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THE BOT WORKING ON CAREERS INFORMATION AND ADVICE WITH HUMAN EXPERTS

DEIRDRE HUGHES REPORTS ON THE PROGRESS OF 'CICI' THE CAREERS BOT

A decade ago, who would have thought guidance professionals would be talking about using a 'bot' in their practice? Fast forward to today's world where technology and humans working together is considered vital. For example, "cities of the future will be places where every car, phone, air conditioner, light and more are interconnected, bringing about the concept of energy efficient smart cities" (Wensley, 2021). We live in a digital age where human-machine partnerships will not only help organise our lives, but they will also transform job search, deliver products and services, and support professional development. Chatbots are AI programs that facilitate basic conversations between humans and computers.

The art of the possible
In March 2020, a small team of academics and technical developers embarked on a journey of discovery. With the support of NESTA/DfE funding (as part of the CareerTech Challenge 2021-2021), we began to investigate the possibility of developing a chatbot for careers support that could eventually recognise the limits of its capability and know when to refer an individual to a guidance professional. Before identifying the boundaries necessary for effective referrals to guidance professionals, the team needed to build a friendly bot, powered by AI and machine learning, capable of mirroring a conversation between an adviser/coach and adult client/customer. It was clear 'CiCi' the careers bot would not be programmed to deliver career guidance - but instead would provide personalised careers information and advice available 24/7.

Content development
Eighteen months on, 'CiCi' has nine conversation modules developed from observing 25 guidance practitioners working with adult clients/customers in England.

The topics covered so far include:
• Discover what jobs you might like
• CV support
• Apprenticeships
• Traineeships
• Job vacancies
• Job information (including LMI)
• Self-employment
• Volunteering
• Speak to a human adviser.

'CiCi' is programmed to make a referral by asking at any stage if the individual would like to speak with a human adviser. Making this work involves complex programming but we've managed to achieve this. For anyone seeking *free* career guidance, there's an automatic link to the National Careers Service website and the services on offer. Thanks to support from the CDI, CiCi also provides a link to the Register of Career Development Professionals for anyone seeking access to *paid-for* career guidance from a professionally-trained adviser.

Key questions and practitioner feedback
In building the bot a fundamental principle underpinning the work is not only to bring guidance practitioners on the journey, but also to learn and listen to the realities of practice. We are interested in knowing the following:

1. Which clients might benefit most from a careers chatbot and at what stage does this get introduced into the practitioner and client/customer relationship?
For example, searching the bot whilst multi-tasking in the comfort of your home.

2. How can a careers chatbot support the guidance practitioner in their work?
For example, dealing with frequently asked questions and answers? Providing a tool that can be used before, during or after a careers interview or groupwork session? Offering a quick and easy way to search for the latest LMI as part of continuous professional practice (spotting what works, any data anomolies and what's missing in a particular area or sector?).

3. What are the current weaknesses in the careers chatbot and how easily can be these be addressed?
For example, the bot does not yet have voice recognition, a human face or registration requirement.

CiCi is a bot 'still in progress' that has moved to a Beta version. Here are a few examples of feedback from practitioners:

"I was able to begin using CiCi quickly today on my phone. At first sight it looked nicely presented. Liked the colours and the photo, it looked fine, I felt inclined to use it."

"The client regularly attends my job club. He is following a basic computer course and so enjoys using different websites to search for jobs and voluntary opportunities as this allows him to put into practice the IT skills he is developing and build on his knowledge of opportunities.

He is especially looking at voluntary work. I used the bot at the start of my discussions with the client and he had
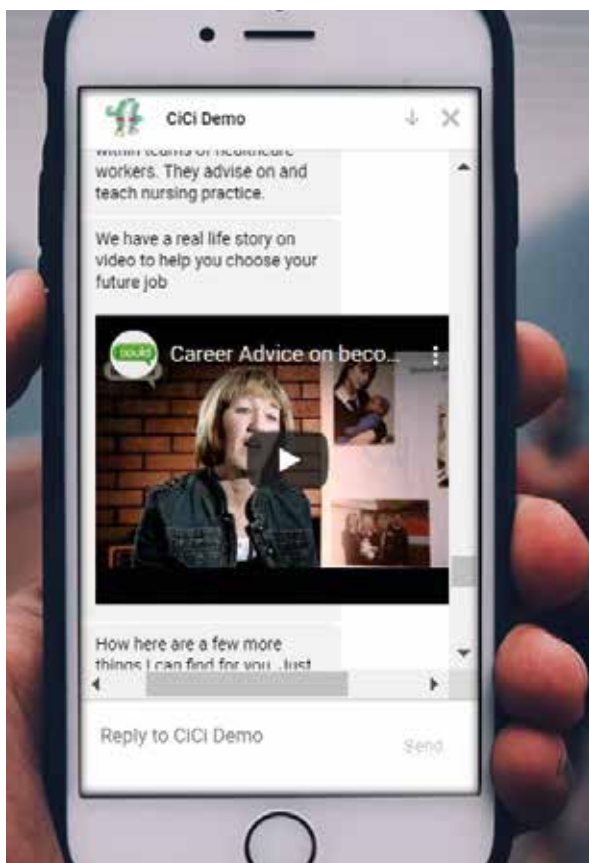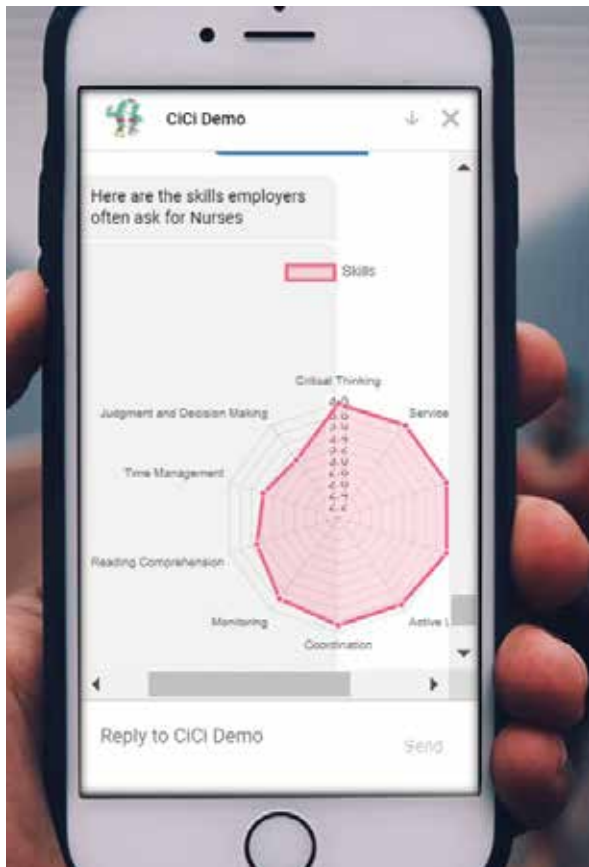
previously taken part in a trial of the bot in the earlier stages. The client found it easy to get started on the bot, putting in his name and choosing Derby. We searched first on voluntary work and found the list of further information for finding out about local volunteering useful. The client clicked the Community Action Derby link and thought this might be helpful to look at again. I thought it was useful that there was also a link to information from Derby City Council."

We also learned about areas for improvement, for example, training courses in CiCi only cover ESFA funded provision, yet many local/combined authorities have local courses not included – this means we have to be really attentive to local partnerships and local needs. The conversation trees can be refined further to improve images and provide coaching nudges. It can be frustrating when CiCi does not understand what you are saying. CiCi incorporates artificial intelligence technologies, in particular Natural Language Understanding (NLU). As an ongoing activity we are using machine learning to improve CiCi's understanding, and the more CiCi is used the better the bot should become.

Further developments

Currently, the CareerChat team is working with a major college in the East Midlands on a customised version linking courses to standard occupational classification (SOC) codes – people seldom search for course titles, they often search instead for courses linked to occupational interests. CiCi can be embedded within portals, social media, mobile phones etc.

We have received significant interest in a customised version for young people in schools and have recently begun work on this. In 2022, the team are looking for operational partners to pilot CiCi, tailored to their local needs. 2022 is the year to go from prototype to product. Guidance professionals are not only talking about AI and machine learning 'bots' but also co-creating a bot that understands good career guidance. And so, the journey of discovery continues – watch this space!

For more information, contact: Dr Deirdre Hughes OBE working with Graham Attwell, Chris Percy and George Bekiaridis (Co-Directors of CareerChat (UK)). Website: careerchat.uk/ The demo version: careerchat.uk/demo/

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