

An Introduction to Delphi Card Sorting

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About Celeste

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A Quick Review of Card Sorting

What is Card Sorting?

- User-centered design activity
- Participatory (involves users)
- Method to find patterns in information



Types of Card Sorts

- Open card sorting
 - Used early in the design process
 - Cards are sorted in to any order
 - Method for generating information to aid in design

Types of Card Sorts

- Close card sorting
 - Used later in the design process
 - Cards are sorted into predefined categories
 - Method for evaluating or adding to an existing design

Types of Card Sorts

- Inverse card sorting (aka reverse lookup)
 - Variation of a closed card sort
 - Used later in the design process
 - Cards are found in a completed structure
 - Method for validating an existing design

Improving Open Card Sorting

Open Card Sorting

- Typically uses more participants
 - Generate patterns with more independent variables
- Mentally exhausting for participants
 - Participants start with an “open canvas”
 - “Loss” of previous participants' work
- Little result for amount of work
 - Info patterns must be taken with “a grain of salt”

Analysis Techniques

- Research questions
 - Validating predefined statements about results
- Affinity mapping
 - Clustering and rating card patterns
- Pattern recognition
 - Sometimes you can just “see” the big picture

Conducting a Card Sort

- Easy to conduct
 - The real work is in interpreting the results
- Low cost in materials
 - Note cards, pens, big table
- But.. is it a low cost overall?

Hidden Costs

- Not as low cost in practice
- Controversy over number of participants
 - Some say 5-10, others say *at least 20*
 - In my experience, “at least 20” is more common
- More participants mean more days of testing
 - Additional facility fees for multiple days
 - More moderator hours
- Cognitive costs of repeated work

What If We Could..

- Make card sorting **cheaper**?
- Focus only on the **problems**?
- **Shorten** participant sessions?
- Get **results** which hold more weight?

Possible Areas for Improvement

- Allow participants to collaborate without bias
- Use fewer participants to “keep it cheap”
- Do not repeat unnecessary work and shorten activity sessions

Introduction to the Delphi Method

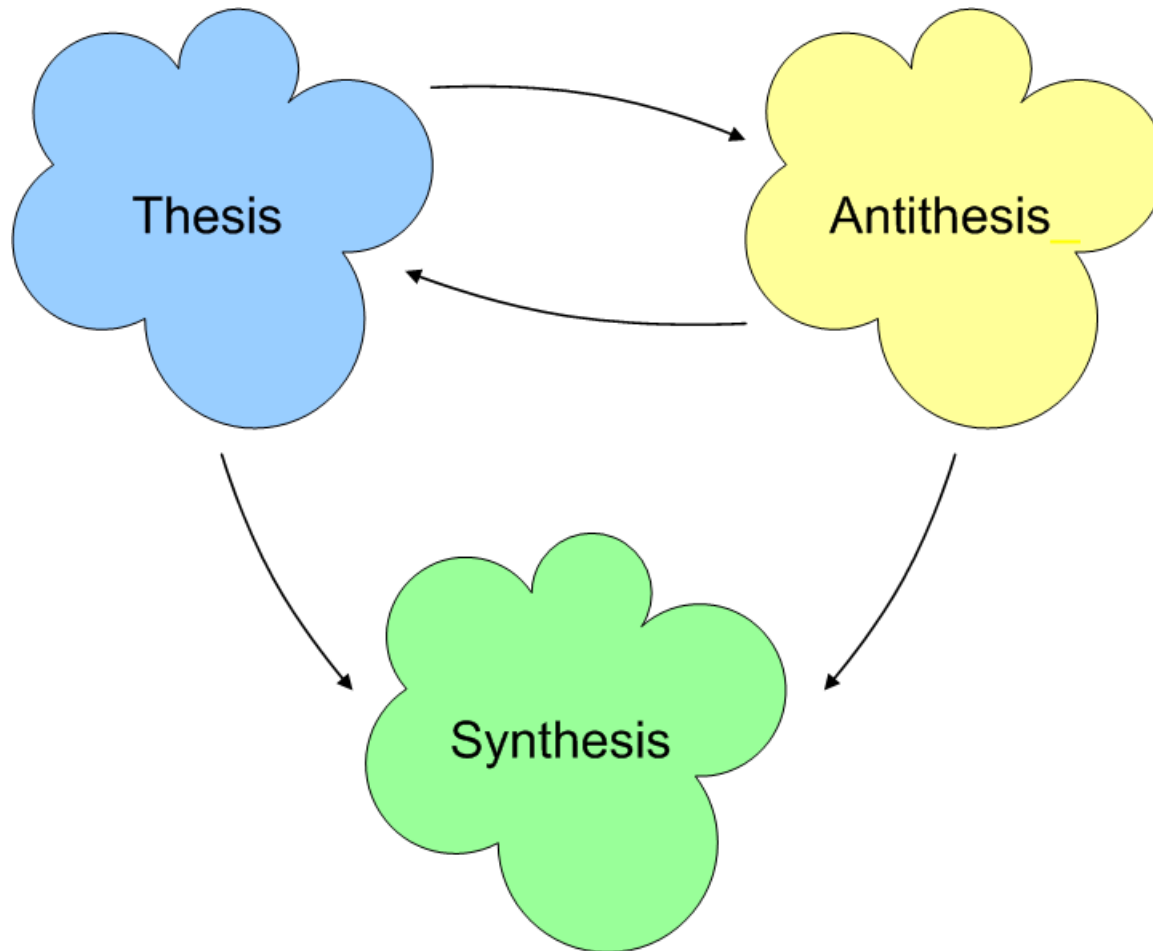
History of Delphi

- Oracle of Delphi
 - Didn't predict the future, but gave “advice”
 - Often, ambiguous advice (Croesus of Lydia)
- Rand Corporation
 - Military forecasting technique
- Forecasting applications
 - Technology, population sciences, business

Delphi Concepts

- It is the “Wisdom of Crowds”
- Structured information flow
 - Moderated information collection
- Iterative feedback
 - Thesis, Antithesis, Synthesis
- Collaboration without bias
 - Prevents “bandwagon” or “halo” effects

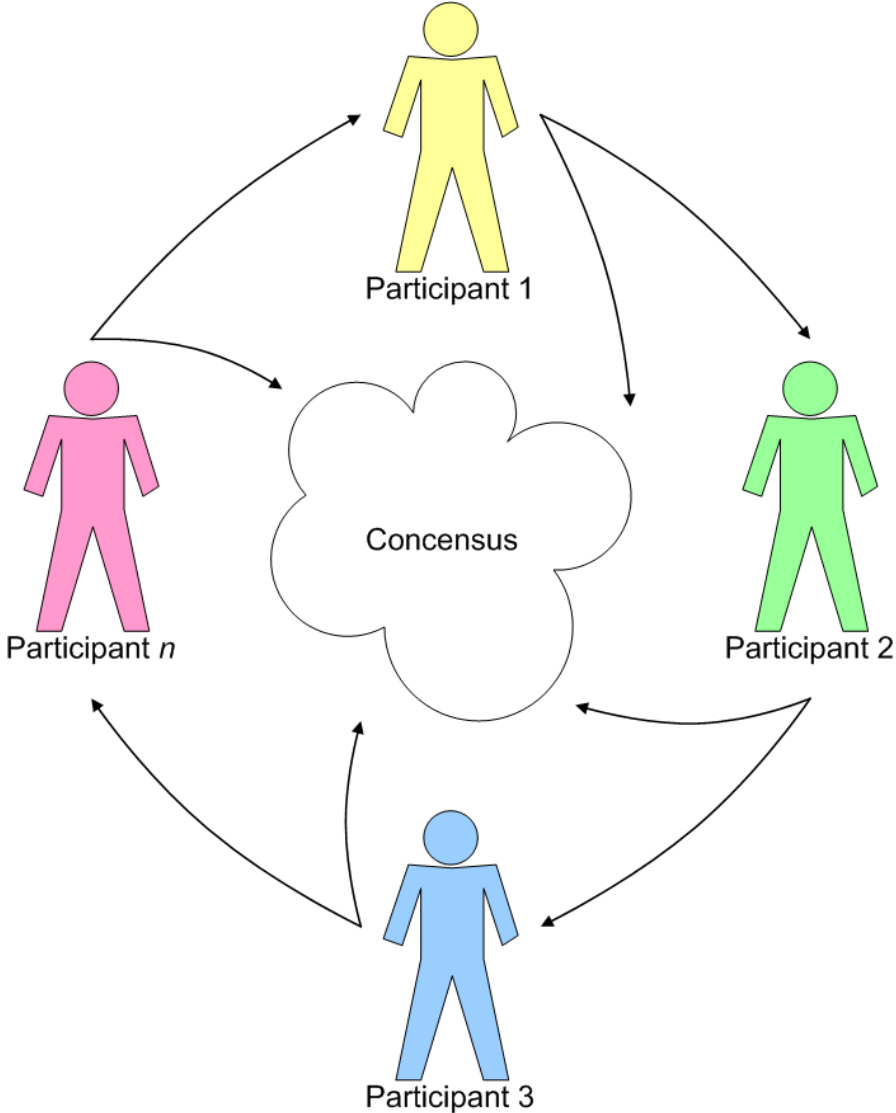
Delphi Method



Moderating Model

- Iterative Delphi
 - A set group of participants
 - Information iterates through participants until there are no more changes

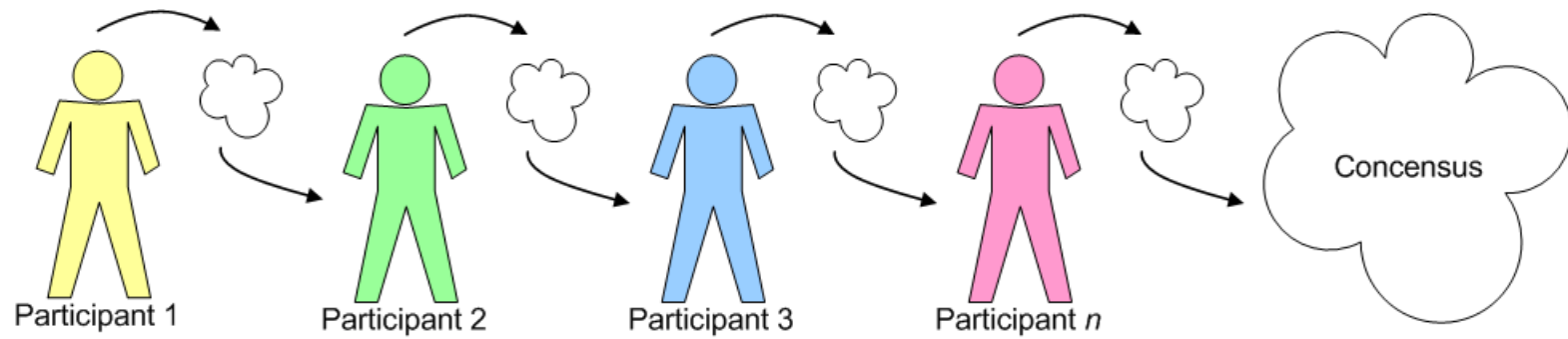
Iterative



Moderating Model

- Linear Delphi
 - Group members participate only once
 - Information iterates through new participants until there are no more changes

Linear



Applying Delphi to Open Card Sorting

Existing UCD-Delphi Methods

- Delphi Method of Interviewing
 - Participants are aware of previous answers and can edit and add their own comments
- Iterative User Testing
 - Design changes are made throughout testing based on testing results and participant feedback

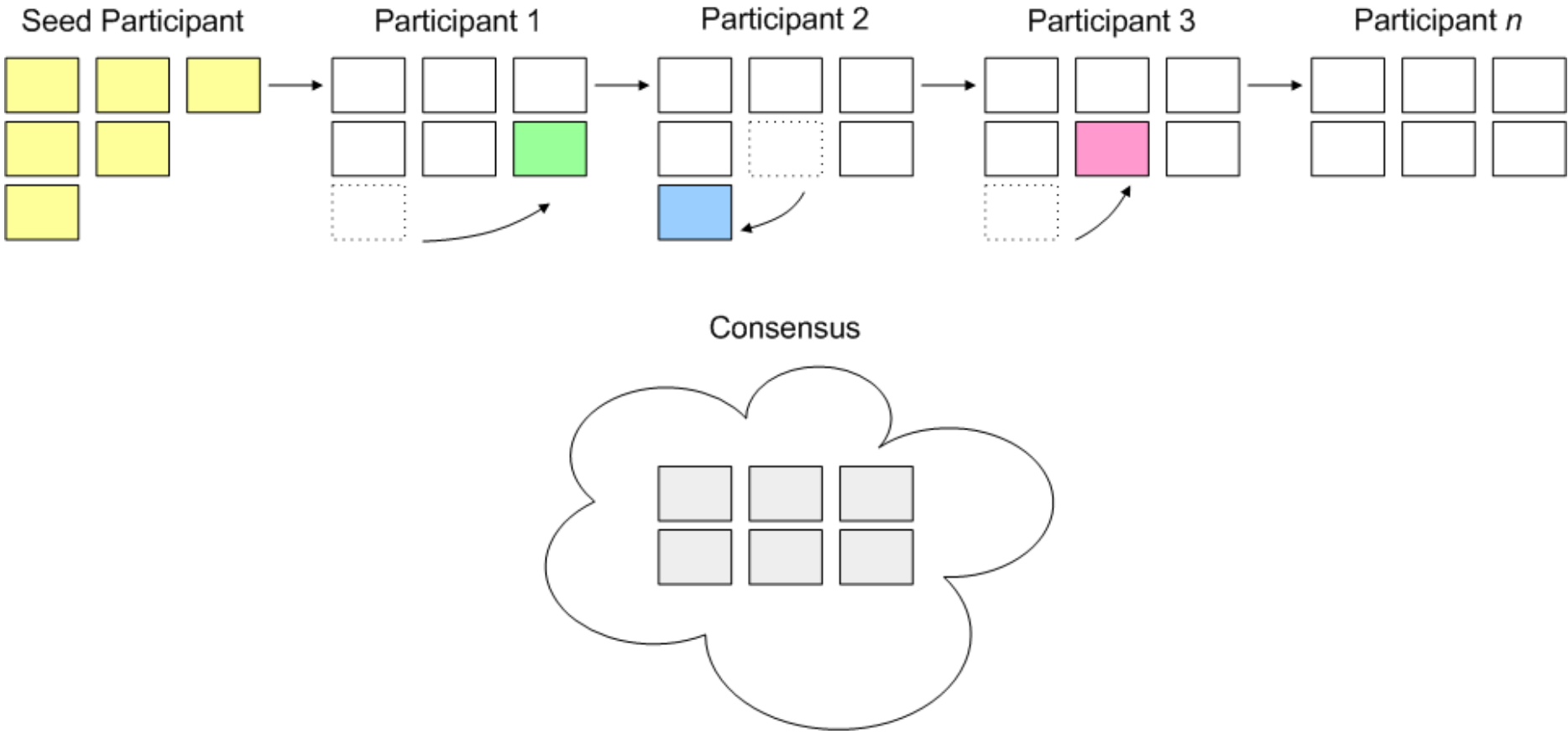
Delphi and Card Sorting?

- Looking for information patterns, not an exact answer
- More formal and structured method for gathering qualitative data
- Save resources from repeated work

DCS Method in a Nutshell

1. First participant (seed) creates initial structure
2. Second (and subsequent participants) comment on previous participant's structure and make changes
3. Continue with new participants until there are no more (significant) changes

Delphi Card Sort



Seed Participant

- Has the hardest job of creating the initial structure from nothing (same as OCS)
- Different methods for creating the seed
 - Information Architect creates initial structure
 - Expert (IA) assists seed with initial structure
 - Single “seed” works alone
 - Multiple “seeds” to work together

Participants

- Works with previous participant's structure
- Can make any changes to the structure
 - Small changes
 - Significant changes
 - Ambiguous changes
- Session ends when there are no more changes to the structure

Who to Recruit

- Traditionally a method of experts' opinions
- Participants are “experts” of a product
- Similar recruiting as for other UCD methods
 - Target audience of future product
 - Represent primary user groups
 - Investigate single user group

Number of Participants

- 8 to 10 participants
 - Typical of various Delphi methodologies
- No consensus? No problem:
 - Unfamiliar or unclear information
 - Too much information
 - Multiple conceptual models
 - There is “no answer”

Benefits for Adopting Delphi

- A single information structure rather than many
- Comments and insight from 8 to 10 participants
- Familiar qualitative methodology
- Lower study costs
- Lower participant (cognitive) costs

Summary

- Delphi Card Sort
 - An evolution of a single structure
 - A synthesis of every participant's ideas
 - Costs fewer resources than traditional method
- Vocabulary
 - Seed participant
 - Information structure
 - [Significant/Ambiguous] change

Future Work

Upcoming Testing

- Validation of Delphi Card Sorting (April 2007)
 - Stage 1: Generate sample structures
 - Delphi and Open Card Sort
 - Stage 2: Evaluation of structures
 - Reverse card sort (Quantitative, Participants)
 - Heuristic review (Qualitative, Experts)
 - Stage 3: Analysis of Results
 - Statistical analysis
 - Repeatable experiment

Coming soon...

- IAI Process Grant Report (May 2007)
 - Published report on the IAI website
- UB Graduate Thesis (July 2007)
 - Literature review
 - Methodology
 - Experiment description
 - Statistical analysis

Thanks to...

❖ The Information Architecture Institute



Questions?