers to adapt this model to their requirements. For example, if the primary research method that is being analyzed is surveys, the circle can be divided into more quadrants depending on the type of information the survey is trying to collect.

1. Who are they? *(Brief History)*

An ethnographic study always includes a brief history of the subjects being studied. This section details demographic information about the participants. It includes
information like gender, age, education level, language capabilities, disabilities etc., of a population. The information that is collected from the participants that may fall under any of these categories is filtered into the brief history section. While demographic information is typically a generalization of the findings, as a design team we do use this opportunity to take note of any abnormalities and further investigate the patterns behind them. This helps us gage the trend that is currently in practice and create educated hypothesis about trends that might come to pass in the future.

2. *Attitude towards current solution (Climate)*

The researchers try to understand the emotional climate that is prominent with the participant group. The climate section of the research details the emotional requirements, advantages, restrictions and limitations. Our aim is to study the current attitude with the participant group towards their lifestyle, problems and limitations. We gather opinions; thoughts and feelings about solutions currently used to solve their problem and gain understanding about areas that might yet be lacking a viable solution. What are their emotional cues? What kinds of information do they freely express and why? What does their body language communicate? What sort of expressions do they wear while conversing with the interviewer? How does this either support or contradict what they share?

3. *Where is the solution available? (Analysis of Terrain and Habitat)*

This section seeks to gain an understanding about the participants’ ethnicity, economic status, geographical location, employment status, etc. We attempt to
understand the current solutions that are available and in use. We try to gain an understanding of the circumstances that our participants are working within and the physical environment within which our problem exists. Our aim is to gain knowledge about the geographical restrictions of our target audience, their physical advantages and limitations of aforementioned environment and their interests and comfort level. We also aspire to study the interests of the participants so we may design solution using their existing interests to gain their attention.

4. *What kind of solutions do they want? (People’s Desires)*

Under this section of the ethnographic study, we gain insight about the kind of solutions the participants may want from the design solution. The participants may not always be aware of the kind of solutions they would require or need. However, the questions that are created for the interview will help us understand the problems they are currently facing, which would, in turn, inform our new solutions. We also look into the spontaneous innovations that people generate from daily practice, in order to cope with the current issues. These innovations are a great resource into understanding the difficulties they are forced to face and the technical expertise of the target user. We gage the enthusiasm levels with the target group in welcoming a new solution and their comfort level with respect to technology.

Using the structure and all the materials (images, notes, voice recordings, transcriptions etc.), we can begin analyzing the data and extracting insights. Once the insights are extrapolated, the framework provided in Chapter 4 – Prototypes and Testing, provides an avenue for designers to organize the information in a deliverable format.
Prototyping a model is one of the most cost effective means of assessing a proposed design solutions’ validity. While prototyping is more common with product design and development, it is a valid approach for the evaluation of the proposed model in this paper. “Designers in all disciplines make use of sketches and models to envision artifacts before they are actually constructed...A mixture of prototypes and mock-ups will often be used for different stages in a design process to represent certain aspects of an interactive system. In this sense, representations in interaction design rest on a foundation of practice developed in fields such as product design and graphic design.” (Holmquist, 2005)

Prototypes facilitate interactions with the user at earlier stages of concept development. The feedback gained during this phase allows designers to make informed design choices resulting in sound solutions. Through prototyping and creating models for the users to interact with we also gage the feasibility of the proposed solution. We understand the learning curve that goes along with the concept and design to accommodate the time factor. Providing the users with a model of a new approach to a familiar situation may expand their imagination to think of and envision new possibilities. It gives them an opportunity to experiment with unconventional approaches that may not have been used before. Their recommendations and input are enriched by the concepts, which in turn inform the design solution. The model provides a tangible artifact that can be scored, tested, evaluated and modified based on user feedback, feasibility, project requirements and design principles. The “prototype”, in
this case, is a hard copy of the model, printed in different layers to maintain the sequence of information.

4.1. Data Collection Methods

There are two types of data collection: quantitative and qualitative. Quantitative methods of data collection can include physiological measures and questionnaires, using rating scales to name a few. Qualitative methods mostly involve focus group interviews, field observation, etc. For the testing of this model, a self-completed questionnaire was created and an interview session was conducted. The questionnaire had close-ended questions as participants may hesitate to express their opinions when the questions are open-ended. “Generally, written questionnaires to be completed by respondents need to be structured with more closed-ended rather than open-ended questions because many respondents find it challenging and time-consuming to express their thoughts in writing. Self-completed questionnaires often provide quantitative data.” (Butterfoss, Francisco et al., 2000). Along with the self-completed questionnaire the setting for the testing was also designed to be a casual interview or a discussion among peers. There were no time restrictions or social restrictions with how they could interact with the other participants. All the users were assembled in the same room and were free to discuss, consult and ask questions to each other and the researcher. The atmosphere was specifically designed to be one of casual discussion to encourage the participants to be forthcoming with their opinions, thoughts and suggestions.

There were distinct benefits to combining the data collection methods of self-completed questionnaire and interviews. The questionnaire allowed the test to be administered to a group of people at the same time. In the case of busy professionals
like the CCHMC’s iTransition team, time is an important consideration. All the participants in the test session were given the same questions that ensured uniformity. The casual conversation like interview session with the group supported the questionnaire by allowing the participants to think out loud and discuss their understanding of the model. This also allowed the researcher to probe and question the participants about their thoughts to gain a better understanding of their impression of the model. While the questionnaire was close-ended, the conversations were open-ended allowing the participants to share freely. This also helped the researcher gain a comprehensive understanding of the verbal responses and document any signs of negative feedback the participants may not be willing to express.

4.2. Aims

With respect to the model tested in this study, one of the most important things that needed to be tested was the users’ ability to understand the information presented to them in graphic model. The model as mentioned in Chapter 2, Hypothesis, has three main layers organized sequentially: the Framework layer, the Immediate Information layer and the Insights/Themes layer. In order to be able to test the effectiveness of the model with respect to communication, a comprehension questionnaire was designed. The questions were all targeted towards understanding whether the participants were able to navigate through the model and follow the process and use the layers as instructed. Following the sequence of the layers allows the user to follow the process of defining categories of interest, conducting interviews and collecting data and analyzing the data to extract insights and knowledge. The following are the main objectives of the testing phase:
1) Is the information in the model presented simply enough to accommodate a short learning curve for the users?

2) Is the design language used in the model clear and concise?

3) Are they able to process the icons on each layer and comprehend the meaning?

4) Are they able to view the graphic as a whole and form logical conclusions about the progression of the investigation?

5) Is the vocabulary use in the model supportive to the icons?

6) What information would they be interested in seeing in this model?

7) Is there a steep learning curve when it comes to using the tool?

8) What sort of instructions is needed in order to make the learning easier?

4.3. Initial Testing (Group 1)

Two groups were tested to evaluate this model. Group 1 consisted of designers from multiple concentrations like, industrial design, interaction/digital design, product design and graphic design. This group had no domain knowledge about Sickle Cell Disease and was provided a description that would allow them to role-play as active designers familiar with the project brief.

The following steps describe the structure of the initial testing session. First, the project brief was provided to the participants, which described the domain in which the designers were meant to be creating their solutions. The brief also described the goal of the endeavor and the objectives of the project. The project brief was aimed at giving the participants rudimentary domain knowledge about the context in which they are reading this information.
“Sickle cell disease is a hereditary blood disorder that affects the shape of the red blood cells and turn them from oval shaped cells to crescent shaped cells. It results in shorter life expectancy, chronic pains, strokes etc. In Cincinnati Children’s Hospital, they take care of the medical requirements of patients from the time they are born to the time they are ready to accept medical care form the Adult Clinic. The moving from Pediatric Care to Adult Care is called transition.

You are part of the team tasked with the goal of developing patient self-management tools to improve the transition from Pediatric Care to Adult Care for patients with sickle cell disease. You have been in contact with many patients who have Sickle Cell Disease. And you have conducted these interviews face to face with most of them. The following is the summary of what you learned from these interviews: (Please refer to infographic)

Second, they were introduced to the design tool with brief descriptions about what each layer represents. And then, they are encouraged to utilize their time to study the graphic and answer the 8 questions presented to them. Figure 3 shows the Framework layer of the tool. Figures 4 and 5 are the Immediate Information Layer and the Insights/Themes layer, respectively.
**Figure 3**

Level 1: Basic Grid

1. Who are they?
2. Current Attitude
3. Where is it used?
4. What do they want?

**Legend**
- Number of participants
- Positive insights - to be used further in the project
- Negative insights - problems to be solved in the project

**Figure 4**

Level 1: Basic Grid

1. Who are they?
2. Current Attitude
3. Where is it used?
4. What do they want?

**Legend**
- Number of participants
- Positive insights - to be used further in the project
- Negative insights - problems to be solved in the project
The following questions were the rest of the self-completed questionnaire:

First, how many people were interviewed in total? Second, how important/relevant is their age? Third, what is the predominant attitude among the interviewees? Fourth, where is the current solution available? How important is that information? Fifth, where does the solution need to be available? Sixth, are there any problems with the existing solutions? Seventh, what kind of solutions do consumers/interviewees want? Eight, what are the popular trends with respect to solution types? And finally, please feel free to comment on any of the content you have seen during this session.

Each participant took anywhere from 15 to 20 minutes to go through the entire testing process. The next 10 minutes were used for an informal interview. Following the completion of the questionnaire, participants were encouraged to express their opinion about their experience with the tool.
During the testing process, the researcher recorded the testing sessions by discreetly observing participants while they worked to record their body language. This helped record any signs of frustration like sighing or searching through different layers repeatedly to find an answer. The time that each participant took was also recorded to estimate how long it takes for an average user to gain information from this tool. Information that was recorded during the observation sessions and the interview sessions were in the form of handwritten notes.

4.4. Results from testing with Group 1

Each test took 15 to 20 minutes. A total of five designers were tested with this model. The results are as follows. The questions that scored a ‘1’ have been answered correctly, ‘0.5’ for a partially correct answer and a ‘0’ for an incorrect answer.

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<td>1</td>
<td>0</td>
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Along with the following scores, the results were analyzed for potential changes that can be made to the model to improve communication. Some of the observations were:

1. The icons used for gender and their subsequent link to the ‘teenager’ icon, meant to communicate, “Nine interviews were conducted in total, four males and five females, out of which 5 of them were teenagers.” was confusing. Two participants out of the five thought the icons meant the total number of interviews conducted was 14.
2. The users desired explanations to any changes between the Immediate Information layer and the Insights/Themes layer. They were curious as to why some elements have shifted to a lower priority ring and why some icons were added to the Insights layer.

3. The vocabulary used in the tool and in the questionnaire had to mirror each other as any deviations resulted in miscommunication.

4. The captions around the quadrants had to be clear about whether the quadrant held information for the solution or the problem area.

5. It was suggested that a circular basic form be used for the overall model and this allowed the reader to follow the quadrants in sequence. This was also easier to read in terms of being able to focus on icons at the center, which are of more importance.

6. There were also difficulties in understanding the meaning behind the two types of insights as they were worded differently and there was a chance of miscommunication about the intentions behind these insights. For example, ‘positive insights and negative insights’ seem to communicate two types of information that are direct opposites of each other (e.g. good versus bad). However, the information did not reflect such a polar opposite quality. The ‘positive insights’ were opportunity areas that the team could take advantage of during the design process and the ‘negative insights’ were problems that needed to be solved with the concept we were proposing. These issues are addressed in the later versions of this model.

7. All the participants were enthusiastic about using the tool and expressed their desire for the tool to hold more information. They believed that if they had to go
through primary research, which they hadn’t conducted themselves, this tool would be most useful in helping them navigate through the information.

8. All five participants agreed that the visual language is simple and easy to understand.

Along with these suggestions, through the research it was discovered that a succinct description of what each layer stands for would be most helpful. The participants were curious as to what each layer stood for and were interested in hearing a brief description about the layers. In the later versions of this tool, these descriptions and suggestions were given due consideration and were incorporated.

4.5. Testing with Experts (Group 2)

The second round of testing took place with the members from the CCHMC iTransition team. This test session was conducted in a group with the same structure as mentioned above. The atmosphere for the testing session was that of casual interview to encourage the participants to openly express their thought and opinions about the model. There were no limitations of time and the users were encouraged to take their time to analyze the infographic. A revised version of the model and self-completed questionnaire was presented to them. The brief description was altered in order to accommodate the audience. The CCHMC team members are experts in the transition process from pediatric care to adult care for sickle cell patients. Therefore the following description was provided to them:

“You are part of a team tasked with the goal of developing patient self-management tools to improve the transition from Pediatric to Adult Care in sickle cell disease. You have been in contact with many patients who have Sickle Cell
Disease. And you have conducted these interviews face to face with most of them. The following is the summary of what you learned from your interviews: *(Please take some time to study the infographic)*
Figure 8

Figure 9
The self-completed questionnaire comprised of the following questions: First, how many people were interviewed in total? Second, how important/relevant is their age? Third, where is the current solution used? How important is that information? Fourth, where does the solution need to be available? Fifth, are there any problems with the existing solutions? What is the predominant attitude among the patients? Sixth, what kind of solutions do the consumers/interviewees prefer? Seventh, what did we understand about what kind of solutions might be better suited for the situation? And finally, please feel free to comment on any of the content you have seen during this session.

4.6. Results from testing with Group 2

Much like the initial testing with Group 1, Group 2 also took around 30 minutes to complete their questionnaire. A total of seven members from the CCHMC team participated in the test. Four of the members had been a part of the medical adherence project and three members were new to the team and only had a rudimentary knowledge of the project we had conducted. This allowed for a healthy mix of experts with knowledge about the interviews that had been conducted and newcomers who could assess the model with fresh eyes. The following chart shows the scores that each participant earned for each question. The implications of the scores are mention in Chapter 5 – Conclusions.

<table>
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<th>3</th>
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<td>7</td>
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<td>7</td>
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<td>CJ</td>
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<td>7</td>
<td>6.5</td>
<td>7</td>
<td>7</td>
<td></td>
</tr>
</tbody>
</table>

Figure 10
The following observations were made about the users’ experience with the model:

1. Almost all the participants were enthusiastic about having a graphical representation of primary research.

2. They were very welcoming of the descriptions of each layer and could understand the connection in having the use the tool sequentially.

3. The gender of the participants and the subsequent link to ‘teenager’ was slightly problematic. The users were unable to tell if the four males and five females were separate from the five teenagers.

4. The participants expressed their desire for even more detailed notes about the changes between the Immediate Information layer and the Insight/Themes layer. They were also curious about why icons like ‘Social Campaign’ appeared in the third layer.

5. It was also suggested that the legend explaining the ‘positive insights’ and ‘negative insights’ be moved to a more accessible position.

6. The captions on the icons were a little confusing and could be reworded.

7. It was also suggested that the label for each layer be reworded in order to communicate to a wider audience.

8. Most of the users expressed an interest in wanting to have the option of pursuing a particular piece of information and delving deeper into its significance. For example, one user wanted an explanation as to why the icon for ‘School’ appeared only in the last layer.

It was also observed that the learning curve to use this tool, for a non-designer, is slightly higher. However, open putting forth this question to the users, most of them
were of the opinion that it was not too different from “learning to read a map”. They agreed that it was something worth spending the extra time on as it allowed them to see the comprehensive results of all the interviews in one sitting.
Chapter 5 – Conclusions and implications

Based on all the feedback from the target audience, the following conclusions were made about the model:

1. There is a real need to use graphic design to solve problems of communicating large volumes of data, which was explicitly expressed by the target user groups.

2. While the users are enthusiastic about this new tool they also expressed concern over how to create the icons used to graphically represent information.

3. They are open to the idea of having visual to communicate primary research but as experts who conduct, transcribe, annotate and analyze interviews on a regular basis, they question how this tool could be updated constantly.

4. There is also a question of bias in the visually represented data. The information that is carried forward into the model is based on the analysis done using the Framework for Analysis of Interviews structure. It needs to be emphasized that the designers do build upon the structure proposed by this paper. Four step structure here is a starting point for other designers who may mold the framework based on the type of primary research being conducted and the requirements of the project brief.

5. The target users also expressed concern over how this model would be delivered to other potential users. This point is addressed in Chapter 6 – Future Investigations and Research.
5.1. Refinement

Based on all the suggestion above the following changes were made to the model:

1. Descriptions were added on to the model on the Framework layer to communicate the significance of each quadrant and the nature of the information it holds.

2. The captions around the quadrants on the Immediate Information layer were changed.

3. The miscommunication between the gender of the interviewees and their age was address. The bubble that indicates the number of interviewees now indicates, “2 (M) + 3(F) = 5” above the teenager icon, meaning, two males and three females were interviewed and they are teenagers.

4. In the Insights/Themes layer, the vocabulary around the quadrant changes from the vocabulary used in the Immediate Information layer. This is to signify the process of analyzing raw data to generate insights and information.

5. The vocabulary for the legend has also changed. Previously, the red circles indicated ‘negative insights’, but are now labeled, “Problems that need to be solved or addressed while creating solution”. The green circles were labeled ‘positive insights’ are now captioned “Insights that can be used while creating solutions”. These changes were a reflection of direct feedback from the users.

6. Additionally, a third sub layer was added to the model, called Annotations section in the Insights/Themes layer. This sub-layer had notes and information about all the insights that were plotted on the Insights/Themes layer. They also had information that explained the move of some of the icons from layer 2 to layer 3.
Figure 13

Figure 14
Chapter 6 – Future Investigations and Research

There are definite research possibilities for the near future with the graphic model and the framework that was used to analyze the interviews. Some of them are listed below:

1. Test the framework for analysis with other forms of primary research such as observations, surveys, co-creation sessions and validation sessions of proposed design concepts, to name a few. The test would include being able to study data from these sessions and studying their ability to produce useful information that can later be used to propose design solutions.

With this thesis, only the layered model was analyzed for its ability to effectively communicate primary research conducted during the course of a design project. There is a vast opportunity to refine the analysis framework to help glean insightful information from the data collected, which in turn could help guide designers to create more effective design solutions. With a more sophisticated analysis framework, future designers and users of this information, could produce more targeted design solutions to solve the problem at hand. They would also be able to identify a higher number of opportunity areas to ideate within.

2. Create digital adaptations of the layered model. Researching the possibilities into making the model a digital interface that allow users to select icons from a repository and position them on layers in the related quadrants (as defined by the users) would significantly reduce the time it takes to assemble the infographic. Currently, the designer(s), designs and defines the framework layer, assigns the values for each quadrant, finds or creates icons that can be used in the model, analyses the information and inputs insights into the graphic model. With a
predetermined digital structure, the user would only have to define the quadrants, analyze the data for useful information and use the icons from the repository to communicate the insights.

Primary research is one of the richest and most valuable sources of information for stakeholders and designers. The research and the knowledge gathered during the research phase of a design project significantly contribute to the quality of design innovation. Communicating the insights gleaned from the entire process could positively change the design experience for other designers, users and stakeholders.
References & Bibliography


Brief:
Sickle Cell disease is a hereditary blood disorder that affects the shape of red blood cells and turns them from oval shaped cells to crescent shapes cells. It results in shorter life expectancy, chronic pains, strokes etc. In Cincinnati Children's Hospital, they take care of the medical requirements of patients from the time they are born to the time they are ready to accept medical care from the Adult Clinic. The moving from Pediatric care to Adult care is called transition.

You are part of a team tasked with the goal of developing patient self-management tools to improve the transition from Pediatric to Adult Care in sickle cell disease. You have been in contact with many patients who have Sickle Cell Disease. And you have conducted these interviewes face to face with most of them. The following is the summary of what you learned from your interviews:

*Please refer to infographic*

**After studying all the layers in the graphic, answer these questions:**

1. How many people were interviewed in total?
   
   9

2. How important/relevant is their age?

   Very important (at least more important than gender issues)

3. What is the predominant attitude among the interviewees?

   Frustration

4. Where is the current solution available? How important is that information?

   Home, work, travel

   Most important

5. Where does the solution need to be available?

   School
6. Are there any problems with the existing solutions?

7. What kind of solutions do the consumers/interviewees want?

   mobile solutions & social campaign
   more important

8. What are the popular trends with respect to solution types?

   more mobile (more locations), easier to access,

Please feel free to comment on any of the content you have seen during this session.

- One detail (some preset habits).
  - Maybe the sequence of the layers make this which is used in math is more understandable for me.

- The "insights" insites" are a bit confusing to me. They are different things, maybe, are more different visual marks, e.g., circles and squares.

Love, [Signature] (maybe)
Brief:
Sickle Cell disease is a hereditary blood disorder that affects the shape of red blood cells and turns them from oval shaped cells to crescent shapes cells. It results in shorter life expectancy, chronic pains, strokes etc. In the Cincinnati Children's Hospital, they meet the medical requirements of patients from the time they are born to the time they are ready to accept medical care from the Adult Clinic. The moving from Pediatric care to Adult care is called transition.

You are part of a team tasked with the goal of developing patient self-management tools to improve the transition from Pediatric to Adult Care in sickle cell disease. You have been in contact with many patients who have Sickle Cell Disease. And you have conducted these interviews face to face with most of them. The following is the summary of what you learned from your interviews:

*Please refer to Infographic*

**After studying all the layers in the graphic, answer these questions:**

1. How many people were interviewed in total?

    9

2. How important/relevant is their age?

    High importance

3. What is the predominant attitude among the interviewees?

    Frustration

4. Where is the current solution available? How important is that information?

    | Digital | Package |
    |--------|---------|
    | High   | Low     |

5. Where does the solution need to be available?

    Home | Travel
6. Are there any problems with the existing solutions?

   Yes, the "teen" factor
   Conceptual difficulties
   Geographical difficulties

7. What kind of solutions do the consumers/interviewees want?

   Mobile and social campaigns
   Need to use it at school

8. What are the popular trends with respect to solution types?

   Mobile solutions

Please feel free to comment on any of the content you have seen during this session.
Name: Elliot Perry  
Profession: MD  
Organization: DAAP

Brief:
Sickle Cell disease is a hereditary blood disorder that affects the shape of red blood cells and turns them from oval shaped cells to crescent shapes cells. It results in shorter life expectancy, chronic pains, strokes etc. In the Cincinnati Children’s Hospital, they meet the medical requirements of patients from the time they are born to the time they are ready to accept medical care from the Adult Clinic. The moving from Pediatric care to Adult care is called transition.

You are part of a team tasked with the goal of developing patient self-management tools to improve the transition from Pediatric to Adult Care in sickle cell disease. You have been in contact with many patients who have Sickel Cell Disease. And you have conducted these interviews face to face with most of them. The following is the summary of what you learned from your interviews:

Please refer to infographic

After studying all the layers in the graphic, answer these questions:

1. How many people were interviewed in total?
   
   14

2. How important/relevant is their age?
   
   High importance

3. What is the predominant attitude among the interviewees?
   
   They feel frustrated about it

4. Where is the current solution available? How important is that information?
   
   Travel → low important
   Work → medium important
   Home → high important

5. Where does the solution need to be available?
   
   Reception Home
6. Are there any problems with the existing solutions?
   Yes. Geographical difficulties and conceptual difficulties.

7. What kind of solutions do the consumers/interviewees want?
   Package & Digital

8. What are the popular trends with respect to solution types?
   Social campaign & Mobile Solution

Please feel free to comment on any of the content you have seen during this session.
1. It's hard to connect the level 2 and level 3
2. Kind of confused about "Digital Solution" in level 2 and level 3
Name: Jenny Chan

Brief:
Sickle Cell disease is a hereditary blood disorder that affects the shape of red blood cells and turns them from oval shaped cells to crescent shapes cells. It results in shorter life expectancy, chronic pains, strokes etc. The Cincinnati Children’s Hospital meets the medical requirements of patients from the time they are born to the time they are ready to accept medical care from the Adult Clinic. The moving from Pediatric care to Adult care is called transition.

You are part of a team tasked with the goal of developing patient self-management tools to improve the transition from Pediatric to Adult Care in sickle cell disease. You have been in contact with many patients who have Sickle Cell Disease. And you have conducted these interviews face to face with most of them. The following is the summary of what you learned from your interviews:

Please refer to infographic

After studying all the layers in the graphic, answer these questions:

1. How many people were interviewed in total?
   - 9

2. How important/relevant is their age?
   - High Importance (teenage)

3. What is the predominant attitude among the interviewees?
   - Frustration

4. Where is the current solution available? How important is that information?
   - Online (digital) or physical (in a package)

5. Where does the solution need to be available?
   - School, on top of home, work & travel
6. Are there any problems with the existing solutions?
   frustration from patients, each situation is unique, conceptual difficulties, geographical difficulties

7. What kind of solutions do the consumers/interviewees want?
   mobile solution & social campaign

8. What are the popular trends with respect to solution types?
   out of home, on-the-go mobile/digital solution

Please feel free to comment on any of the content you have seen during this session.
6. Are there any problems with the existing solutions?
   frustration from patients, each situation is unique, conceptual difficulties, geographical difficulties

7. What kind of solutions do the consumers/interviewees want?
   mobile solution & social campaign

8. What are the popular trends with respect to solution types?
   out of home, on-the-go mobile/digital solution

Please feel free to comment on any of the content you have seen during this session.
Brief:
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Please refer to infographic

After studying all the layers in the graphic, answer these questions:

1. How many people were interviewed in total?

   14

2. How important/relevant is their age?

   High important

3. What is the predominant attitude among the interviewees?

   Frustration

4. Where is the current solution available? How important is that information?

   School, Home, work, Travel; very middle, less

5. Where does the solution need to be available?

   School
6. Are there any problems with the existing solution? Attitude:
   Package solution is weak

7. What kind of solutions do the consumers/interviewees want?
   Digital

8. What are the popular trends with respect to solution types?
   Mobile solution & Social Campaign

Please feel free to comment on any of the content you have seen during this session.
Brief:
You are part of a team tasked with the goal of developing patient self-management tools to improve the transition from Pediatric to Adult Care in sickle cell disease. You have been in contact with many patients who have Sickle Cell Disease. And you have conducted these interviews face to face with most of them. The following is the summary of what you learned from your interviews:

Please take some time to study the infographic

After studying all the layers in the graphic, answer these questions:

1. How many people were interviewed in total?
   9

2. How important/relevant is their age?
   High importance

3. Where is the current solution used? How important is that information?
   At home — High importance

4. Where does the solution need to be available?
   School

5. Are there any problems with the existing solutions? What is the predominant attitude among the patients?
   No problems — Predominant attitude
   (Is frustration) The "teen" factor
6. What kind of solutions do the consumers/interviewees prefer?
   Digital & package solutions

7. What did we understand about what kind of solutions might be better suited for the situation?
   One of the attitudes toward the situation was "not reachable", a problem that needed to be solved or addressed while creating solutions, so having a mobile solution as well as a social campaign might be better suited for a solution.

Please feel free to comment on any of the content you have seen during this session.

The third level is really a great way to tie together all of the information.
Name: Ellen Manegold
Profession: Clinical Research Coordinator
Organization: CHMC

Brief:
You are part of a team tasked with the goal of developing patient self-management tools to improve the transition from Pediatric to Adult Care in sickle cell disease. You have been in contact with many patients who have Sickle Cell Disease. And you have conducted these interviews face to face with most of them. The following is the summary of what you learned from your interviews:

Please take some time to study the infographic.

After studying all the layers in the graphic, answer these questions:

1. How many people were interviewed in total?

9

2. How important/relevant is their age?

high importance

3. Where is the current solution used? How important is that information?

home - high, work - medium, travel - low

4. Where does the solution need to be available?

School

5. Are there any problems with the existing solutions? What is the predominant attitude among the patients?

problems: attitudes - doesn't solve problems, not reachable, teen factor, attitude, frustration
6. What kind of solutions do the consumers/interviewees prefer? Mobile, social campaign, school-based, considers that their SCD is unique.

7. What did we understand about what kind of solutions might be better suited for the situation?

They are solutions that aren't currently available, should include mobile technology and/or social campaign, be used in school, should recognize that each patient's SCD is unique, and but should address that it doesn't solve the problem.

Looks great! I think it's a great graphical representation that can be useful to everyone involved in the process.

Please feel free to comment on any of the content you have seen during this session.
Brief:

You are part of a team tasked with the goal of developing patient self-management tools to improve the transition from Pediatric to Adult Care in sickle cell disease. You have been in contact with many patients who have Sickle Cell Disease. And you have conducted these interviews face to face with most of them. The following is the summary of what you learned from your interviews:

*Please take some time to study the infographic*

**After studying all the layers in the graphic, answer these questions:**

1. How many people were interviewed in total? 9

2. How important/relevant is their age?
   - High importance

3. Where is the current solution used? How important is that information?
   - Home, work, travel

4. Where does the solution need to be available?
   - School

5. Are there any problems with the existing solutions? What is the predominant attitude among the patients?
   - Yes - The "teen" factor, frustration, doesn't solve problem
6. What kind of solutions do the consumers/interviewees prefer?

   Digital/mobile/social campaigns/package solution

7. What did we understand about what kind of solutions might be better suited for the situation?

   Not all cases of SCP are the same so coming up w/a more personalized solution might work better. School seems to be the best place to have the solution available.

Please feel free to comment on any of the content you have seen during this session.
Name: Emilia Grandma
Profession: CRC II
Organization: Innovations / acme

Brief:
You are part of a team tasked with the goal of developing patient self-management tools to improve the transition from Pediatric to Adult Care in sickle cell disease. You have been in contact with many patients who have Sickle Cell Disease. And you have conducted these interviews face to face with most of them. The following is the summary of what you learned from your interviews:

Please take some time to study the infographic

After studying all the layers in the graphic, answer these questions:

1. How many people were interviewed in total?
   I know 9, but it is hard to tell which numbers you added to get 9

2. How important/relevant is their age?
   High importance

3. Where is the current solution used? How important is that information?
   School - high
   Home - high
   Work - medium
   Travel - low

4. Where does the solution need to be available?
   School - high

5. Are there any problems with the existing solutions? What is the predominant attitude among the patients?
   It doesn't solve the problem
   Frustration

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6. What kind of solutions do the consumers/interviewees prefer?
   digital solutions via mobile & social media

7. What did we understand about what kind of solutions might be better suited for the situation?
   located in the schools for teenagers that are digitally based & focused on addressing their specific needs.

Please feel free to comment on any of the content you have seen during this session.
Brief:
You are part of a team tasked with the goal of developing patient self-management tools to improve the transition from Pediatric to Adult Care in sickle cell disease. You have been in contact with many patients who have Sickle Cell Disease. And you have conducted these interviews face to face with most of them. The following is the summary of what you learned from your interviews:

Please take some time to study the infographic

After studying all the layers in the graphic, answer these questions:

1. How many people were interviewed in total?
   
   9.

2. How important/relevant is their age?
   
   High.

3. Where is the current solution used? How important is that information?
   
   Home. High importance

4. Where does the solution need to be available?
   
   School

5. Are there any problems with the existing solutions? What is the predominant attitude among the patients?
   
   Does not solve the problem. Not reachable. Teenagers’ problem. Frustration? (Not sure if it is belongs to the patients)
6. What kind of solutions do the consumers/interviewees prefer?

*Mobile Solution & Social Campaign, Digital Solution & Package Solution.*

7. What did we understand about what kind of solutions might be better suited for the situation?

*Mobile Solution. Social Campaign.*

Please feel free to comment on any of the content you have seen during this session.

"I think the words around the circle are really important. This information should be more visible."
Name: Lori Crosby
Profession: Psychologist
Organization: Cincinnati Children's

Brief:
You are part of a team tasked with the goal of developing patient self-management tools to improve the transition from Pediatric to Adult Care in sickle cell disease. You have been in contact with many patients who have Sickle Cell Disease. And you have conducted these interviews face to face with most of them. The following is the summary of what you learned from your interviews:

Please take some time to study the infographic

After studying all the layers in the graphic, answer these questions:

1. How many people were interviewed in total?
   
   9 / 14

2. How important/relevant is their age?
   
   High importance - teenagers
   
   High importance - teenagers level

3. Where is the current solution used? How important is that information?
   
   Home, work, travel
   
   Home use is very important, work use is somewhat important.
   
   Travel use is not important

4. Where does the solution need to be available?
   
   At school & home

5. Are there any problems with the existing solutions? What is the predominant attitude among the patients?
   
   Yes - frustration. B/c SCD is unique & not connected to others with the disease
6. What kind of solutions do the consumers/interviewees prefer?
   digital solution

7. What did we understand about what kind of solutions might be better suited for the situation?
   - Mobile given need to have it at home + school/work
   - Social given feelings of frustration about not being connected to others with the disease

Please feel free to comment on any of the content you have seen during this session.

- Confused by doesn't solve problem
- Not sure I read the map correctly "not reachable"
- Numbers on male, female and teenagers confusing
- Really like tool & could see multiple applications
- Legend easy to read and understand
- Could consider renaming levels
  - Level 1: Basic Framework
  - Level 2: Keep name
  - Level 3: Insights Opportunity Areas
- Like the teen factor annotation

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Name: Megan Dailey
Profession: Clinical Research Coordinator
Organization: CCHMC

Brief:
You are part of a team tasked with the goal of developing patient self-management tools to improve the transition from Pediatric to Adult Care in sickle cell disease. You have been in contact with many patients who have Sickle Cell Disease. And you have conducted these interviews face to face with most of them. The following is the summary of what you learned from your interviews:

*Please take some time to study the infographic*

*After studying all the layers in the graphic, answer these questions:*

1. How many people were interviewed in total?
   \[9\]

2. How important/relevant is their age?
   \[High\]

3. Where is the current solution used? How important is that information?
   \[Home - high\]
   \[Work - med\]
   \[Travel - low\]

4. Where does the solution need to be available?
   \[Schools\]

5. Are there any problems with the existing solutions? What is the predominant attitude among the patients?
   \[Yes, the ‘teen’ factors: increased responsibility, expectations\]
   \[Frustration, peer pressure.\]
6. What kind of solutions do the consumers/interviewees prefer? Digital and package

7. What did we understand about what kind of solutions might be better suited for the situation? Mobile Solution

The patients said digital & package solutions were preferred. Mobile solutions were thought to be better suited & needed for social campaign.

Please feel free to comment on any of the content you have seen during this session.

The dotted lines are sort of hard to pick out, especially within the green & orange quadrants. Highlight the legend

I saw the teen factor as a problem that needed to be solved but missed "Doesn't solve problem" and "Not reachable".