

## Chapter 37

# Supporting Communication between People with Social Orientation Impairments Using Affective Computing Technologies: Rethinking the Autism Spectrum

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### ABSTRACT

*A disability is a physical or mental impairment that has an adverse long-term impact on someone's ability to carry out normal day-to-day activities. This is often thought of in terms of medical conditions with clearly defined symptoms. This chapter, however, argues that it is these symptoms that can be considered to be the impairments and that in the right environment can in fact be advantageous. Someone may be have a medical diagnosis but not be symptomatic due to medication, for instance. In this chapter, a set of symptoms is made up from a number of different scales, called Social-Behavioural Traits (SBTs), which are affected by a person's Serotonergic-Dopamagenic Asynchronicity (SDA). This chapter discusses the role of affective computing in achieving harmony between people with various personality differences, including a model for explaining how technology can influence SDA and SBTs for the better.*

### INTRODUCTION

It has been said that the number of people with autism is increasing - or is it that the number of people diagnosed with autism is increasing? It is now abundantly clear that autism is a complex neurodevelopmental condition with underlying organic genetic and neurological differences, and is not caused by parenting deficiencies (Kientz, Goodwin, Hayes & Abowd, 2013). If one considered that autism is not

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so much a disability, but a personality type, then one could argue that there is certainly a sharp change in the number of people displaying autistic traits, such as independence of thought and a focus on the self, such as one's own career and interests (Tapscott, 1998; Tapscott, 2008). People with autism are often associated with computing, such as being good at programming and other solitary pursuits that require a great amount of systemising ability (Baron-Cohen, 2002). It could be argued that the increase in technology use - especially social media where one can often choose who one is friends with and what one consumes - is driving the development of personality traits that resemble those symptoms associated with autism. One might argue therefore that autism is only a disability around people who are intolerant of the personality traits associated with being autistic. Many say that people with autism 'lack a theory of mind' (Baron-Cohen, 2006; Frith, 2006). In other words they say that people with autism are not able to appreciate the mental states of others. However communication is a two-way process and if people are not able to understand people with autism then they must have an impaired theory of mind in terms of the internal mental states of the autistic person. Indeed, it has been argued that in addition to autism there are two other conditions where there is an impairment in the ability to read a theory of mind, understand and accept the view and opinions of others, and form appropriate relationships - called demotism and empathism (Bishop, 2013). Equally there are conditions that result from these not being harmoniously compatible, called psychoticism and neuroticism. The differences between all of these will be discussed in detail throughout this chapter.

It is almost certain that the social functioning human beings enjoy were not intended for us. The 'hunting apes' theory argues that the reason humans have developed the level of intelligence we have is because by working together it makes it easier for us to catch and consume meat (Stanford, 2001), although the exact timeline for this is now under question (Meyer et al., 2013). It might be that we would naturally not work together, but as is advocated by constructivist educationalists we can achieve more with the assistance of someone more competent than us in a particular area than we could alone using only our own abilities (Vygotsky, 1930). It is clear from the discovery of *Australopithecus afarensis*, also called 'Lucy' (Edey & Johanson, 1981), that the difference between her and today's humans as compared with her ancestors is that her brain was less 'rigid.' It has been proven that some people with a diagnosis of autism have more cells in their prefrontal cortex than others (Doyle-Thomas et al., 2013) and also that those with traumatic experiences have a sub-optimal prefrontal cortex also (Bishop, 2012). So could Lucy have been more empathic and less autistic? It is likely she would have had more oestrogen due to her increased child rearing ability and this has been associated with empathic personality traits. The author, however, argues it is more likely that she would have been 'psychotic' because when one is trying to change from being solely autistic to also being empathic this can cause psychiatric problems (Bishop, 2011b). Lucy, as one of the closest ancestors to the homo-sapiens that exist today, had the ability to plan ahead and socially interact with others. Today, she would likely find coping with the difficulties of being neither autistic nor empathic as similar as that experienced by people with schizo-typal and neurotic conditions who try to be all things to all people and yet often end up not being able to be either.

## **BACKGROUND**

Considering Bishop (2012), one might want to consider the symptoms of empathism, demotism, autism, psychoticism and neuroticism to be social behavioural traits (SBT) and the construction of the personalities in any given person as a 'social orientation' (SO). Where such a symptom is advantageous it can be

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