



Co-designing for Healthcare: visual designers as researchers and facilitators

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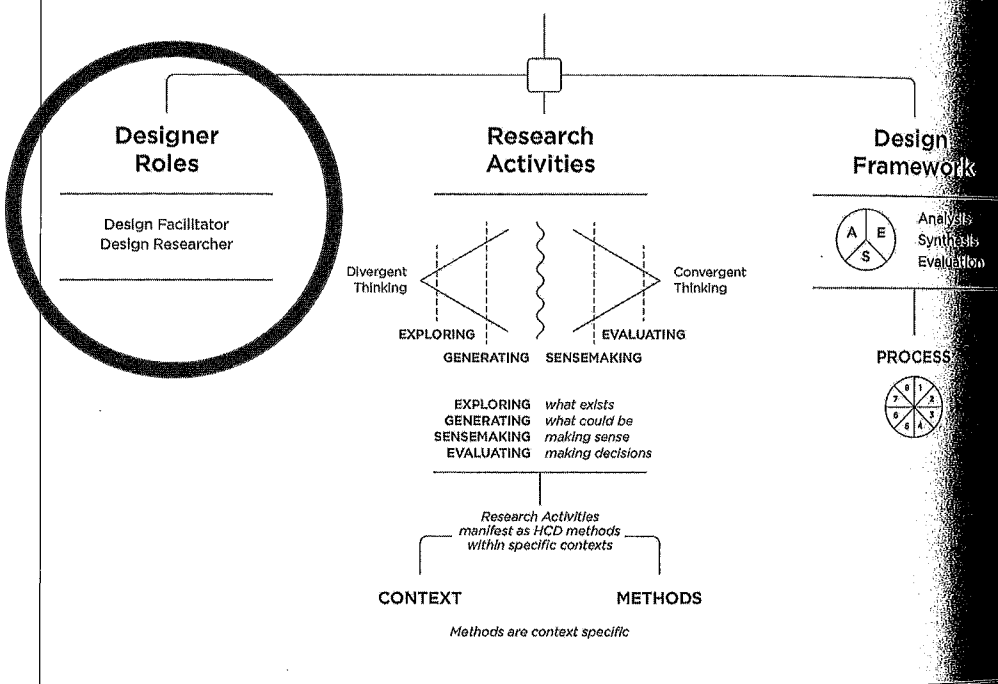
ABSTRACT

This article describes the process, methods, and outcomes of a project that included multiple stakeholders in a participatory design process to re-design an indispensable service in the healthcare sector. The project explores how visual designers are taking on new roles as design researchers and design facilitators and what a human-centered design approach might look like within the healthcare sector of emergency management. Design methods included collaboratively visualizing the complexity of an existing context, including content development, production processes, distribution processes, issues, and perceptions; using generative tools to examine and discuss content, use, form, and function; prototyping toolkits to visually model processes, themes, devices, and technological capabilities; and evaluative surveying to collect and assess user feedback. The outcome of this project includes a completely redesigned product and service that has increased user subscription and satisfaction, as well as suggestions for future implications and improvements.

KEYWORDS

participatory, design research methods, design facilitation, stakeholders

HUMAN-CENTERED DESIGN APPROACH



INTRODUCTION

Given the increasing involvement of designers and the utilization of design processes to address broader issues that span beyond the traditional realm of the visual communication design field, this case study serves to provide an example of how visual designers can begin to step into new roles as design facilitators and design researchers.

Through the use of both transferable design skills and visual communication expertise, today's visual designers are uniquely positioned to manage and communicate complexity while enabling effective collaboration across diverse stakeholders within the design process. In this article we will describe our process, experiences, and outcomes of a professional project that included multiple stakeholders—from the clients and their staff, to end-users, to technology facilitators, to an external graphic design team who would give the resulting product an entirely new look and feel. These examples are meant to help illustrate new ways in which visual designers can incorporate a human-centered approach in their practices.

PROJECT OVERVIEW

MESH is a non-profit, public-private partnership that enables healthcare providers to effectively respond to emergency events and remain viable through recovery. Among their many services they offer the "Daily Situational Awareness Brief" (DSAB), a daily digest highlighting important news, research, and practice developments within healthcare sector emergency management as well as MESH publications and events. This service has become a vital part of the everyday rituals of people in healthcare and emergency management, from nurses sharing pertinent information in their daily huddles, to Disaster Management Coordinators presenting information in key meetings. However, several years after its inception, MESH determined that the production process was becoming taxing, the distribution process was in need of an overhaul, and—based on subscriber feedback—the experience of receiving, viewing, and sharing the "brief" could use much improvement.

MESH, in needing to entirely re-think and re-design this valuable service, called upon Collabo Creative, our human-centered service design firm, to conduct an engaging, participatory process that included the following: re-examining current goals and user needs; exploring and defining content, look and feel; envisioning, prototyping, and evaluating distribution venues, devices, and processes; and developing and managing an action plan for implementation. As human-centered designers and design researchers, this brought about the following question: *How might design facilitation and the use of exploratory, generative, sensemaking, and evaluative methods enable diverse groups of stakeholders to collaboratively improve an existing service and product?*

HUMAN-CENTERED DESIGN APPROACH

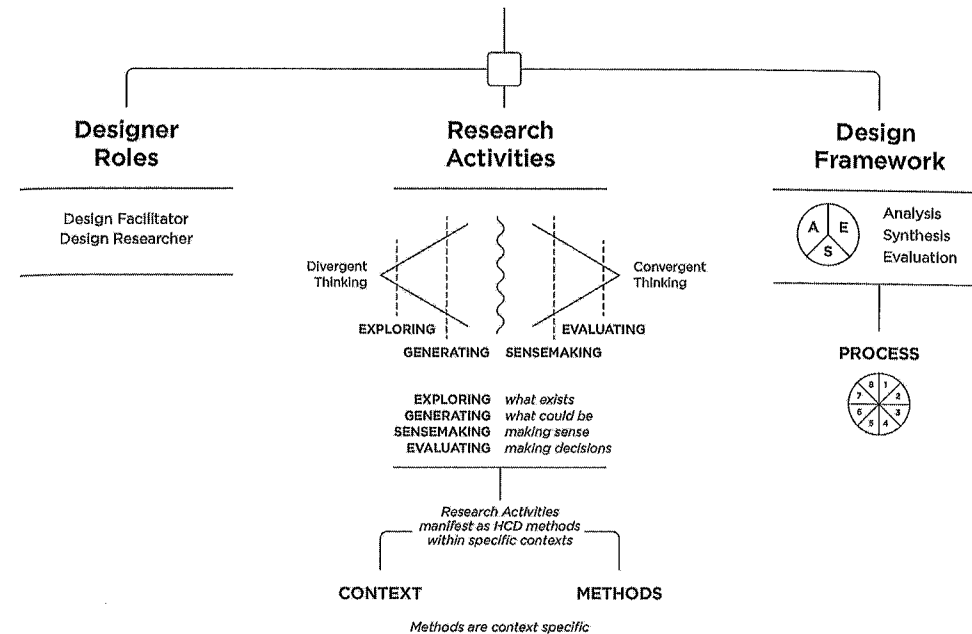


FIGURE 1

Human-Centered Design Approach developed by Collabo Creative

To provide an overview of the entire process through which the redesigning of the DSAB occurred, we began the project by conducting a "preconsult" (Basadur, 1994, p. 270) meeting with the client. Through this initial meeting the design team was able to develop a research plan based on the specific needs and resources identified by the client. The research plan outlined the need for several rounds of exploratory research that were to include both internal and external stakeholders, along with end-users, or subscribers, in order to gather information about existing situations and current experiences. Through analysis and synthesis of data gathered through exploratory research, *key insights, considerations, and areas of focus* were identified and utilized in framing generative research activities to enable client, subject-matter experts (SMEs), graphic designers, and IT implementors to codesign prototypes together.

Once rough prototypes were collaboratively developed in these codesign sessions, the graphic design team was able to seamlessly move toward refinement and implementation of a new DSAB product and service. In subsequent sections, we will describe in further detail each specific step in our process.

PRE-CONSULT

Part of our process when engaging with clients and partners is to set up an initial pre-consult meeting before beginning any project. The content of

these meetings varies depending on the needs of the client/partner, but the meetings are generally intended to establish an understanding of the scale and scope of the project, the current context and problem/opportunity spaces, and initial needs and expectations. With this particular project, because we had previously worked with MESH, an initial introduction to the project was discussed over the phone. The pre-consult was then designed to be a meeting with a few of the key project team members at MESH in order to assess the current context of the DSAB, including current content, production processes, distribution processes, issues, and perceptions.

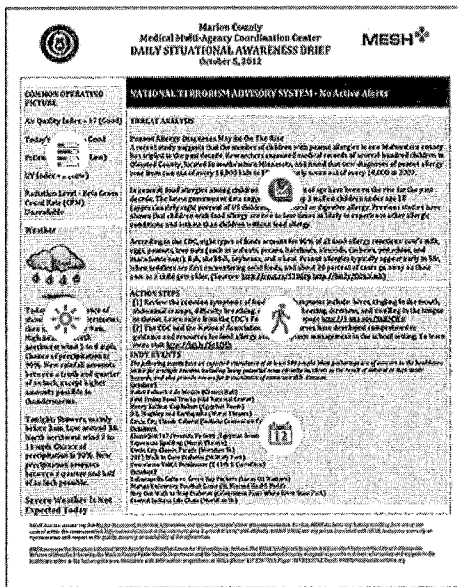
We facilitated the pre-consult meeting by first allowing the MESH team to identify the main purpose and goals of the DSAB service as well as key users and contributors. The team was able to engage in a discussion while we captured their thoughts on whiteboards. Once the current context of the DSAB was defined, the team members then began to list key issues and concerns they had with the brief from an internal perspective. Some of the main concerns identified by MESH had to do with subscription and sponsorship; MESH offers a valuable service that is paid for by the city, and it is difficult to manage subscription and distribution in

MESH's current system. There were concerns raised around "turf issues" over the ownership of knowledge and the amount of time it takes to navigate those issues. The team also expressed struggles with the time and involvement of the collection and creation of content, as well as logistical capabilities for distribution.

Once all of the key internal issues were identified, we then had the team verbally explain the processes for content development, production, and distribution, while we visually captured and made sense of the processes in real time on white boards.

CURRENT CONTENT

There are 5 main areas of content within the DSAB: topic/threat analysis, common operating picture, weather, action steps, and events. While most everything can be automated (excluding the threat analysis and action steps), someone within MESH must be designated every day to pull content from various bookmarked websites, including links and icons. And because there is no central location/site to find current events happening in the city, multiple sites have to be visited to find the most current events approved by the city, which makes this is the most time consuming content area



- ☀️ TOPIC ("THREAT ANALYSIS")
- 👤 ACTION STEPS
- 📄 COMMON OPERATING PICTURE
- 📅 EVENTS
- ☁️ WEATHER

FIGURE 2

Content Areas

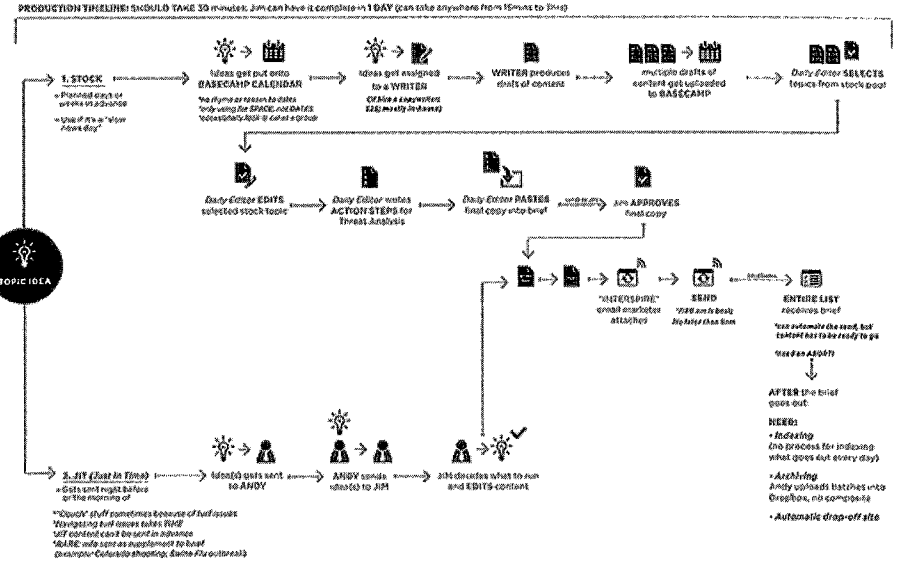


FIGURE 3

Current Production Process

to populate. Formally, from MESH's perspective, the "National Terrorism Advisory System" seldom changes, and takes up valuable landscape within the page.

CURRENT PRODUCTION PROCESS

The current production of the DSAB always starts first with the topic idea, with two different routes the content can take: "Just-in-time," or JIT which gets sent the night before the brief goes out and "Stock," which is planned days or weeks in advance, and can be used if it is a "slow news day." However, each route poses different but significant issues. With the JIT content, navigating "turf issues" takes time, and sometimes, while it may be pertinent, the content has to be "couched" due to those issues. In addition, this particular content cannot be sent in advance. In regards to Stock content, while the mechanism for storing the content is housed in a calendar in Basecamp (a web-based project-management tool), there is no rhyme or reason to where or how the content gets placed within the calendar. With one of MESH's staff members acting as the primary daily editor and content director, the production timeline can take anywhere from 15 minutes to 3 hours, and no more than 1 day to be complete and ready to be sent.

CURRENT DISTRIBUTION PROCESS

There are three main functioning parts to the distribution of the DSAB: Sign-up, Email, and Fax. While people can sign up for the brief by either emailing someone at MESH, or completing the marketing form on MESH's website

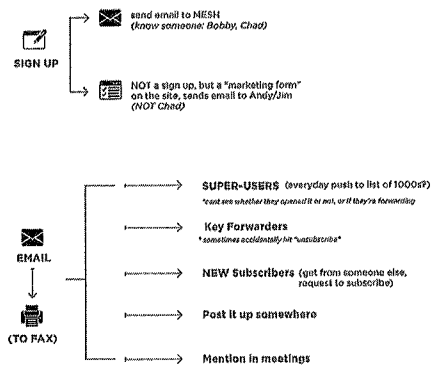


FIGURE 4

Current Distribution Process

homepage, there is no consistent way to tell people how to sign up for the brief, nor are there parameters for subscription to the brief. And, because the DSAB is paid for by the city, there is the need to be selective in subscription; many people who receive the brief are considered "Super-users" who push the brief out daily to their own personal networks of 100's to 1,000's of others. In addition to forwarding the brief, many key constituents who do not have work email or everyday access, are receiving the content by in-person visual or verbal forms (such as being told about a specific event or threat in a daily meeting or reading a printed version of the brief that is posted to work bulletin boards).

The pre-consult enabled us to understand the current context around the DSAB, as well as MESH's own internal issues and concerns with the development and distribution processes for the brief. However, this was only the internal perspective. In order to gain a holistic understanding of perceptions, usage and issues, we needed to collect the voices of the key stakeholders and users of the brief.

PARTICIPATORY STAKEHOLDER RESEARCH

Recruitment of participants can sometimes be an arduous task; knowing where and how to elicit participation takes time and must be carefully considered when developing a timeline for a project. Based on recruitment challenges experienced in previous projects, we chose to rely on the MESH team to tap into their networks and communicate to others how valuable their participation, ideas, and feedback would be. Working from our suggestion for a wide sampling of user types based on background and use, MESH then crafted messages, both verbal and written, to recruit a diverse collection of key stakeholders and users to participate in one of two sessions that would allow them to share how they felt about the brief, how they use it, and why they use it the way they do. This strategy of capitalizing on existing provider-user relationships proved promising, while still remaining unbiased as MESH staff were not present during the sessions, and participant data expressions remained anonymous. These "Participatory Stakeholder Sessions" were designed to enable actual users to externalize their behaviors and interactions with the DSAB on a daily basis, and express underlying wants and needs in the reshaping of content, format, and usability.

PARTICIPATORY STAKEHOLDER SESSION 1

The first Participatory Stakeholder Session was held in one of Indianapolis' hospitals and included key stakeholders such as ER Managers, Nursing Students, the Director of Ambulatory Services, Disaster Management Coordinators, Security Department Managers, and an Operational Coordinator/Respiratory Therapist. The goal of this session was to enable the group members to share and discuss how they use the DSAB in their daily lives. Why did they choose to forward it or not? How do they rank its usefulness? Why do they use it the way they do? What are things that are most and least valuable to them? What would they change or keep the same?

For this first session, we focused on the development of divergent thinking, "Generative" methods, enabling participants to explore "what could be." We created templates on large post-it easel pads with pre-written questions and hung them up in the space. We facilitated the participants through each question, allowing them to first share their thoughts and opinions individually. Then we gave participants 2 different colors of post-its and had them walk around the room and read what they each had written, giving them the opportunity to reinforce and build off each other's comments. They used red post-its to write down what they did not like and green post-its to write down what they did like.

The mix of people gave us a range of perspectives and allowed the participants to identify where their ideas and concerns either overlapped or opposed one another's. They were eager to share their opinions about both the formal aspects of the brief, as well as the functional qualities.

PARTICIPATORY STAKEHOLDER SESSION 2

The second Participatory Stakeholder Session was held at MESH's headquarters and included stakeholders such as Nurse Program Managers, a Medical Manager for a local hospital's Library, an Educator and Researcher, and the Director of the Indiana Intelligence Fusion Center.

While the goals for this session were the same, this particular group of stakeholders was more eager and willing to engage in conversation about the future of the DSAB, especially in considering both form and included/desired content. There were repeated concerns with the amount of content and how the content is being represented. Most stakeholders in both sessions valued the length and the 1-page format, though they had many suggestions for how to make it more engaging through the use of visuals.

Once the sessions were completed, we needed to go through a process of analysis and synthesis in order to make sense of the large amount of data that was collected and to inform the types of methods that would be appropriate for the Ideation and Prototyping phase.

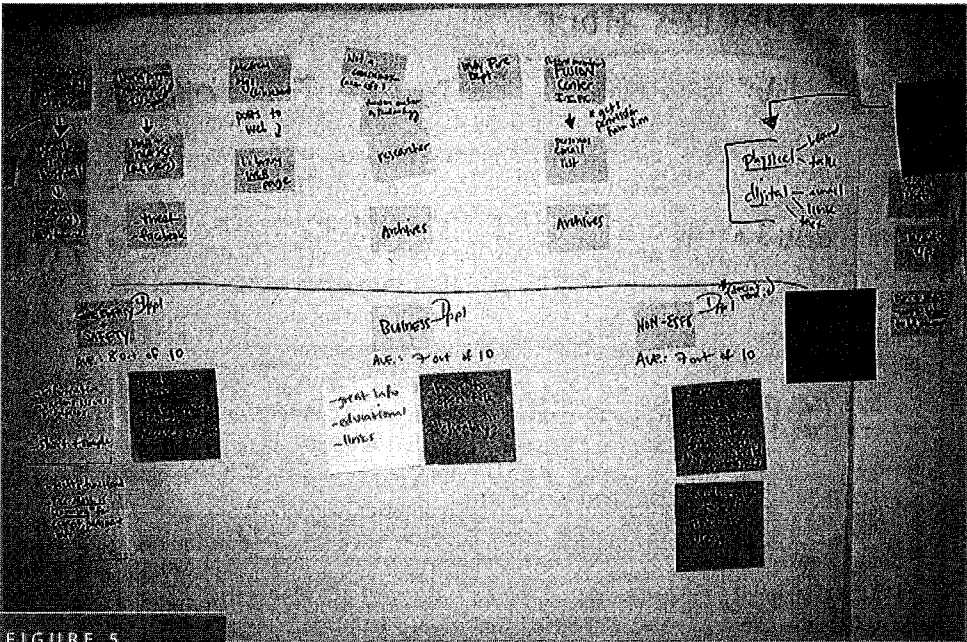


FIGURE 5
Affinity Diagramming in progress

ANALYSIS & SYNTHESIS OF DATA

In order to analyze the collected data, we utilized more convergent thinking “Sensemaking” methods. We began by externalizing the information collected from the templates onto color-coded post-its and large sheets of butcher paper. Through affinity clustering, a sensemaking method, which allows organic patterns or themes to define the clusters or categories that emerge, (Martin & Hanington, 2012, pp.12-13) we were able to define four categories of subscribers/users, as well as understand and articulate their behaviors and their values.

TARGETED SUBSCRIBERS AND THEIR BEHAVIORS

The current targeted subscriber profiles resulted in four main groups: Health Care (Medical) which included doctors and nurses, public health, venues of care, emergency healthcare coalitions; Health Care (Admin/Non- Medical) which included healthcare and hospital administrators; Emergency & Safety, which included public safety; and Non- ESF8 (Emergency Support Function (ESF) #8 – Public Health and Medical Services) which included a technology researcher, non-healthcare individuals, event venues, NGO’s, and government agencies.

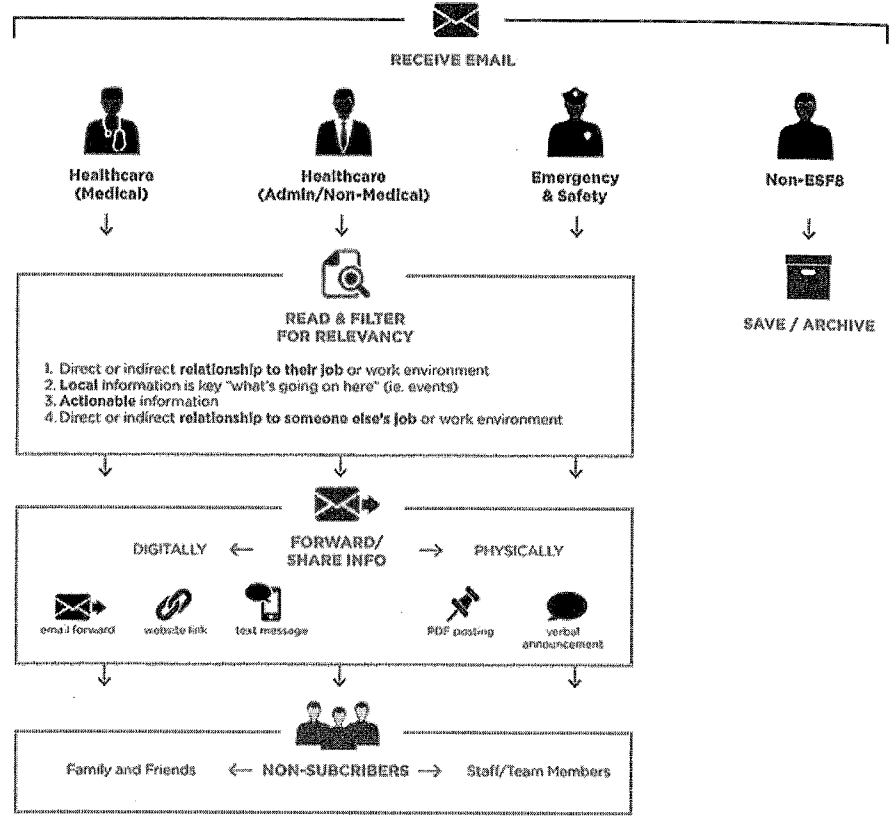


FIGURE 6
Subscriber Behaviors

Subscriber Behaviors

Within the targeted subscriber groups, we continued to sensemake through building *user journey maps* (Kumar, 2012, p.182) for each group. By mapping each group’s user journey, we were able to identify a pattern of use that emerged across the subscriber groups in how they utilized the DSAB. The findings showed that a typical user first received the brief by email, second read and filtered the information based on personal relevancy, and third forwarded the information (either digitally or physically) to non-subscribers they felt would benefit from the content.

KEY INSIGHTS

Through insight sorting (Kumar, 2012, pp. 140-141) of all the information that was collected from the two Participatory Stakeholder Sessions, three key insights about subscribers’ behaviors and values were identified:

- 1. Nearly all subscribers forwarded and shared the information from the DSAB in some way, shape, or form.

2. Subscribers were highly interested and motivated to action by discipline-relevant information.

3. Subscribers want to know about what is happening locally,

OVERALL REDESIGN CONSIDERATIONS & AREAS OF FOCUS

Once all external user data had been analyzed, these findings were then compared to and synthesized with the internal findings from the earlier pre-consult session. A rough form of the design principles generation method (Kumar, 2012, pp.188-189) was used to identify redesign needs based on both internal processes of MESH, along with those identified by key stakeholders. The outcome of this method points to two main facets for consideration in the redesign of the DSAB which were engageability and accessibility.

A concern for the DSAB's engageability came about mainly from subscriber perspectives, while accessibility was important for both MESH and subscribers groups. In order to focus the design team's efforts in moving forward, MESH was asked to identify a few main areas for Collabo to address. These areas were: Functions, Format/Layout, and Distribution. These focus areas were then used to frame and shape the activities developed for the following prototyping sessions.

IDEATION AND PROTOTYPING

Once the key insights and areas of focus were determined, we were able to frame a challenge to take into the ideation phase. We wanted to know "How might we make it easy for subscribers to forward/relay/share information (physically and digitally)?"

In this phase of the project, we needed to utilize more divergent thinking, and therefore focused our method development within the "Exploratory" category. Methods for this phase needed to enable participants, both MESH staff and the key stakeholders, to come up with ideas for "what the DSAB *could* be."

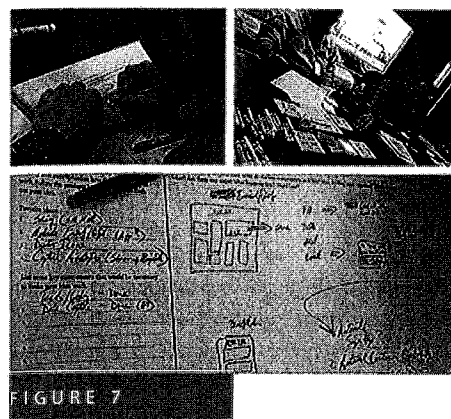
IDEATION AND PROTOTYPING SESSION 1

The goal of the first Ideation and Prototyping session was to specifically work with MESH to first determine how they might categorize the DSAB content, how to make it easy for subscribers to share information, and how to visually model both the form and function of the DSAB.

We began having members of the MESH team diverge on existing and possible content, individually writing down topics on index cards. They spread the cards out on a large table and began to sort and categorize the content, looking for larger groupings and overlaps.

Different colored cards were used to sort and code the content, to signify overarching categories and topics that fit within them.

Once the content was categorized, we moved into another divergent activity, utilizing another Exploratory method. The team was given the question, "How might we make it easy for subscribers to forward/relay/share information (physically and digitally)?" which facilitated a more traditional brainstorming activity. The MESH team said their ideas aloud while we captured on the whiteboard.



Participants prototyping

The intentional scaffolding of activities led to the final Exploratory method, which was intended to give participants the tools to begin to visually model both the form and function of the DSAB. We developed worksheets that first prompted participants to diverge on key components of both form and function in a list form. Once they had a list of ideas to pull from, they began to sketch and label those key components, how key components worked together, and their functioning processes.

By going through this series of activities, we were able to gain an understanding of the types of content that are both desired and used, and of key components for the DSAB's form and functions from MESH's internal perspective.

IDEATION AND PROTOTYPING SESSION 2

Once the internal team at MESH was able to share and define its most important needs and desires regarding the form and function of the DSAB, it was time to bring together all of the constituents that would be making decisions throughout the process. This included key players from MESH, a design firm that would be doing the graphic design of the final product, and two representatives from Crown, the partner of digital messaging firm ExactTarget.

The second prototyping session was intended to develop and define processes, themes, and devices using tailored "Protokits." The Protokits were created by utilizing the ideas and prototypes generated by MESH in the previous session so that the new prototypes would be more refined, integrating the feedback from both the graphic design and technology sides. Having each group at the table enabled them to collaborate around the format and layout of the DSAB, while also allowing the opportunity to discover capabilities and limitations of the functionality.

The Protokits could be viewed as being both a Generating and Evaluating method. They included blank canvases to visualize the format and layout, as well as multiple options for buttons, icons, and

content to be included. Both the MESH and the graphic design team were purposely integrated, and they worked together to create prototypes based on MESH's needs and the design team's visual communication expertise. Once the new prototypes were created, members from the Crown team joined the session remotely. The MESH/design teams talked through their prototypes, while the team from Crown offered feedback based on its technical capabilities.

This session enabled the graphic design team, who would be implementing the final layout and format of the brief, to listen to and integrate the needs from MESH, as well as the capabilities on Crown's side, and synthesize the two into refined prototypes that could accommodate both.

OUTCOMES, IMPLEMENTATION AND FUTURE RESEARCH NEEDS

The outcomes from the stakeholder and prototyping sessions resulted in refined prototypes of the DSAB that not only incorporated the desired content, format, and function from MESH and the users but also the technical capabilities from Crown's side. This provided the graphic design team a holistic understanding of how to design an appropriate and meaningful solution.

An unexpected challenge that we discovered through working with outside constituents was the inability to control their working processes and timelines. We developed specific checkpoints throughout the development of the final solution, where the graphic

design team was able to present their iterations to MESH in order to receive feedback. However, we did not anticipate the shortcomings of the graphic design team; there were missed deadlines, challenges with consistent and timely communication, and longer than projected turn-arounds for revisions. While we tried to mitigate these obstacles for MESH, it was difficult to ensure a seamless transfer of responsibility of the product.

The graphic design team continued to iterate on the form and layout of the DSAB and worked directly with MESH and Crown to refine those iterations until they reached the desired result: a dynamic, responsive, highly visual product that was co-designed by the client, the users, and the team of implementors.

Once the new product was launched, we developed "Evaluative" methods in the form of surveys that were sent to users to collect feedback on the new format, layout, and functional qualities.

These surveys enabled the graphic design team to create a new and final iteration.

Though the focus was on creating an html email, there were needs expressed throughout the process for a more intuitive integration into MESH's website in regards to how subscribers sign up for and access the brief. This insight led to an understanding that there would need to be future research into how to filter subscribers, subscriber access through the site, and the development of a dynamic social/community piece.

CONCLUSION

The results of this project have led to increased user subscription and satisfaction, and an easier, more efficient process for content development and distribution of the Daily Situational Awareness Brief for the MESH staff.

This particular project showcases the value of utilizing a human-centered design approach and how the development and facilitation of Exploratory, Generative, Sensemaking and Evaluative design research methods can enable a diverse group of stakeholders to collaboratively and creatively solve problems. The approach, process and methods used in this project can serve as an example for not only how people within the healthcare sector can think about approaching problem-solving but also for how visual designers can incorporate a human-centered approach into their practices.

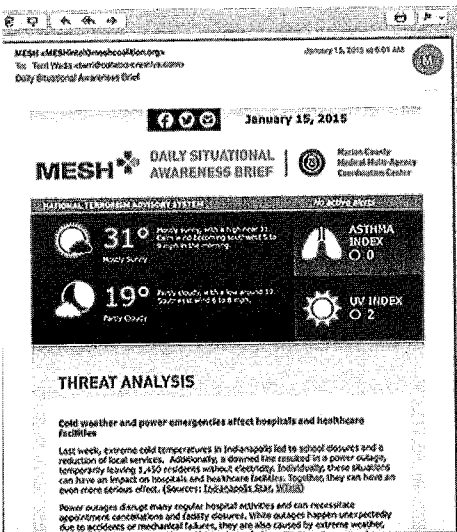


FIGURE 8

Final DSAB product

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P a m e l a N a p i e r

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Terri Wada is cofounding Partner of Collabo Creative LLC, a human-centered service design firm based in Indianapolis, Indiana. She holds a BFA in Graphic Design from the University of Hawaii and an MFA focusing on Design Thinking and Design Leadership from Indiana University. In addition to her professional practice Collabo, Terri has also served as adjunct and visiting faculty at Herron School of Art and Design for the past 3 years. Within the Visual Communication Design department, she has been requested to teach across all levels of the current undergraduate and graduate programs. Her research interests and initiatives encompass the development of new methods for stakeholder inclusion and participatory design research, along with furthering design education curricula in these areas.