



Business
Cooperative Research
Centres Program

‘Hear’ to Help

Co-development of a Chatbot
to facilitate participation in tertiary education
for students with Autism and related conditions

Dana Kai Bradford



Why are we doing this?

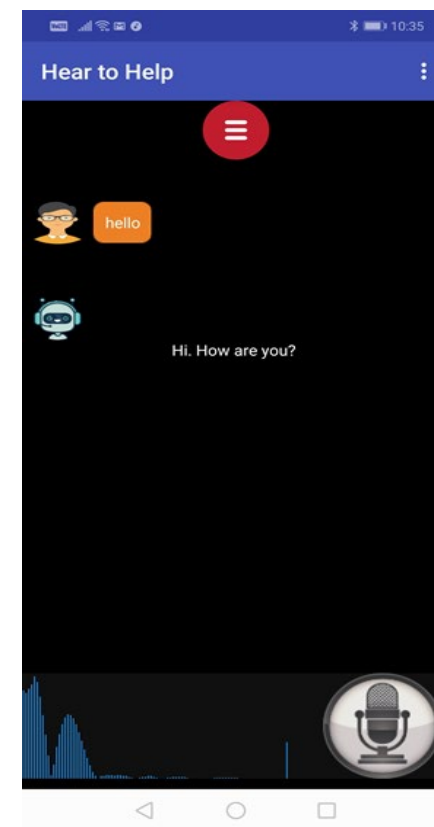
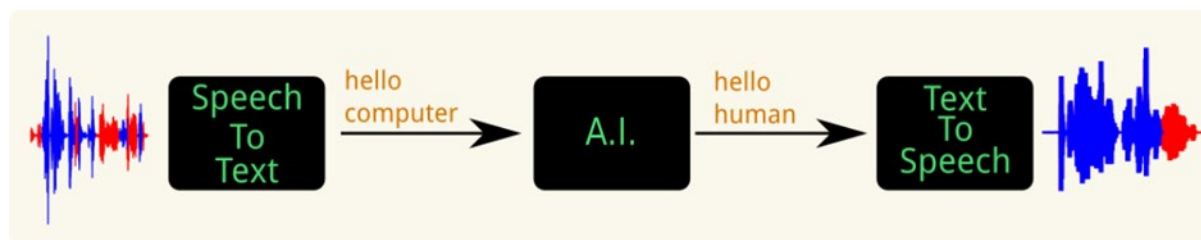
- Increasing number of uni students on the autism spectrum
- Better life outcomes
- Academic and non-academic challenges
- Support = better university experience
- **Reluctance to use** support systems
 - Previous bad experiences
 - Poor self advocacy skills



<https://cdn.studyinternational.com/news/wp-content/uploads/2018/07/david-kennedy-374966-unsplash-390x249.jpg>

What exactly is a chatbot?

- A conversation agent
- Accessed via speech or text
- Smartphone or web page
- Natural language processing



Case based reasoner
syntactic matching algorithm
sentiment analysis algorithm

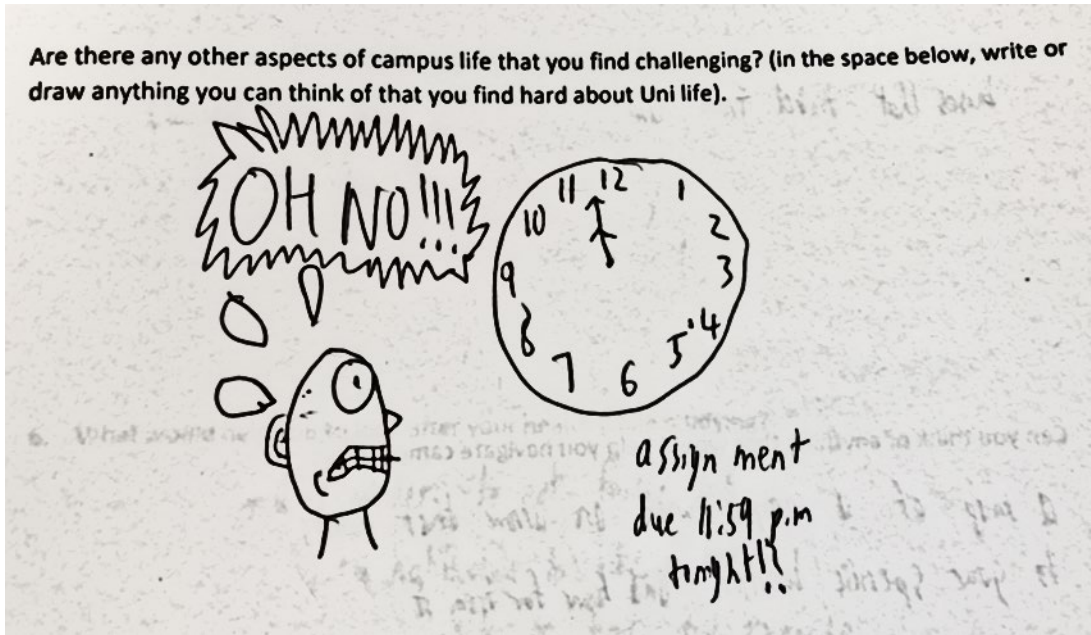
Logic reasoner

Analyses structure of data to recognise words and compute responses

How did we co-develop the chatbot?

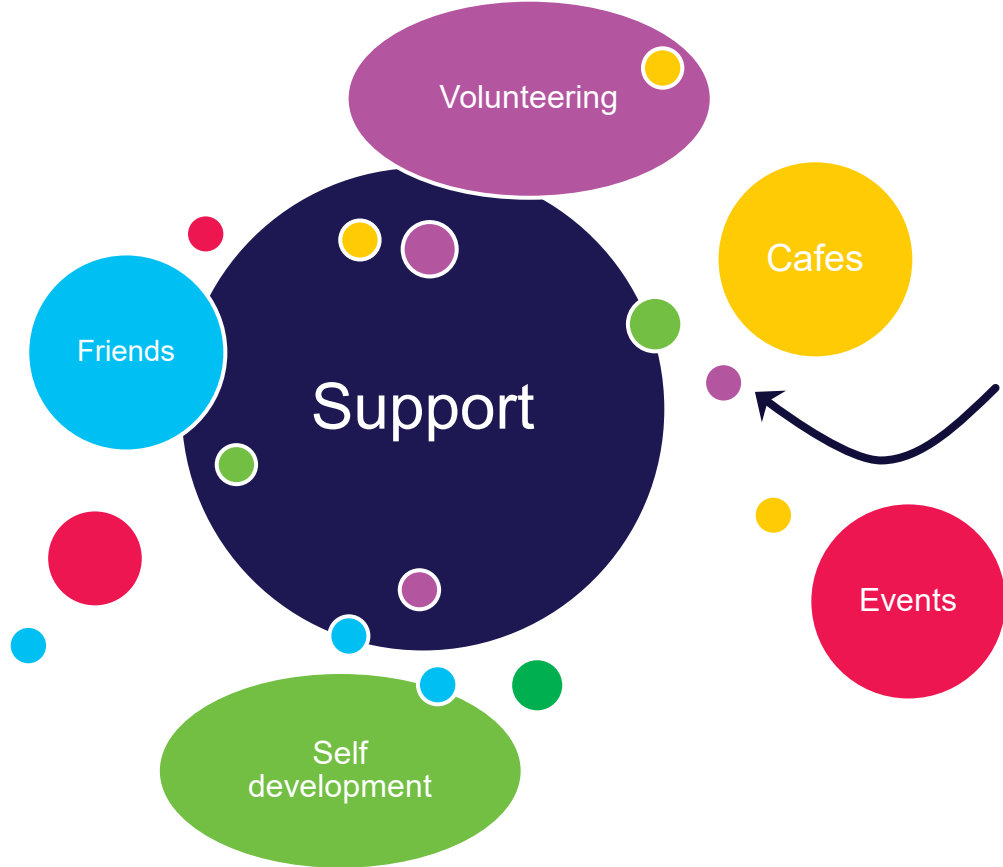
- CSSHREC 124/18, CUHREO HRE2019-0054.
- Content (brain) building focus groups (N=23, 11 female)
 - CSMP mentees (n=13, 4f); mentors (n=6, 5f); staff (n=2, f)
- Programming (N=12)
 - AASQA (n=8, 2f); Remote ASPECT, Autism Hub (n=4*)
- Testing (N=30)
 - CSMP mentees (n=17, 4f), mentors (n=1, f); AASQA, ASPECT, Autism Hub (n=12*)
- Evaluation (qualitative) (N=13, 2f)
 - Autism Hub

Focus groups rich source of data

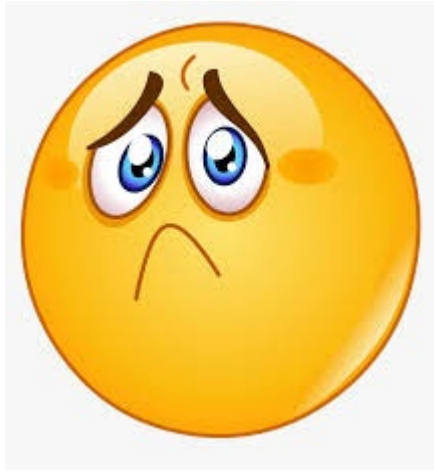


- Some surprises for mentees:
 - 33% enjoyed travel to/from Uni
 - 73% enjoyed social interaction
- Academic aspects challenging
 - 53-67% found classwork, assignments, study loads hard
 - 87% had exam and semester stress
 - 73% found **time management** difficult
- Looking after themselves
 - 53% found it challenging to care for themselves, eating and sleeping well

Positive & negative experiences at university



Days when people bring their dogs



Feeling left out
Time management



Building the chatbot brain – PDF Resources

- Strategies & tools used by mentees and mentors to make uni easier
- Peer mentoring - Module Specialist Mentor Toolkit
- Disability Discrimination Act
- CU Counselling and Disability Services: Counselling Services
- CU Counselling and Disability Services: Student Support & Outreach
- 'Solve Method' in The Hidden Curriculum (Myles et al. 2004).

Building the chatbot brain – Modules

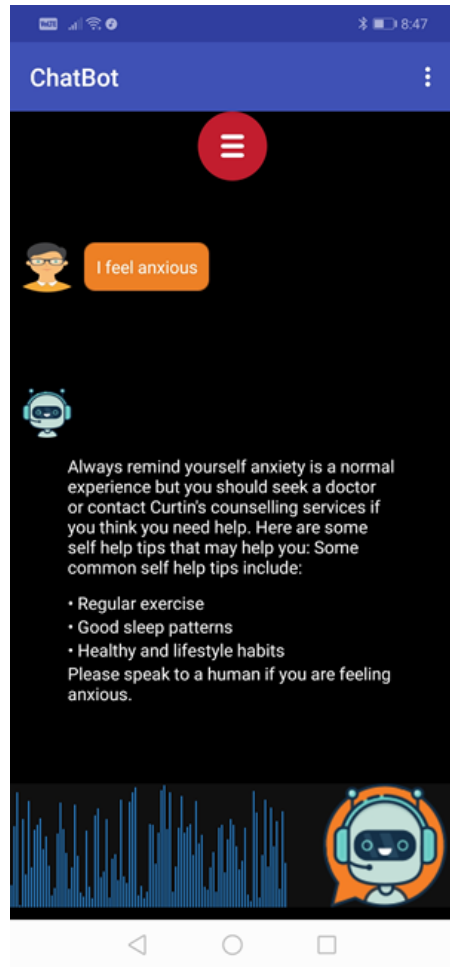
- Greetings, main menu and congratulations (first year students)
- Mental health – anxiety, depression, counselling, **lifeline**
- Asking for an extension – example email
- What is Autism – common strengths and famous people
- Tips – managing time, dealing with perfectionism, decision making
- What is? – language idioms, role of mentors, SOLVE strategy
- Chatbot improvements – wish list

Programming and testing

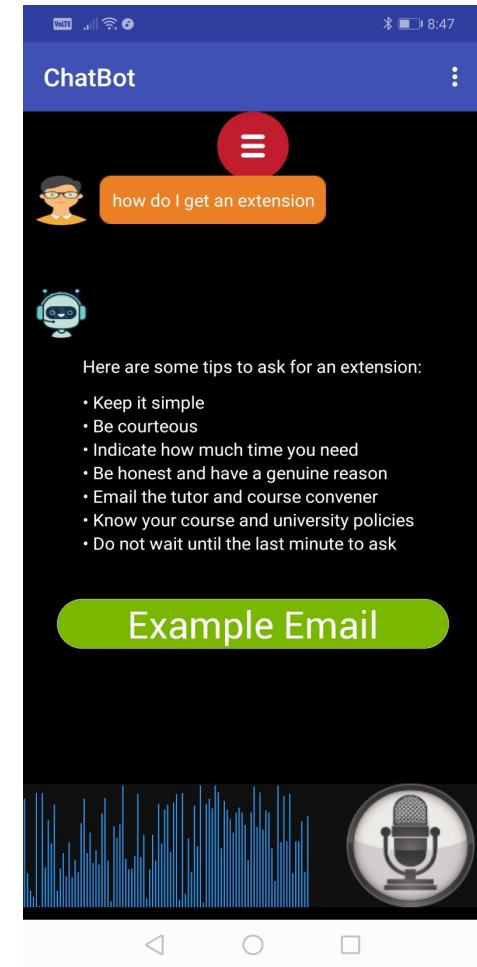
- Remote Portal
 - Hackathon participants
 - ASPECT – teachers (grammar!)
- CSMP testing session
- Lessons:
 - Greater focus on recruitment
 - More instructions for remote portal
 - Students too busy for trial
 - University calendar
 - Recruit graduates or prospective students



A prototype prevails!

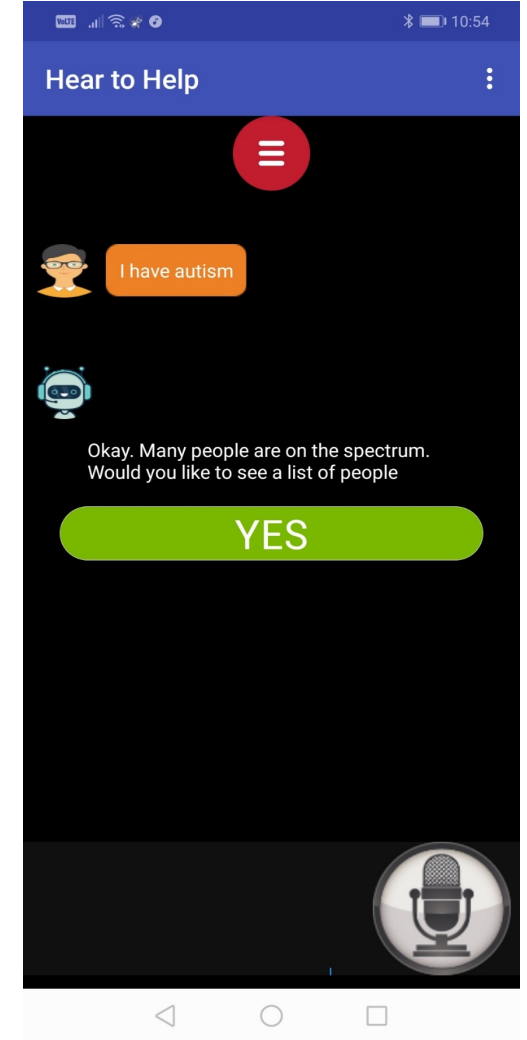


- Programming, testing in house
- Autism Hub workshop qualitative evaluation
 - Assistance with Uni
 - Help with daily activities
 - Transport, social connections,
 - Mental health, food
 - **Employment**
 - Privacy concerns



Conclusion

- Navigate social, physical, environmental cues
- Info on anxiety, depression, counselling services
- Relevant resources from student support services and health services
- Communication strategies - ask for extension, understand legal rights
- Available for smart phone or web use
- Provided to Autism CRC with AIML guide



Thank you



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Autism CRC is the world's first national, cooperative research centre focused on autism. We are taking a whole-of-life approach to autism focusing on early years, school years and adulthood.