

Description of Pre-Deployment High- and Mid-level themes

Personal Identity with respect to A.Q. (i.e. Agency)

This high-level theme captures how people internalize both their relationship with AQ and any implications the data might connote. I.e:

Acceptance of Status Quo - the tendency of participants to accept circumstances borne either from social structure (family dynamics, social roles) or asthmatic symptoms.

- Lack of Agency - Captures the consequential lack of control that comes from relying on third parties to provide information, resources, or decision making.
- Submission - Captures resignation some participants feel towards their own symptoms and necessary lifestyle changes.

AQ Impacts on Sense of Self - This covers the participant's relationship with their data and how what the data says can become instrumental to how participants see themselves.

- AQ & Identity - Captures how what collected health data can impact participants self-esteem and identity.
- Social Status and Health - Health tracking can be used as a status symbol for participants who choose to align their personal identity with their measurement

Sentinel - A shared theme between "*Acceptance of Status Quo*" and "*AQ Impacts on Sense of Self*", capturing some participant's identity as sole caregiver in the immediate family, either by active choice or lack of engagement from others.

Positions Towards Data

This high-level theme captures participant's thoughts and feelings towards the air quality data collection process. This includes perceived implications of personal privacy, data ownership, and characterization.

Privacy - Details participant's data collection associations regarding what is useful, applicable, personally identifiable, comfortable to share, etc.

- Uninteresting towards Non-Asthmatics: Feelings of anonymity arising from the belief that the specialized interest in their data limits the scope of its transmission
- Privacy Concerns: Listed concerns relating to personally identifiable information and distribution
- Non-Concerns: Listed non-concerns relating to what participants were willing to share or make available for others
- Invasiveness - A distinction made which affects the public perception of a technology being 'intrusive'.

Ownership - personal agency and stake-holding associations towards data collected through a scientific study.

- What is Personal? - Distinction made on what qualities of data make it personal, but not necessarily private.
- What is Private? - Distinction on what qualities of data make it private.

- Data Ownership - Feelings of ownership over data collected as part of a scientific study.

What Data Says About Me - This captures participant's awareness/association with what the collected data represented.

- Privacy Literacy - Collected opinions of what participants thought was -- or was *not* -- possible to know from their collected data
- Data Abstraction - Opinions of what their collected data represented, ranging from personal activities, to more general notions of geographic variations.

Mental Model / Assumptions about AQ

This high-level theme captures participant's internalized views of Air quality, ranging from ways in which outside factors influence AQ, to ways in which AQ influences them

Experiential Reflections - this theme collects participant's AQ attitude as a result of their lived experiences

- Realizations - Participant's Air Quality insights and associations.
- Questions - Open questions relating to lifestyle and behaviors as they impact Indoor air quality, or the health of immediate family members
- Awareness of AQ Impacts - Reflections on ways AQ affects health and lifestyle

Presumptions About AQ Impacts - Participant associations towards factors influencing air quality

- AQ Associations: a list of characteristics which are suspected to imply causal AQ impacts (i.e. better airflow = better AQ, older homes = worse AQ, etc.)
- Sources, Activities, Characteristics: a larger mid-level theme collecting factors participants felt influenced air quality, including: Sources (dust, pets, etc), Activities (cooking, opening windows, etc.), Characteristics (construction techniques, indoor air flow, etc.)

Tech Feedback

This high-level theme represents all participant feedback on the AQ data logging system. This includes commentary on the Dylos Monitors as well as requests for a variety of comparative data analysis techniques and visualization methods.

- Interactions On Data - Requests for various interaction capabilities including comparison, exploration, automated active feedback, etc.
- Visualization Design - Request for specific visualization attributes to improve data context and user understanding (legends, descriptions, etc)
- Hardware Feedback - Specific feedback on the Dylos monitors
- Data of Interest - List of AQ measures which would be useful to include in future interface versions (pollen, mold, PM, etc.)
- Mobile Devices - Participants referred multiple times to interacting with visualizations, data through a mobile device.

Altruism

This High-level theme captures a common motivation for participants to be involved in this study. The following mid-level themes detail facets of their participation:

- Service of Science - Participants were eager to collect and share data in support of efforts to learn more about air quality and to help improve quality of life for other asthmatics
- Help Others - Participants were interested to share data in the hopes that it would be of use to other researchers, and their sharing could benefit the Asthmatic community in general.
- Accommodation - Participants expressed the desire to use this data to help make life easier for family members and guests.
- Social Sharing - Participants were interested to share and compare their own data with friends, family, and other participants.

How AQ Info Impacts Life

This high-level theme captures ways in which participant's lives have been affected by their Asthma symptoms, ranging from precautionary regimens (daily AQ-based planning, symptom mitigation & management) to increased communication between family members and schools, over and beyond that of the general public.

- Symptom Management - Methods used to prevent, mitigate, or treat asthmatic symptoms.
- Daily Checks - Routine AQ checks to verify forecasts, inform participants, and motivate precautionary behavior.
- AQ-Based planning - Ways and reasons participants revised their daily schedules based on forecast or suspected AQ conditions.
- School Oversight - Increased reliance on schools to serve in loco parentis to protect the health of school children.
- Motivation to Check AQ - Circumstances in which participants are reminded/motivated to check AQ
- Motivation to Learn - Circumstances motivating participants to learn more about AQ
- Motivation to Participate - Circumstances motivating participants to participate in this study

How to Get AQ Info

This high-level theme compiles the methods and resources participants use to gather their AQ data

- Gathering Methods- Methods used to collect data
- AQ Resources - resources used to collect data