



Edinburgh Napier
UNIVERSITY

School of Computing,
Engineering & the
Built Environment



Human-Centred Careers Chatbot Design

Marianne Wilson – www.linkedin.com/in/mariannewilson

PhD Context

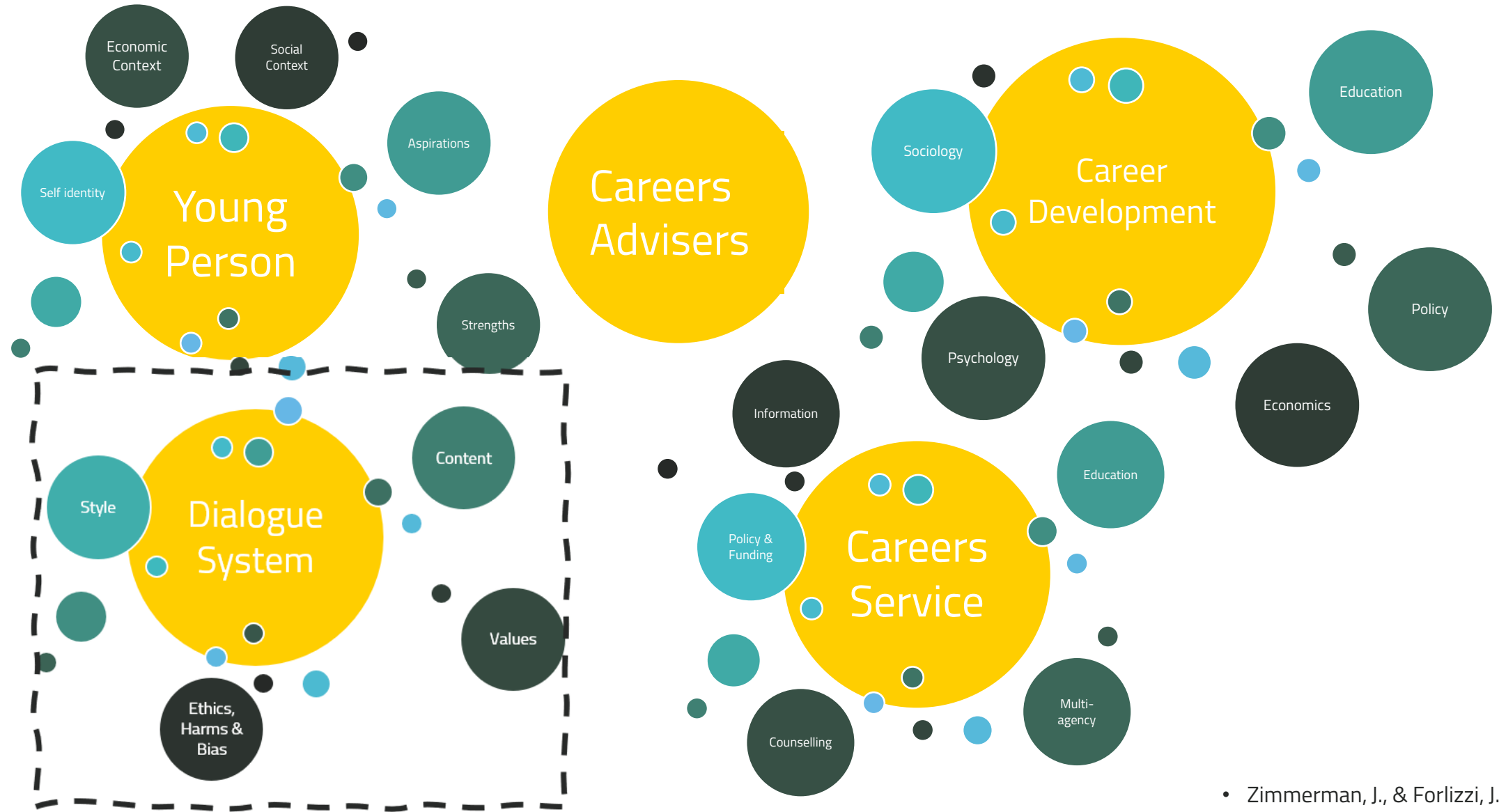
- Funded by SDS & SGSSS
- Supervisor-led proposal:
 - 'Natural language interfaces to support career decision-making of young people'
 - David Brazier - Information Science
 - Dimitra Gkatzia – Dialogue Systems
 - Pete Robertson - Career Development
- SDS Sponsor – Sandra Oribine (Cheyne)
- My Background:
 - Humanities
 - Business Information Technology
 - Enterprise Data Governance
 - Social Science of Technology



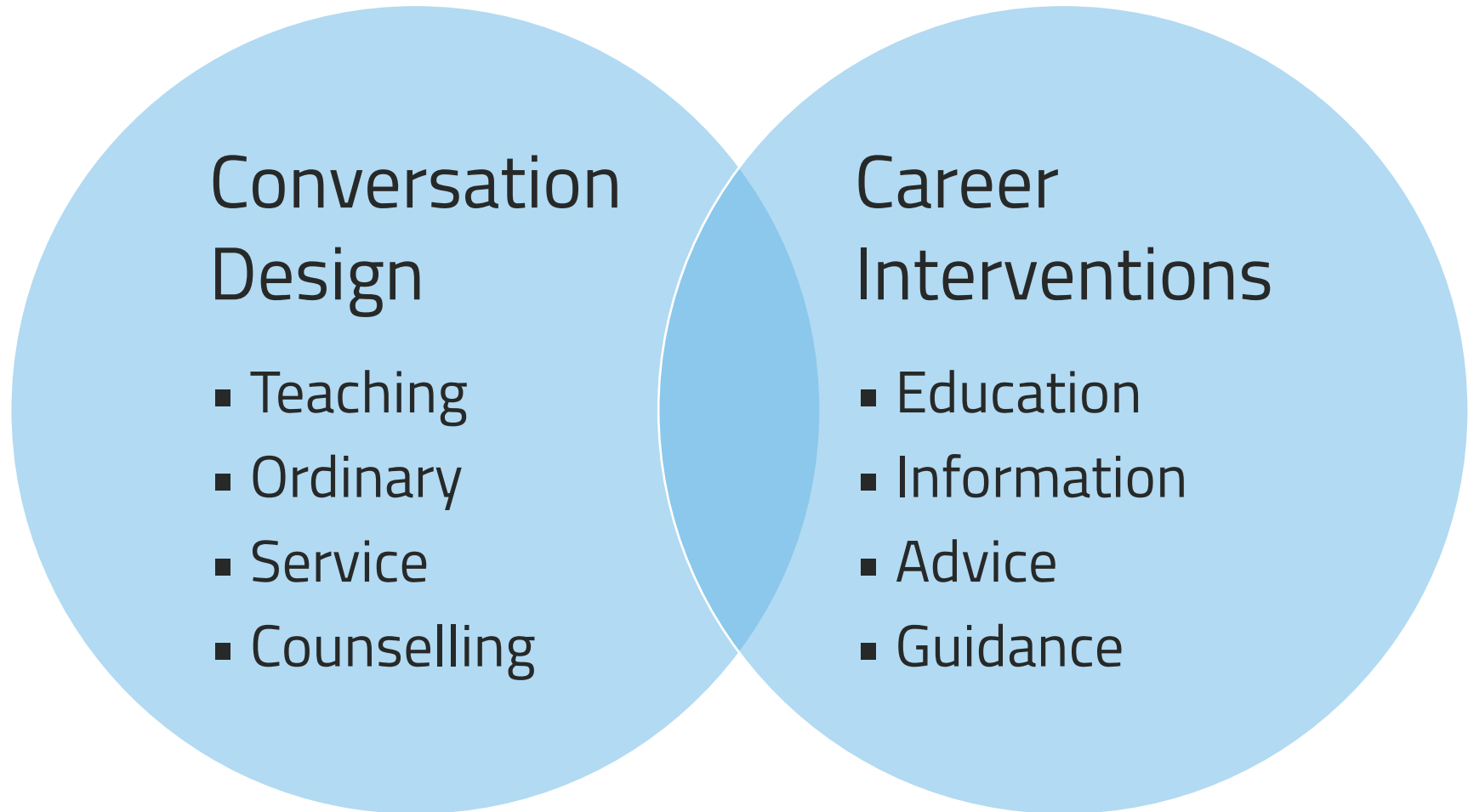
Skills
Development
Scotland



Research Context



Conversation Design



AI Pitfalls

- Accuracy & Agency
- Dependency & De-skilling
- Bias & Fairness
- Privacy & Security
- Supply Chain Ethics
- Environmental Impacts

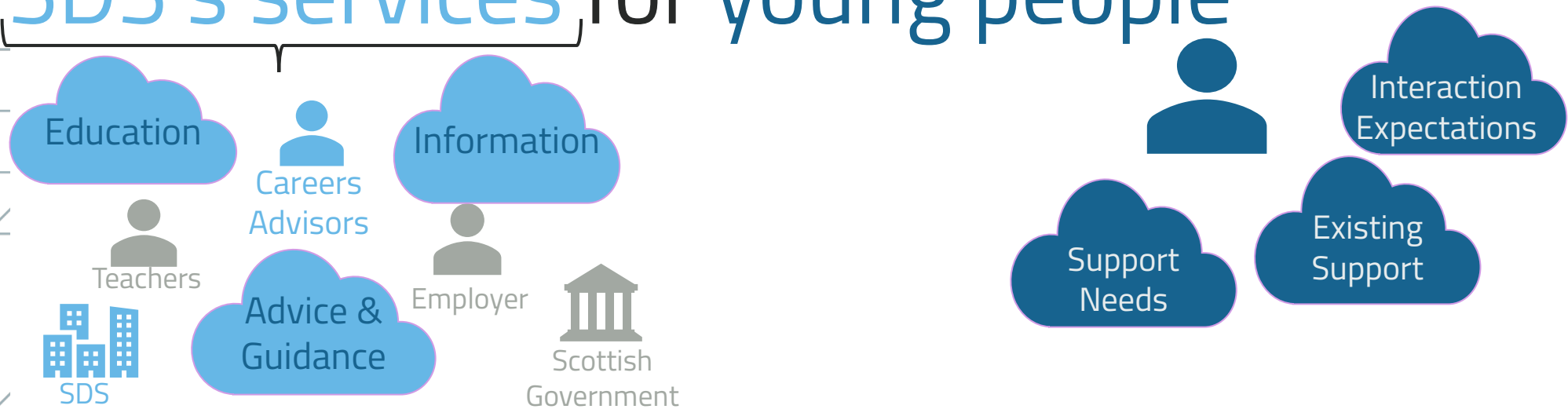


■ FOMO IS NOT A STRATEGY ■ AI FOR 8 BILLION PEOPLE, NOT 8 BILLIONAIRES ■

Problem Statement



What would be a **useful** role for a chatbot in **SDS's services** for young people





Delphi Study Method

- Panel of Experts
- Multiple rounds of surveys
- Results of previous round included
- Anonymous

What

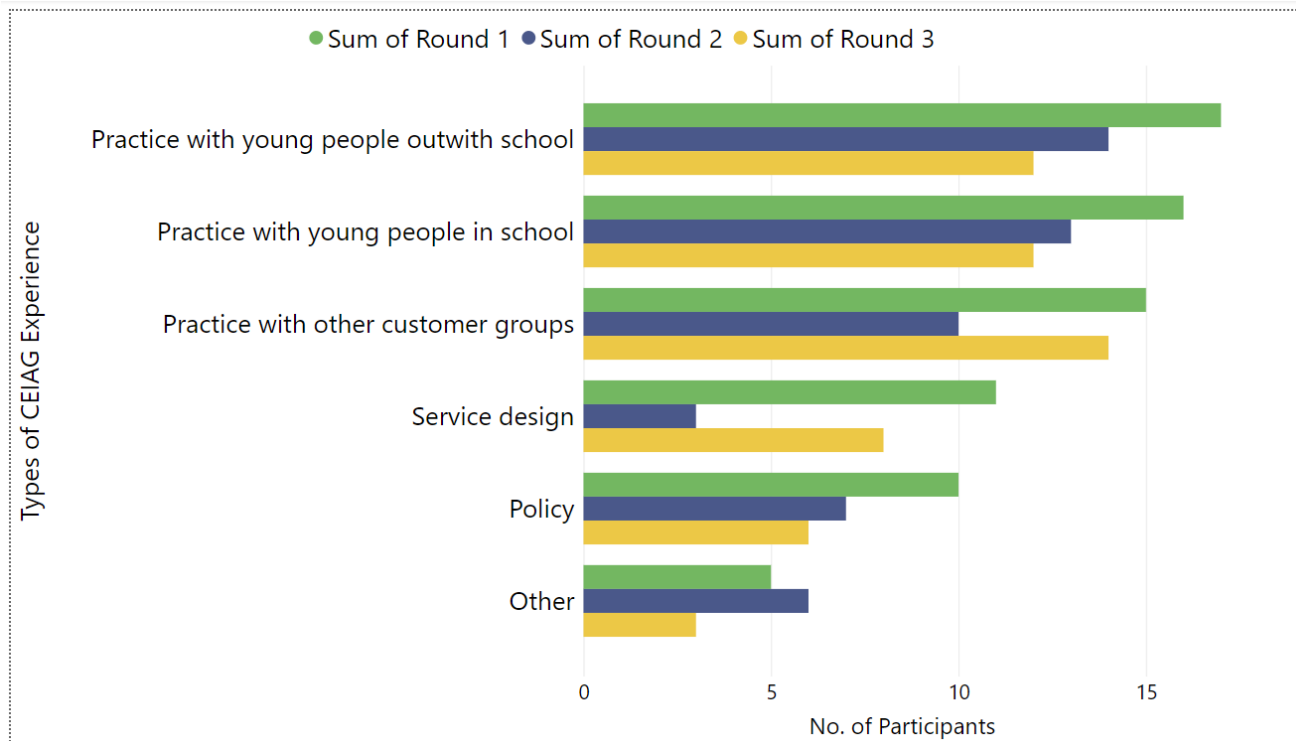


- Build Consensus
- Qualitative data
- Mitigate prestige/ power
- Analysis is refined, rejected or validated

Why

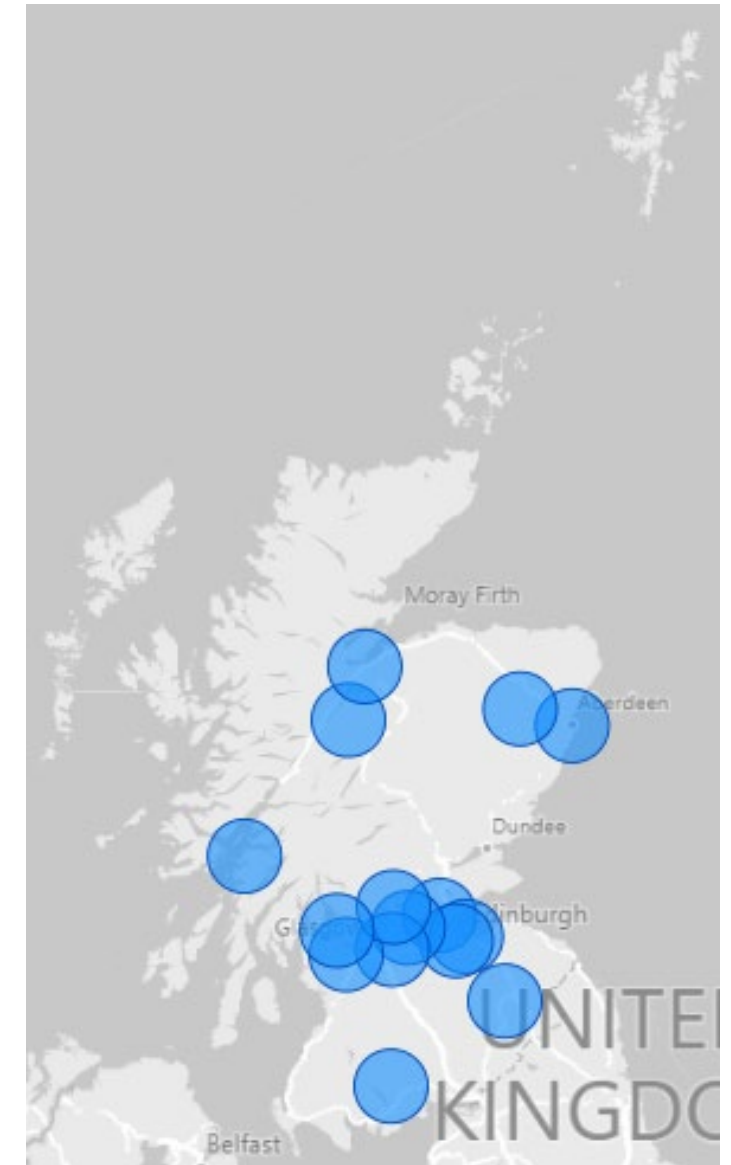


The Panel

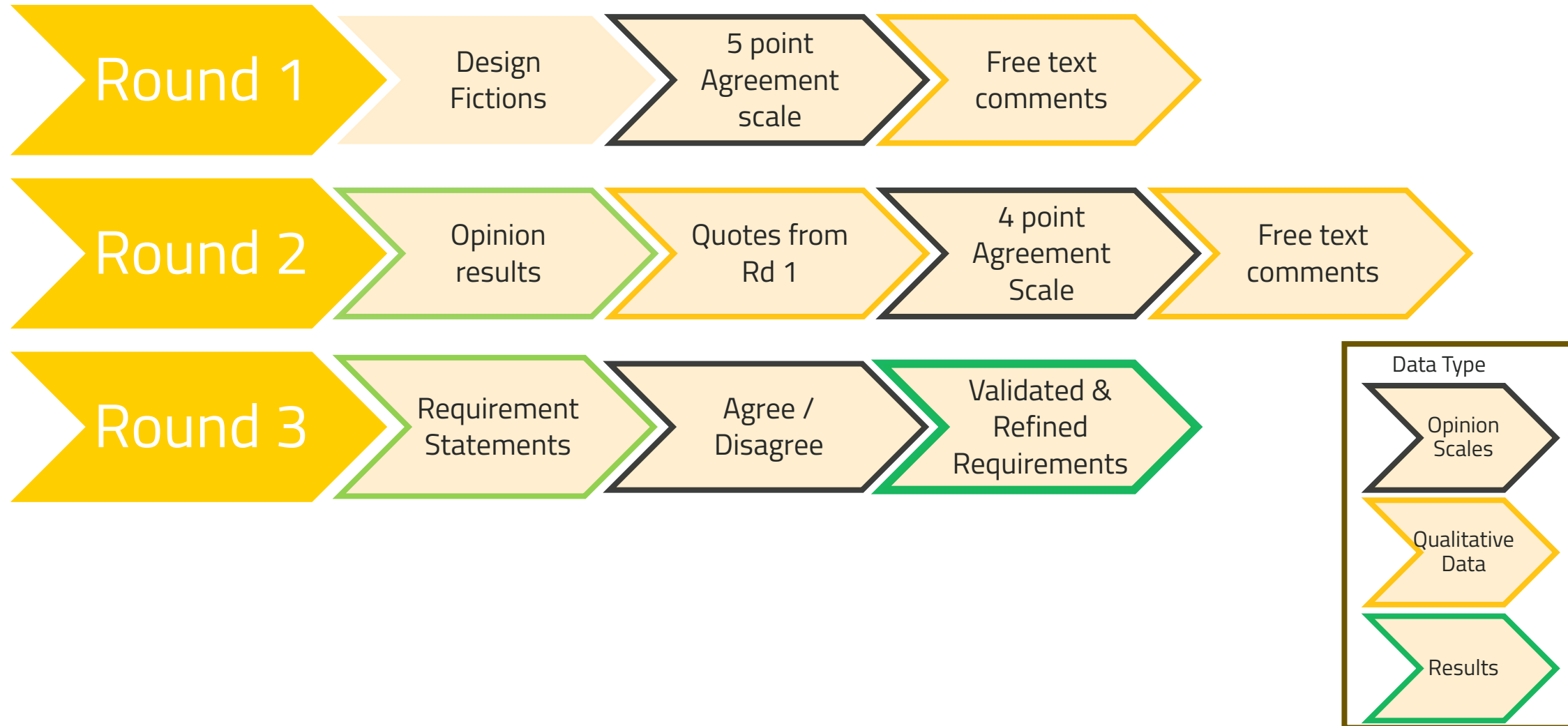


NO. OF PARTICIPANTS	
ROUND 1	23
ROUND 2	22
ROUND 3	20

YEARS OF EXPERIENCE	RD 1	RD 2	RD 3
Average	13	15	17
Min	3	3	3
Max	31	31	32



Delphi Study Design



Results: The Task

- The chatbot should support young people to **navigate information** in a way that encourages **curiosity and exploration**.
- The chatbot should be thoroughly **tested** to ensure it **meets the needs of young people** using it as an **independent self-service route** to access support.
- The chatbot should ensure that the **range of information** presented is broad enough to encourage users to **explore their options further**.



Results:

Integration with Existing Services

- The chatbot should ensure that all users are aware of how to access other sources of support from partner organisation (e.g. Helpline, appointment with careers adviser).
- The chatbot should function well as a tool for independent use. It should not require significant changes to existing services in order for potential benefits to be realised for young people.
- Users should be made aware of alternative sources of support, and how to access them before any potentially overwhelming responses are provided.
- The chatbot should be tested with young people to determine the appropriate volume and complexity of information to be included in chatbot responses.

Results: Integrity

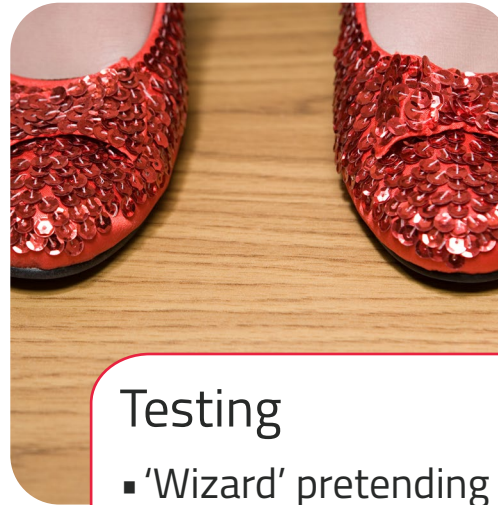
- Ensuring that users **understand the scope and limitations** of the chatbot is important for aligning with the partner organisation's approach to career support.
- Customisation of responses should be based on **high level, non-sensitive information** provided by users during the conversation only. (For example: whether user is in school/unemployed/college etc; non-specific location).
- The chatbot should focus on guiding users through **existing SDS-managed information**, but it may be appropriate to direct users to **carefully selected external sources** where required.

Wizard of Oz Study



Sign Up

- Scottish people aged 16-21
- Measure career curiosity
- Identify topics of interest
- Outline plan for conversation
 - Information / links
 - Conversation patterns



Testing

- 'Wizard' pretending to be chatbot
- Try range of conversation patterns
- General feedback on experience
- Measure career curiosity



Analysis

- Feedback from SDS Experts / Delphi Panel
- Identify conversation styles that users **&** experts like
- Identify conversation designs that increase curiosity

Headlines

Task Selection by Career Experts (Delphi Study)

- Chatbot should support young people to navigate information in a way that encourages **curiosity and exploration**.

Conversation Design with Young People (Wizard of Oz study)

- Test different conversation styles
- Career-Adaptabilities Scale
- User experience feedback

Career Expert Validation (current work)

- Review transcripts against requirements developed by panel during the Delphi Study

Delphi Study
Results Paper



Profile: <https://bit.ly/mariannewilson>

Connect: www.linkedin.com/in/mariannewilson

Thank you!

Opportunities &
Risks of AI Paper



Selected References

- Rachel Coldicutt: <https://www.youtube.com/watch?v=BvTXkEDWmR4> or <https://aigovernance.co.uk/we-need-to-ensure-artificial-intelligence-benefits-8-billion-people-not-just-8-billionaires/>
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- Savickas, Mark L., and Erik J. Porfeli. 'Career Adapt-Abilities Scale: Construction, Reliability, and Measurement Equivalence across 13 Countries'. *Journal of Vocational Behavior* 80, no. 3 (June 2012): 661–73.
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