

Delphi techniques in social informatics

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Introduction

What is the Delphi technique and why use it?

Delphi method

Developed by the US Army to predict impact of technology during the cold war

Structured way of corralling input of experts

Avoids 'group think'

Identifies areas of greatest uncertainty and helps to establish priorities

Two or more rounds, narrowing the field at each round

Adapted to research environment

"a modern participatory ritual"

(Linstone & Turoff, 2002)



(Some) uses for Delphi studies

- Aggregation of ideas
 - Generating and aggregating different ideas and solutions for a problem
- Prediction of an uncertain issue
 - Achieving predictions that are as accurate as possible about an unclear issue or uncertain situation
- Collecting expert opinions on a diffuse issue
 - Identifying and displaying the views of a group of experts on a diffuse issue
- Policy Delphi
 - Identifying intended and unintended consequences of policies or proposed policies
- Participatory Action Research
 - Anonymous, collaborative & qualitative approach to 'real-world' problems
- Consensus
 - Building consensus among a group of "expert" participants



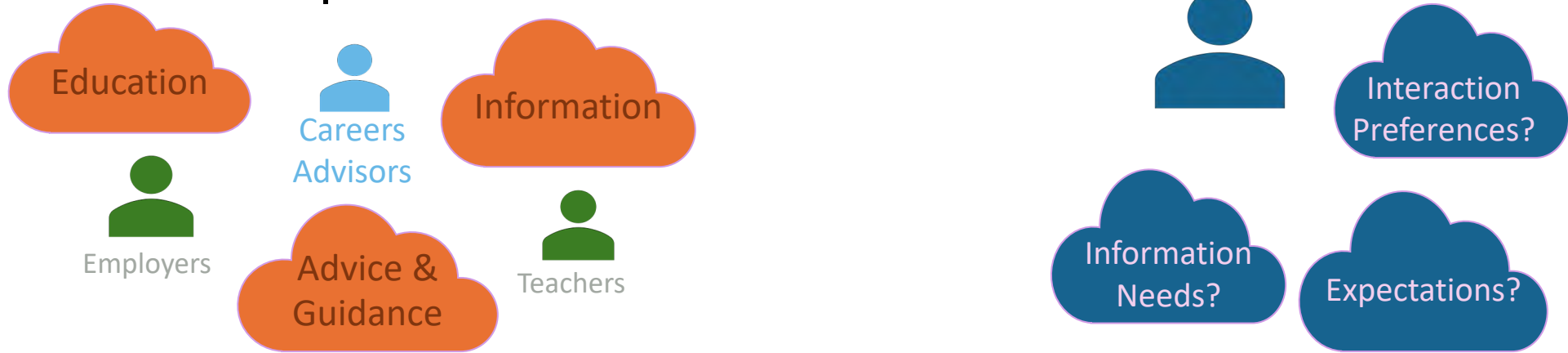
PARTICIPATORY DESIGN

Marianne Wilson

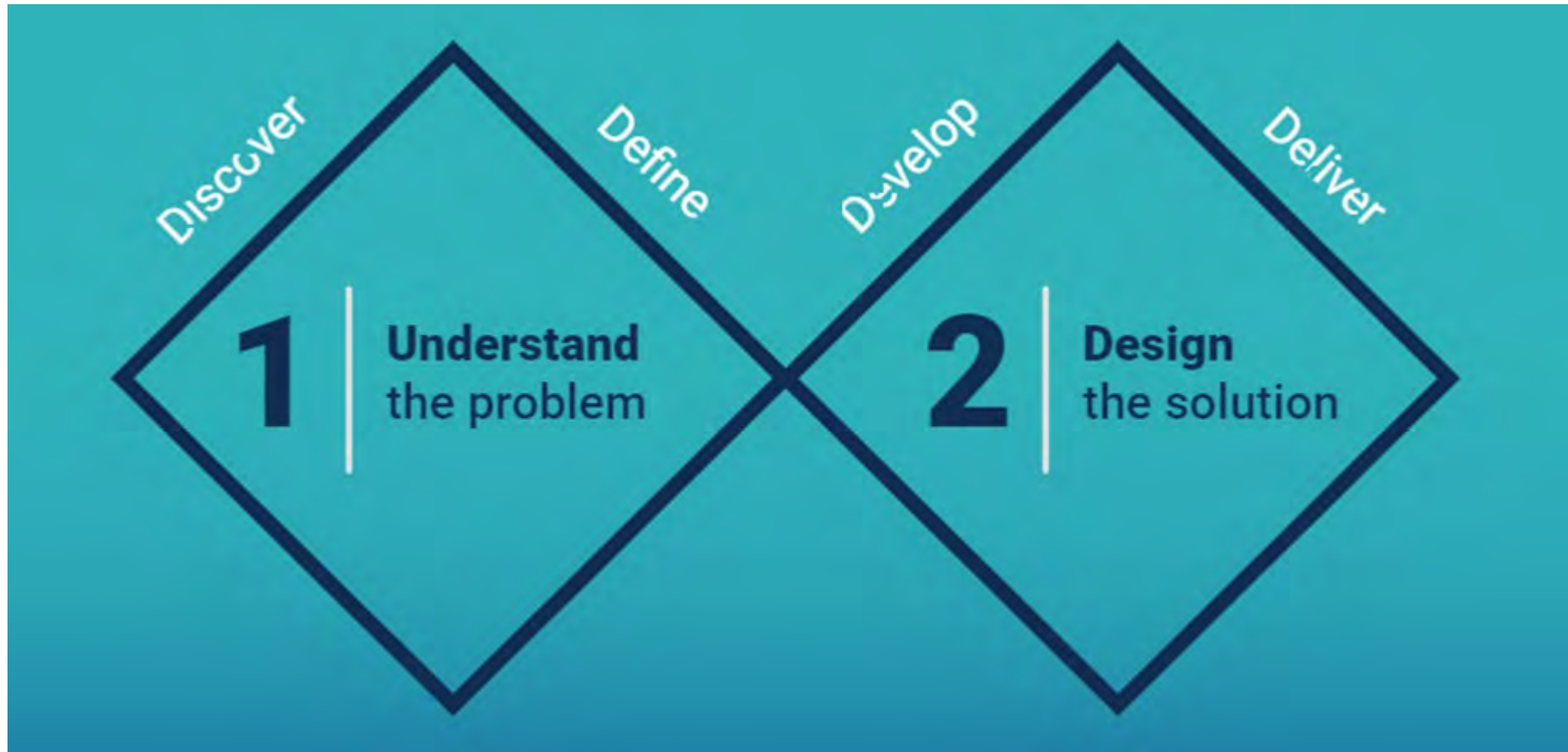
Research Problem



Design a **useful** career support chatbot to support **SDS's services** for young people



Scottish Government Service Design



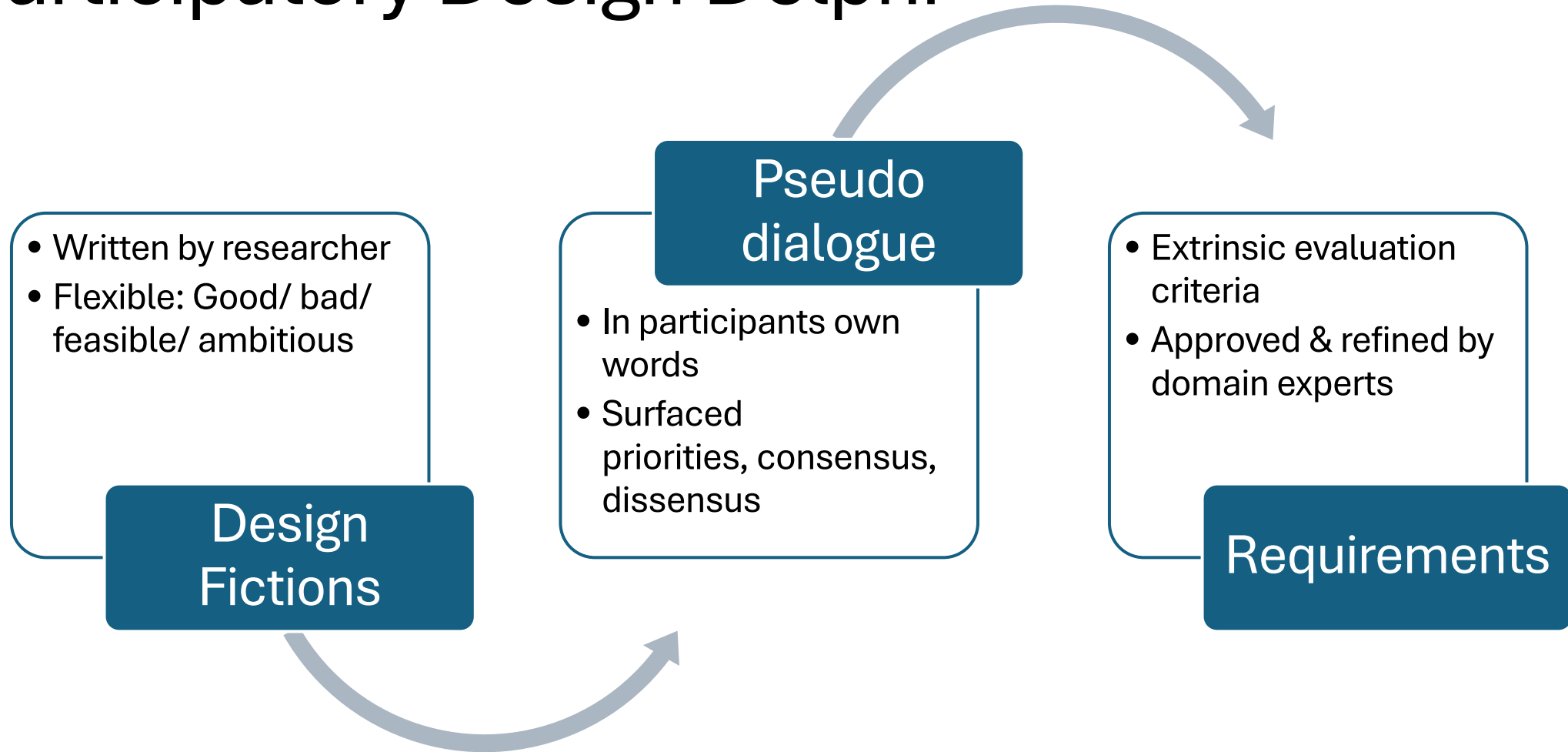
<https://www.gov.scot/publications/the-scottish-approach-to-service-design/>



Participatory Design for AI

- Slower, messier and takes longer than data / benchmark focused approaches
- Domain experts are deskilled and reduced to tools for harvesting data
- Difficult to bridge knowledge gaps between AI experts and Domain Experts
- But, essential if we want AI that works for 8 billion people, not just 8 billionaires.

Participatory Design Delphi



Outcomes



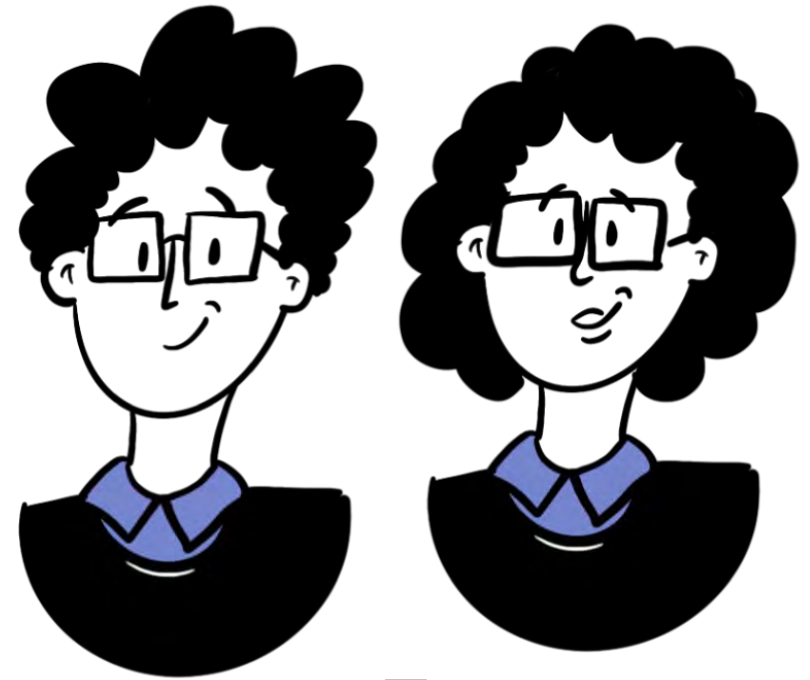
- ✓ Validated requirements in practitioners' own words
- ✓ Extrinsic evaluation criteria
 - ✓ Design should increase career curiosity
- ✓ Participants enjoyed the process
 - ✓ Rich insights (even when optional)
 - ✓ Opportunity to reflect on their own (non-tech) practice
 - ✓ Low attrition between R1 - R3
- Analysis required flexible approach
 - Take what participants offer and make it work
 - Keep open-mind about what later questionnaires would look like
- Write up was even harder!

POLICY

David Brazier



Information Professionals and Volunteers as 'Digital Proxies'



idp.



Context

- Online services as default
- Some People cannot access digital services
- Investigated emergent digital proxy practices
- Staff within local government, libraries, and civil society organisations
- What's the impact?





The Delphi



- Workshop findings constructed statements
- 77 Statements shared with....
- 11 Experts over 2 rounds
- Consensuses on.....

Findings



#	Statements	Mean (R2)	Mode (R2)	% Mode (R2)	IQR	Consensus	Sentiment
7	It's worth the liability of having a client's private information if it means we can help them.	3.10	4	60%	1.75	N	P
23	Digital proxies shouldn't do everything for the clients as then they will have to keep coming back.	3.20	4	40%	1.75	N	P
27	The pandemic has meant digital proxies have to be personal shoppers, IT experts, social workers and bankers all at once.	3.10	3	30%	1.75	N	M
36	There are instances where it is most appropriate to do something for the client rather than teach them how to do it.	3.90	4	40%	1.5	N	P
50	The demand for PCs outstrips supply, especially during busy times such as holidays. Using available PCs in time-limited shifts is not enough to meet demand.	3.90	4	40%	1.5	N	P

Findings



#	Statements	Mean (R2)	Mode (R2)	% Mode (R2)	IQR	Consensus	Sentiment
14	There are no rules around how we can help, only guidelines.	3.00	3	50%	0.75	Y	M
45	Trust can lead to overreliance on helping and lack of independence overall.	2.80	3	55%	0.75	Y	M
64	People are more likely to cross boundaries when in distress or when there is a crisis that needs to be handled urgently.	3.90	4	64%	0	Y	P
28.	Policy should be informed by what happens on the ground.	4.70	5	70%	0.75	Y	P
17	Digital services aren't as connected as clients expect, which leads to repetitive tasks and frustration.	4.00	4	55%	0.5	Y	P
9	There is always someone technical around to help if there's a problem digital proxies can't fix.	1.50	1	70%	0.75	Y	N



What's Next?

Future research

- Further investigate 'digital proxy' behaviour
- Guidance & regulations
- Effect on service design & security

DIVERSE OPINIONS

David Haynes



Application of Delphi to Privacy and Online risk



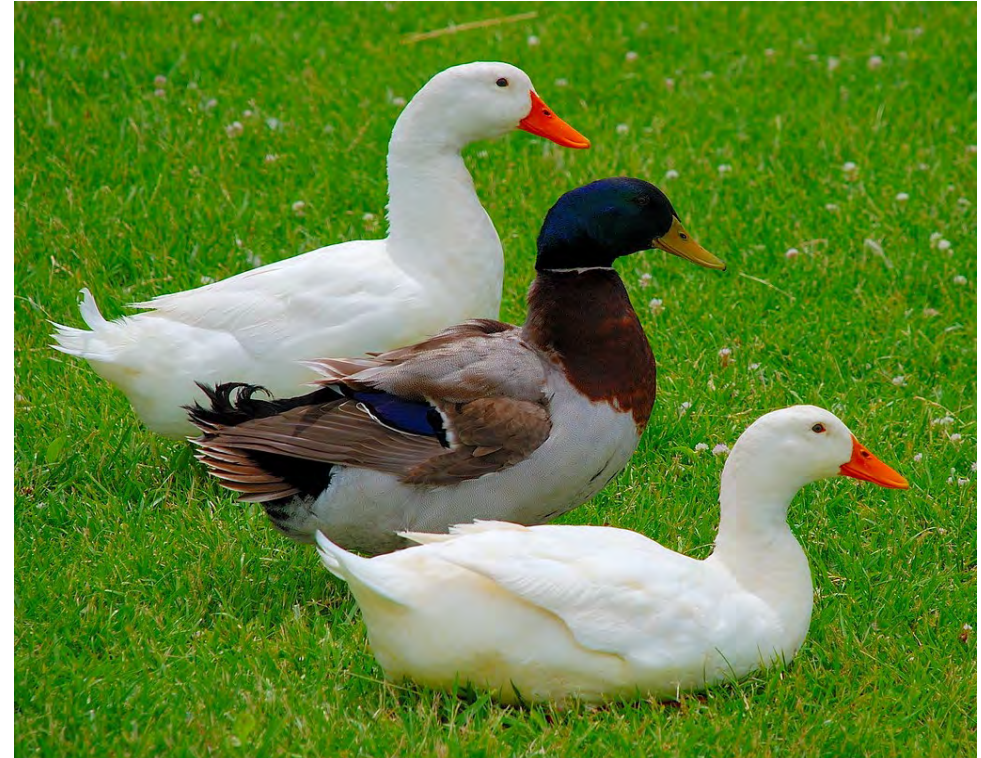
Published research on privacy and risk in last 5 years

Extracted and consolidated statements from the literature

Experts in cyber-security, information literacy, and risk

Two rounds seeking opinions based on 5-point Likert scale (Strongly agree → Strongly disagree)

Consensus based on 50% responses in inter-quartile range



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Areas with no consensus

PERSONALISATION


- To operate effectively, intelligent user interfaces need to acquire rich information about the user
- The intrusiveness of personalised ads outweighs the benefits of personalisation
- Personalized services increase the benefits of sharing information with mobile app service providers



Feedback from panel members

- Questions that do not get good consensus may not be properly understood
- “Rich information” could be ambiguous
- The usefulness and bias of the statements influences the consensus
- Trust is the other side of risk
- Statistical awareness is essential
- Context plays a major role

What did the panel see as priorities?

- Financial loss as a result of online fraud
 - Cyber-bullying via social media
 - Disclosure of personal medical data for purposes other than treatment
 - Filtering so that what an individual sees online is controlled by a third party (e.g. search results being tailored to the individual)
 - Loss of control over what happens to personal information disclosed online
 - Online stalking
 - Intrusion into personal online space (e.g. by targeted advertising)
 - Algorithmic decision making (e.g. price of goods being determined automatically, based on individual online behaviour)
- 



Summary and Discussion

How might Delphi techniques apply to your research area?





References

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