Chapter 6

Understanding and Enhancing Emotional Literacy in Children with Severe Autism Using Facial Recognition Software

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ABSTRACT

This chapter discusses some key aspects of a doctoral study which aimed to understand and enhance emotional literacy in children with severe autism using facial recognition software. Despite the considerable research carried out with young people with autism using technology, very few studies have considered those with severe autism and this study is significant precisely because of this. The methodology is discussed in detail because it had to be substantially adapted to meet the needs of these particular students. Eight children, in a special unit within a mainstream school in the UK, took part in the study over a thirteen month period, with varying degrees of engagement and progress. Each responded uniquely to various assessment studies and to a new teaching tool. The authors chose to examine the case of one student in depth in this chapter; to enable the reader to understand the whole process, and the complex issues involved.

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INTRODUCTION

This chapter will discuss a project which examines the use of computer technology and facial recognition software to enhance emotional literacy and is one of the few projects specifically designed for young people with severe autism. By studying severely challenging young people, this project begins to address one of the weaknesses in the area of computer-based learning (CBL) for people with autism, identified by Moore (2005 & 2009; cf. Moore’s chapter in this book). The work also builds on previous studies outlined in Moore’s chapter, of the use of computers with young people with autism in relation to theory of mind (ToM) (eg Silver, 2000; Silver and Oakes, 2001; Moore et al, 2005; Cheng 2005). Further, the success of Baldi (a computer-animated tutor) in increasing the vocabulary of children with autism (Bosseler & Massaro, 2003; Williams et. al., 2004) suggested the worth of investigating the use of a similar application to enhance the emotional literacy for young people with autism. Therefore, the aim of this study was to investigate how the use of animated characters might help young people with severe autism and learning difficulties to recognise facial expressions of emotions, in a safe environment.

The nature of the behaviour and interactions of young people with severe autism, inevitably affected the whole manner in which the study was conducted. For example, it was essential to carry out initial fieldwork to investigate their everyday school life before commencing the computer based studies. We begin therefore, with a detailed narrative about the complex and challenging context and daily routines of the school in which the research took place. Secondly we reflect on the methodology and the findings from an initial study. Next we look at the enhanced methodology for the subsequent study and consider in detail the process and some specific findings, through an extended case study of one young person. We are restricted to discussing only one of the eight cases in detail in this chapter, with only brief mention of the other seven cases, which are discussed fully however, in the final doctoral thesis (Elzouki, 2010). Finally we discuss the lessons we learned from our research with conclusions and recommendations for future work.

BACKGROUND

Context of the Study

The entire longitudinal study was carried out over a period of 13 months, in a special educational unit of children with severe autism and learning difficulties which was located within a UK mainstream primary school. There were 11 children in the unit aged 5 to 11 years, divided into two classes, one Key Stage 1 (5-8 years) and the other Key Stage 2 (8-11 years). Of these, 8 children participated in our research, after gaining parental consent. The unit was staffed by a total of 6 people, including the head teacher of the unit. Four staff worked full time, two in each class. A fifth staff member worked part time to assist during lunch time.

Initially, it was important to observe the unit’s daily sessions to gain insights into the children’s life-world and to understand how the research could be conducted. This period of observation was extremely challenging for a novice researcher with limited real-world experience of children with autism, as the participants had particularly individual behaviours, for example, humming and singing, playing alone, flapping, spinning and rocking, screaming and crying, slapping and scratching either each other or members of staff and making incomprehensible voices. Most of the children seemed to inhabit their own world, or “agenda” as one teacher put it, and did not appear to empathise or sympathise with their teachers or peers. Their behaviours conformed with the common view of autism as involving a “triad of impairments” (Wing, 1996, Jordan, 1991) or a triad of “differences” (Hardy et al, 2002) and
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