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High Functioning Autism Spectrum Disorder: A challenge to secondary school educators and the students with the condition

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Abstract

Across the Australian schooling sector, students with High Functioning Autism Spectrum Disorder (HFASD) can represent a challenge to educators and the nature of that challenge is the focus of this study. The setting for this research is secondary education with the teachers and the students supported through additional services based within an integrated special education service model. In this study students were identified as HFASD if they had a diagnosis of ASD given by an independent medical officer and the students were functioning in the regular classroom and achieving at, or near, grade level on classroom based or standardised tests of achievement. This study investigated the educational issues associated with students with HFASD using both teacher (N = 81) and students with HFASD (N=32) surveys. These surveys were developed after extensive focus group activities with the teachers and the students identified with ASD, and were framed in the language provided by the participants. The teacher survey contained 27 items and the student survey contained 34 items. Both instruments used a 5 point Likert scale. The two main concepts in the mainstream teachers' responses were: (i) the less predictable and at times inflexible social behaviour of the students; and (ii) the level of additional in-class attention required to effectively teach the students in a group context. The two main concepts from the students with HFASD responses were: (i) the students' desire for social relationships and friendships; and (ii) their concerns about their learning environments. The educational implications of these findings are discussed in relation to theory and practice.

Introduction

Similar to many other countries, within the Australian education context the expectation is that students with diverse needs will be educated in conventional classrooms and by "ordinary" teachers providing the core curriculum program to the students (MCEETYA, 2008). Concerns about the impact that the inclusion of students with special education needs has on the Australian education setting is an ongoing debate and challenge (Ashman & Elkins, 2012; DEST, 2002), however, under the *Australian Disability Standards for Education Act of 2005* teachers and school systems cannot ignore these challenges. One of these challenges is the significant increase in the number of students identified as having Autism Spectrum Disorder (ASD) and located in regular schools (Brown, Oram-Cardy, & Johnson, 2012; Wray & Williams, 2007).

ASD is a pervasive developmental neurobiological disorder that significantly impairs an individual's reciprocal social relations, verbal and non-verbal communication, and behaviour (DSM-IV-TR; American Psychiatric Association, 2000). In the next edition of the DSM – V (American Psychiatric Association, 2012), the proposal is to focus on the severity level of

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ASD, with high functioning ASD level one of three ASD levels. This change is to move away from definitional confusion particularly between individuals with High Functioning Autism Spectrum Disorder (HFASD) and individuals with Asperger's Syndrome (AS). In terms of prevalence rates for students with ASDs within the school community, rates are reported to be increasing with one claim that the prevalence rate may be as high as 1:100 (Baron-Cohen et al., 2009).

In the secondary school in which this research was conducted the students were identified as having High Functioning Autism Spectrum Disorder (HFASD) so this is the term used within this paper. Adolescents with HFASD have to cope with both the condition and with the challenges of "typical" adolescent development. Within the context of secondary schooling these challenges can be exacerbated by constant changes of routines, variability in the expectations of different curriculum teachers, and the complexities of relating with peers and others in a dynamic school environment (Attwood, 2007; Safran, 2005), along with the "normal" challenges of adolescents forming positive social and friendship relationships (Frey, Nolen, Van Schoiack-Edstrom, & Hirschstein, 2005). Flook, Repetti, and Ullman (2005) have argued that friendships are important during adolescence and that there is a reciprocal relationship between students' low self-concept, low coping skills, and low peer acceptance and friendships. In addition, Simmons and Hay (2010) have reported a link between early adolescents' positive friendship patterns in middle school and students' psycho-emotional status and academic achievement. With reference to the psycho-emotional status of students with Autism Spectrum Disorder, the assertion is that they have higher levels of anxiety and depression (Kelly, Garnett, Attwood, & Peterson, 2008), higher levels of stress (Lytle & Todd, 2009), and report higher rates of bullying (Van Roekel, Scholte, & Didden, 2010) compared to their non-ASD peers. Whitaker (2007) has reported that while many families are aware of, and are concerned about of the negative psycho-emotional status of their child with Autism Spectrum Disorder, they are also concerned by the lack of interest and understanding of the implications of their child's diagnosis among teachers who teach their child.

The claim is that across the Australian schooling sector students with High Functioning Autism Spectrum Disorder (HFASD) represent a challenge to educators to provide for their educational needs and to manage their learning and behaviour (Ashman & Elkins, 2012; Attwood, 2007; Hay & Winn, 2005). On this point, the *Australian Advisory Board on Autism Spectrum Disorders* (2010) were highly critical of the level of educational support and provision of services for students with ASD in the majority of Australian mainstream schools, and it is this concern which is at the core of this research.

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In the Australian education context because students with HFASD have no significant cognitive delays they usually receive the majority of their education within the regular classroom, but frequently receive some level of individual assistance and/or small group lessons from teachers and others who can be based in a Special Education Unit (SEU) or a support class (Carrington & Graham, 2001; Hay & Winn, 2005). This level of support varies depending on the student with HFASD and like other high school students what may be meaningful and motivating for one student in one classroom may fail to interest or engage another.

General curriculum teachers have frequently reported the need for a greater knowledge on how to accommodate and manage students with HFASD within their classrooms (Falk-Ross et al., 2004), typically citing their lack of explicit instructional procedures and their lack of confidence to deal with this cohort of students (Humphrey, 2008). This is not all that unexpected given that in the Australian secondary school context teachers have teaching loads of five or more class groups each week. The implications are that in large secondary schools, teachers need to establish and maintain relationships with more than 150 students across a range of grades. The consequence is that secondary school teachers often do not have the time necessary to spend with each individual student with a special educational or social need (Moni & Hay, 2012). The concern is that secondary students with HFASD can become "invisible" to their teachers and isolated from their peer group (Attwood, 2007; Whitaker, 2007). Certainly, their mere placement into a general classroom is no guarantee that they will achieve academically, gain social acceptance, or that their teachers are able to adapt their program for the students with HFASD. In turn, this can lead to increased levels of anxiety and stress by the students, who may manifest this stress as aggressive or even violent outbursts (Lytle & Todd, 2009; McDonald, Rutter, & Howlin, 1989).

The indications are that the inclusion of secondary students with HFASD can be a challenge to the students with HFASD and their teachers. Therefore, this research aims to identify from the perspective of the students with HFASD and their general classroom teachers the nature of these challenges and to clarify which of the characteristics associated with students with HFASD are the most concerns to their teachers and to the students themselves.

Method

Design

The research design used in this study is based on a multi-perspective methodology where different stakeholders located in the same social environment review the behaviour and the

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event from their own and, at times, different perspectives (Gay, Mills & Airasian, 2006). The study was conducted over one academic year with regular visits to one large secondary school to interview individuals, conduct focus groups and undertake research questionnaires with the different stakeholders. Permission to conduct the research was given by the relevant University and Education authorities, with teachers, parents of the students, and the students completing individual ethical agreement forms.

Setting

The secondary school involved in this research was located in a "middle" socio-economic status (SES) community as identified by Australian Bureau of Statistics (2006). This co-educational district high school catered for secondary students from Year (Grade) 8 to Year 12, spaning an age range from around 12 years to 18 years. In total, the school contained just over a 1000 students and 95 teaching staff. The school was supported by a Special Education Unit (SEU) designated for students with High Function Autistic Spectrum Disorder and for students with an identified intellectual impairment. Students were recruited for this unit from across the local and neighbouring districts, with the students provided with free taxi or bus transport to attend the school. This was the only designated secondary school support unit for this population of students in the local area, and so the concentration of students within the school with HFASD was above expectations.

The SEU supported 64 students of which 41 were identified as students with HFASD. The gender ratio for this cohort was 58% males. The students were not evenly distributed across the grades with more students in Years 8, 9, and 10, than in Years 11 and 12. This reduction could be due to the situation that after Year 10, the students had the opportunity to attend community vocational colleges. The students with HFASD received in-class support from the special education staff along with individual and group lessons within the SEU. This supplementary program had a social skills focus with the SEU also organising extra curriculum and community based learning activities.

The students' diagnoses of ASD were given by independent medical officers using the DSM-IV (2000) criteria. The students' academic functioning was determined by a standardised spelling test (Westwood, 2005), standardised reading and comprehension tests (Mossenson, Hill, & Masters, 2003), and the school's own assessment of mathematics. These academic measures demonstrated that the students with ASD had, at least, the basic skills to cope academically within a mainstream secondary school environment. This is similar to the process of identifying HFASD as used by Bauminger et al. (2008).

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Participants, instruments, and procedures

Classroom teachers: After ethical approval was obtained all of the school's regular teachers (*N* = 94) were invited to attend focus groups investigating the education of students with HFASD in their classrooms. Ten focus groups, with between 8 to10 participants, were conducted in school time. Each group went for an hour and extensive notes were taken of the conversations by two recorders. From the content of these focus group reports, a survey was developed to quantify the different opinions expressed in the groups. The survey items were framed in the language provided by the teachers in the interview stage of the investigation. The survey contained 27 statement items and used a 5 point Likert scale, where 1 indicated very low agreement and 5 a very high agreement to the statement. In total, 81 teachers completed the survey at a school staff meeting; 64% of the respondents were female and 85% of the teachers had at least three years of teaching experience. A week later 6 teachers were again asked to complete the same survey. The test retest correlation was 0.87 demonstrating a satisfactory level of re-test reliability (Field, 2009).

Students with HFASD: The researchers conducted individual and small group interviews for a cross section of the students identified as having HFASD (*n* =14). Half of the student cohort was male and half from Years 8 and 9. Formal permission to interview the students was obtained from their parents or guardians as well as from the students. The main question explored in the interviews was: What did the students like and disliked about their schooling experience? All interviews were conducted in a room within the SEU. Along with extensive interview notes taken at the time, each session was audio-taped, then later transcribed as de-identified data and the tapes destroyed. Based on these transcripts and interview notes, a 34 item questionnaire was developed. Each of the survey items was framed in the language provided by the students in the interview stage of the investigation. The students were asked to respond to the survey using a 5 point Likert scale, where 1 indicated very low agreement and 5 very high agreement, to the statement. All of the students identified with HFASD, *N*= 41, were invited to complete the survey and a sample of 32 students participated, 63% male. The survey was administered in class time by the researchers when the students with HFASD were attending their usual activity in the SEU. A week later, 5 students with HFASD were again asked to complete the same survey. The test retest correlation was 0.83, demonstrating a satisfactory level re-test reliability (Field, 2009).

Results

Teachers' data

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The teachers identified the students with HFASD as being more challenging to teach (see Table 1 for details). The two main concepts in the teachers' data related to: (i) the inflexible and often negative behaviour of the students; and (ii) the level of additional in-class support required to effectively teach the students.

Table 1. General teachers' responses to 27 survey questions in rank order, related to teaching students with HFASD $N = 81$

	Questionnaire Statements	**Mean**	**SD**
1.	Students who are HFASD are inflexible in their behaviour.	4.62	1.00
2.	Placing too many students with HFASD in one setting is disruptive and sets the students with HFASD off	4.40	0.94
3.	The teachers of the special education unit work hard with supporting the students with HFASD	4.38	0.85
4.	Students with HFASD have a variety of skills but they challenge me as a teacher	4.36	1.04
5.	Students with HFASD have more difficulty with group work and in joining in with classroom discussion than other students	4.35	0.95
6.	I welcome greater assistance from outside agencies for students with HFASD and their parents	4.33	0.82
7.	Teaching the students with HFASD increases my level of teacher stress	4.27	0.91
8.	Students who are HFASD are poor at listening	4.26	0.85
9.	More teacher aides would improve in-class support within the school for the student with HFASD	4.21	0.97
10.	I am supportive of the notion of inclusion	4.20	1.02
11.	I do not have enough time to cover the required teaching content	4.19	0.89
12.	Students with HFASD are more anxious and stressed than other students in the class	4.18	1.09
13.	Having a time-out room would assist in classroom management of the students with HFASD	4.16	0.97
14.	Students with HFASD find following instructions a problem	4.16	1.24
15.	Students with HFASD spend their free time mainly around and in the SEU	4.15	0.87
16.	The students with HFASD, are in more fights than the others students in the classroom	4.14	0.95
17.	There needs to be more administration personnel to manage inclusion	4.05	1.02
18.	Students with HFASD are loners with few friends in the classroom	4.01	0.83
19.	Students with HFASD take a long time to shift from one activity to another	4.00	1.03
20.	The students with HFASD find the noise of the classroom a problem	3.84	0.91
21.	I like having the special education teacher aide in my room	3.79	0.04
22.	I am coping well with my own teaching	3.76	1.82
23.	Too much of the administration time is consumed with behaviour problems and students with HFASD	3.75	1.12
24.	I am concerned about the level of name-calling and teasing that goes on with the students with HFASD	3.68	1.26
25.	Students who are HFASD have poor handwriting and gross motor skills	3.65	0.98
26.	Students who are HFASD become aggressive quickly	3.63	1.12
27.	Curriculum adaptation is important even given the demands of preparing and teaching the regular students	3.25	1.05

Students with HFASD data

The main concepts in the students with HFASD responses were associated with: (i) the students desire for social relationships and friendships; and (ii) their concerns about their learning environments (see Table 2 for details).

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Table 2. Secondary students with HFASD, responses to 34 school survey questions in rank order, $N = 32$

Questionnaire Statements	Mean	SD
1. I like recreation time in the Special Ed unit	4.36	0.70
2. Working with other children disturbs me	4.27	0.99
3. I preferred being in the primary school	4.24	0.84
4. I get into fights with others	4.22	0.93
5. I like a quiet classroom	4.21	0.80
6. I use computers to relax and just play games on	4.15	1.09
7. I get teased by the other students	4.09	0.94
8. The noise in the classrooms is a problem	4.03	0.88
9. I worry a lot about being at school	4.02	1.02
10. I get confused in the secondary school	4.01	0.85
11. I feel bullied by others in the school	4.00	0.96
12. I like using computers	3.90	0.78
13. My teachers in the regular class ignores me	3.83	0.96
14. The teacher aides explain things, they encourage you	3.77	0.76
15. The teachers are not good at explaining what they want	3.76	1.02
16. I like cooking and do it in the unit	3.74	0.88
17. I can talk to the special education teachers	3.71	0.78
18. It is easier in the SEU	3.70	0.82
19. I like being in the regular classroom	3.54	0.72
20. I can do the classroom work	3.25	0.92
21. I get anxious about my school work	3.21	1.03
22. Most of my friends are in the regular classroom	3.19	1.19
23. I like work experience	3.12	0.95
24. Most of my friends are in the SEU	3.11	0.76
25. I like art in the mainstream	3.09	1.10
26. I can talk with the regular teachers	2.96	1.04
27. I do like being in with students who have a disability	2.95	0.89
28. I had more friends in primary school	2.83	1.01
29. I like the way other students in the school act towards me	2.80	1.04
30. I enjoy doing community based learning activities	2.74	1.09
31. I get along well with the other students in the classroom	2.67	1.07
32. The other children in the class understand me	2.65	1.04
33. I like lunch time and free time	2.22	0.88
34. I get invited to class parties and birthday parties	2.21	0.97

Discussion

The responses from the students with HFASD and their teachers identified two common concerns that relate to: (i) the students' social relationships and level of flexibility (ii) the context in which the learning occurs. Both cohorts also noted that they wanted more differentiated instruction for the students with HFASD. Writing on this last point, Moni and

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Hay (2012) have maintained that the challenge for secondary school teachers is how to meet the individual and often diverse needs of their students, while at the same time achieving the school's curriculum content and assessment requirements. The indications are that for many secondary students with less noticeable disabilities the main adaptation of their program occurred during times of assessment with the students given extra time to complete the assessment tasks and/or given access to someone to help with the reading and writing of tests (Humphrey, 2008).

The students with HFASD highlighted that they preferred more individual activities, such as working on computers. The students also preferred a safe and quiet learning environment along with positive friendships. The finding that peer social relationships were a major concern to the students with HFASD has also been noted by Bauminger et al. (2008), Green et al. (2000), Kelly et al. (2008), and Orsmond, Krauss, and Seltzer (2004). One argument is that students, such as those with HFASD, often struggle with peer interactions and in social dialogue situations because they cannot quickly or efficiently process, regulate, or attend to all of the linguistic and non-verbal information needed to interact appropriately with teachers, peers, and others (Brown et al., 2012; Catts & Kamhi, 2005; Nation, 2005).

To better understand these characteristics of students with HFASD, the theoretical work of Goswami and Bryant (2007) provides a linking framework that has potential. Goswami and Bryant have argued that the three elements of: (i) students' language proficiency; (ii) students' social skills proficiency; and (iii) students' behaviour control proficiency and flexibility are considered to be related because they stem from a common underlying cognitive source that manifests all three proficiencies. There is also some support for this Goswami and Bryant (2007) linking framework from the research on students with ASD and their level of behavioural flexibility. Behavioural flexibility is the ability of the individual to adapt to the unexpected occurrences often experienced in day to day living (Green et al., 2007; Wahlberg & Jordan, 2001) and it is beginning to be considered a symptomology of individuals with Autism Spectrum Disorder (ASD) (Zhao, 2007).

Compared to their peers, if students with ASD have irregularities in their cognitive processing of the language information they receive, they are more likely to be delayed in adapting to instruction, and in responding quickly to social dialogue. The consequence is that the students with HFASD are more likely to find that their social environment becomes less predictable (Carrington & Graham, 2001), a finding that is reinforced from the teachers' and the students' responses in this research.

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The students' responses identified that the SEU classroom was more of a "sanctuary" from the less friendly social environment associated with mainstream teaching spaces and sportsground settings. This finding may reflect the situation that the students stayed together because they were more accepting of each other and their behaviours. From this perspective an individual is more likely to stay in a social network if it enhances his/her self-concept and this more positive self-concept is based on his/her performance in comparison to a particular reference group (Hay & Ashman, 2012).

The regular classroom teachers although supportive of the philosophy of inclusion were troubled by their lack of confidence and ability to teach students with HFASD. This tension is unlikely to be resolved in the short term without significant resources and assistance (Brownell et al., 2002; Conway, 2008). The need to cover the set curriculum content in a set time period of time pressurises many secondary school teachers to become stressed and so more reactive in their classroom management procedures (Embich, 2001; Hay & Winn, 2003; Safran, 2005). This time pressure can result in poor educational outcomes for students if it leads to a lack of responsiveness in the teacher's instructional approach (Ashman & Elkins 2012; Cooney & Hay, 2005; Gersten et al., 2001; Wagner, Muse, & Tannenbaum, 2007). It is especially likely to be a poor outcome for students who already have one or more of the following: difficulty in following teachers' instruction and directions; limited comprehension skills; slower processing speed skills; and low self-confidence (Brown et al., 2012; Hay & Fielding-Barnsley, 2011; Wallach, 2008).

The teachers' survey data identified the need for more support teacher aides in the classroom. Even so, just because a teacher aide is allocated to a student with special needs, it is incorrect to assume that the classroom teacher has the knowledge, time, or desire to incorporate the teacher aide into the lesson in a meaningful and productive manner, or that the in-class support teacher aide has the skills to work with the curriculum content or the "problem" students in that classroom (Doyle, 1997). Teacher aides are more productive and efficient in the classroom if they receive on-going training, follow-up support, and mentoring (Woolley & Hay, 2007).

The student survey results identified that the setting for the students' learning was relevant. The students were looking for learning places where there was less noise, more predictable routines, such as in their primary schools, and where they were less exposed to teasing. On this last point, all students have a right to feel safe in their learning environment and all school personnel and authorities must take a proactive response to these concerns to reduce the likelihood of individuals developing psychosocial maladjustment (Hawker & Boulton, 2000; Hay & Simmons, 2011). Brownell et al. (2002) have reported that the social and physical

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environments play a crucial role in students' education. Facilities for students with HFASD need to be designed for this population and include features, such as individual and small group teaching spaces, withdrawal and time-out rooms; well maintained living skills and technology areas, conference rooms, and office space for teacher aides, visiting teachers and other professionals, such as school psychologists (Hay & Winn, 2005).

Enhancing students' psychosocial adjustment has been linked to students' friendship patterns (Burgess et al., 2006; Simmons & Hay, 2010) and while teachers and others can design their own language, social, or friendship programs, this is not always necessary. For example, Paul (2008) and Wallach (2008) provide a range of programming suggestions to enhance students' social skills and higher order language proficiency. In addition, there are commercially available programs, such as those aimed at improving the students' social skills (Barratt, 2000), as well as teaching programs related to students' anger management and social flexibility (Wilson & Lipsey, 2007). Although there is never going to be one teaching approach for all individuals on the Autism spectrum, the evidence is that a cognitive behaviour therapy based model can be effective (Sofronoff et al., 2005).

Limitations and future direction

There are several limitations and future directions associated with this research that need noting. First, the study was located in one large secondary school setting and so the outcomes could partly be an artefact of that one setting. Second, the final method of data collection was based on self-report student and teacher survey data and such a methodology has the effect of "smoothing out" individual variability (Gay et al., 2006). Third, the study is descriptive in nature and there is still an ongoing need to clarify what are the "best" intervention practices for students with HFASD in different contexts.

As noted the responses from the student with HFASD and their teachers identified concerns about the students' social relationships with their teachers and peers. One hypothesis is that this pattern of students' behaviour may be directly or indirectly related to the students' language processing capacity (i.e., Brown et al., 2012; Goswami & Bryant, 2007; Thompson & Lagattuta, 2006). Even so, more work needs to be conducted on this hypothesis before it can be seen as a symptomology of the HFASD condition.

Conclusion

Catering for diversity within secondary schools is, at times, complex and problematic. Despite the reality there are no "magic" solutions, the situation is that all teachers start to better

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accommodate the students in their classrooms when they begin to know their students and match the teaching tasks to the students' learning needs, interests, and abilities. The evidence is that effective teachers provide meaningful feedback to their students and adapt their instructional procedures based on the characteristics of the learners and their changing performance (Hattie & Timperley, 2007).

In this study, the students with HFASD and their teachers reported insights about how to more effectively enhance the educational practices for students with HFASD. One outcome of this research is, it validates the notion that for students with HFASD their education needs to be multidimensional incorporating social skills, language proficiency development and cognitive strategies, along with their academic program. Their teachers also require on-going professional development and encouragement so they can better understand and teach students with HFASD. In many ways the findings of this study echo those reported by the *Australian Advisory Board on Autism Spectrum Disorders* (2010, p.8)**.**

> All students with an ASD share a unique pattern of impairment and learning characteristics that vary widely in presentation. As a result, they experience significant challenges in educational environments where few or no autism-specific provisions or curricula modifications are in place. No one single approach will be effective for all students across the autism spectrum. Therefore a range of educational programs and services are required to meet the needs of this unique population of Australian students.

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