PhD Studentship Proposal

“Design is really an act of communication, which means having a deep understanding of the person with who the design is communicating.”

Donald A. Norman

Computing is extremely important in almost every aspect of our lives. The ease of use or lack of can cause anything from minor irritation through to, in some cases, technophobia.

There is much anecdotal evidence that many mathematicians, engineers and computer scientist have the condition Asperger’s Syndrome, a mild form of Autism. While this could be a disadvantage in everyday life, the skills this condition conveys are ideally suited to the field of computer science. Asperger’s Syndrome individuals often have higher than average IQ’s and are logical and serial in their abilities, two important attributes needed to be a successful computer programmer. Another of the key features of this condition is an enhanced visualisation ability, a key skill needed for computer programming. Possessing a strong ability to visualise what a computer is doing, how it does it as well as what it can do means Asperger’s syndrome individuals have the expertise to use computers to their full potential.

Being able to systemise, that is, analyse the variables in a system and derive the underlying rules that govern that system, is known to be strong in Asperger’s syndrome adults again a extremely important skill for any computer scientist.

Autism and Asperger’s Syndrome are thought to have a genetic link. A recent study by Baron Cohen et al has shown that Autism-like-traits are found in the fathers of physicists, engineers and mathematicians. Jarrold et al of Bristol University have added to the debate with a study that claims equal evidence of these traits in father’s who are accountants and scientists. Figures from Santa Clara County, the administrative region covering Silicon Valley, showing a dramatic 31% increase in one year of diagnosis of Autism in children suggest that Autism and Asperger’s syndrome traits far from being a hindrance may be an advantage. The eminent psychologist, Tony Attwood, says that: “Computers are an ideal interest for a person with Asperger’s Syndrome ... they are logical, consistent and not prone to moods.”

Temple Gradin, a well know writer on the subject of Autism related conditions, remarks on the increase in rates of diagnosis of Asperger’s Syndrome in the USA and the negative effects this label may convey; “One mother called me and was very upset that her six-year-old son had Asperger’s. She then went on to tell me that his IQ was 150. I replied that before people knew about Asperger’s Syndrome, their child would have received a very positive label of intellectually gifted.”

The downside of AS individuals designing and producing software is that AS individuals often have poor social understanding and an inability to empathise - they lack a theory of mind. The very nature of a theory of mind means that one is essential when it comes to designing for others.

I would like to look at:

- The prevalence of Asperger/Autism
- type traits among computer scientists
- The advantages having Asperger’s syndrome would give individuals working in I.T.
- Possession of a theory of mind, it’s absence and bad software design
- Visualisation ability and it’s usefulness in computer programming tasks
- Diagnosis of Asperger’s syndrome and problems this may cause
Many of the units in my first degree were in the school of Experimental Psychology at the University of Sussex. I completed courses in Abnormal and Clinical Psychology, Biological Basis of Mental Disorders as well as many other psychology and biology courses.

My MSc project I am undertaking at the moment is looking at children’s software and usability issues associated with it; specifically, motivation, enjoyment and engagement. The project involves conducting an experiment in-school with children aged under 10. The project will also cover the differences, if any, in computing ability between male and female children further to Baron Cohen’s 1998 paper suggesting that Autism is an extreme example of maleness in the brain, something that has had been taken up in the media.11

Completing a PhD would allow me to further the interest I have in technology and how it is used. It would also give me the opportunity to teach again, something I really enjoy and something I believe I am good at.

References


