

Autism as a Natural Human Variation: Reflections on the Claims of the Neurodiversity Movement

Pier Jaarsma and Stellan Welin

Linköping University Post Print

N.B.: When citing this work, cite the original article.

The original publication is available at www.springerlink.com:

Pier Jaarsma and Stellan Welin, Autism as a Natural Human Variation: Reflections on the Claims of the Neurodiversity Movement, 2012, Health Care Analysis, (20), 1, 20-30.

<http://dx.doi.org/10.1007/s10728-011-0169-9>

Copyright: Springer Verlag (Germany)

<http://www.springerlink.com/>

Postprint available at: Linköping University Electronic Press

<http://urn.kb.se/resolve?urn=urn:nbn:se:liu:diva-72172>

1 **Abstract** Neurodiversity has remained a controversial concept over the last decade. In its
2 broadest sense the concept of neurodiversity regards atypical neurological development as a
3 normal human difference. The neurodiversity claim contains at least two different aspects.
4 The first aspect is that autism, among other neurological conditions, is first and foremost a
5 natural variation. The other aspect is about conferring rights and in particular value to the
6 neurodiversity condition, demanding recognition and acceptance. Autism can be seen as a
7 natural variation on par with for example homosexuality. The broad version of the
8 neurodiversity claim, covering low-functioning as well as high-functioning autism, is
9 problematic. Only a narrow conception of neurodiversity, referring exclusively to high-
10 functioning autists, is reasonable. We will discuss the effects of DSM categorization and the
11 medical model for high functioning autists. After a discussion of autism as a culture we will
12 analyze various possible strategies for the neurodiversity movement to claim extra resources
13 for autists as members of an underprivileged culture without being labelled disabled or as
14 having a disorder. We will discuss their vulnerable status as a group and what obligation that
15 confers on the majority of neurotypicals.

16

17 **Keywords** Autism - Disability - DSM-V - Equality - Neurodiversity - Vulnerability

18

19

20 **Introduction**

21

22 In this paper we will discuss some issues around autism, in particular the neurodiversity claim
23 proposed by some autists. What we call the neurodiversity claim consists of at least two parts.
24 One is related to the idea that there are indeed neurological (or brain-wiring) differences
25 among the human population. Being autistic is one of them. One aspect of the neurodiversity
26 claim is that autism (or some other neurological condition) is a natural variation among
27 humans. Being neurodiverse or neurotypical (“normal”) are just different ways of existing as
28 humans.

29 The second aspect of the neurodiversity claim is related to rights, non-
30 discrimination and other more political issues. The two aspects often go together. There now
31 exists what might be called a neurodiversity movement. The term ‘neurodiversity’ is generally
32 credited to Judy Singer, a sociologist diagnosed with Asperger Syndrome [22, 26]. The
33 neurodiversity movement was developed in the 1990s by online groups of (high-functioning)
34 autistic persons [12, 22]. It is now associated with the struggle for the civil rights of all those

35 diagnosed with neurological or neurodevelopmental disorders, such as attention deficit-
36 hyperactivity disorder, bipolar disorder, developmental dyspraxia, dyslexia, epilepsy, and
37 Tourette's syndrome [8]. Neurodiversity has remained a controversial concept over the last
38 decade. In this paper, we will limit ourselves to neurodiversity as it relates to autism. We
39 choose this because there is a greater chance of clarifying the moral problems surrounding
40 neurodiversity for one particular condition than there is for a set of fairly disparate conditions.

41 One moral issue concerns the usage of terms. 'Person with autism' suggests that
42 there is a normal person trapped behind the autism. It carries with it the idea that a person is
43 somehow separable from autism. But this term is met with opposition from the neurodiversity
44 movement. They claim that autism is inseparable from the person and being autistic
45 influences every single element of who a person is. [29] The autistic autobiographical author
46 Temple Grandin seems to hold this view: "If I could snap my fingers and be nonautistic, I
47 would not. Autism is part of what I am" [11:xviii]. Therefore the neurodiversity movement
48 prefers to speak of 'autistic persons' or 'autists' rather than 'persons with autism'. Donna
49 Williams, another autistic autobiographical author, seems to hold the opposite view. She
50 refers to her autism poetically as "an invisible prison with replica selves on the outside, each a
51 contortion, a distortion of the one you can't see, who can't get out" [27:9].

52 We will in many places distinguish between "high-functioning autists" and
53 "low-functioning autists". There seems to be a partial consensus on this distinction: if autists
54 have an IQ in the normal range (or above), they usually are said to have high-functioning
55 autism (HFA) [3].

56 Our aim in this paper is to understand the neurodiversity claim – or rather claims
57 – and to analyze them and relate them to other discussions. To do this we will first describe
58 autism. Secondly, we will discuss the claim(s) of neurodiversity and we will distinguish
59 between a narrow and a broad view on neurodiversity. Thirdly, we will discuss the effects of
60 DSM categorization and the medical model for high functioning autists. Fourthly, we will
61 discuss autism as a culture. In this last section we will also analyze various possible strategies
62 for the neurodiversity movement to claim extra resources as a group without being labelled
63 disabled or as having a disorder. We will discuss their vulnerable status as a group and what
64 obligation that confers on the majority of neurotypicals.

65

66

67 **Autism**

68

69 Autism was first identified by Leo Kanner in 1943 as a childhood syndrome characterized by
70 'autistic aloneness,' obsession with routine and profound problems with communication.
71 Asperger's Syndrome (AS), first described by Hans Asperger in 1944, differs from 'classic'
72 autism in that those diagnosed with Asperger's do not show evidence of intellectual
73 deficiency or language delay [7]. The concept of the autism spectrum disorder (ASD),
74 Asperger's disorder at the mild end to severe autistic disorder at the other end, was developed
75 in the early 1990s by Lorna Wing [28]. The primary diagnostic abnormalities of autism
76 involve selective impairments in social, communicative and imaginative abilities that are
77 usually quite severe. About seventy-five percent of diagnosed autists have intellectual
78 disabilities, the rest have average to good IQs [18]. Sensory difficulties are also quite common
79 in ASD. These difficulties may be connected to sound and hearing, sight and seeing, touch,
80 taste or general sensory dysphoria [16]

81 Much of the literature in the 1940s speculated that autism was associated in
82 particular with emotionally frigid mothers, who became known as "refrigerator mothers" [14].
83 The increasing importance of cognitive science, brain science and then biogenetic science,
84 investigations into the biological and genetic basis for autism, eventually removed the
85 association between autism and parenting [7].

86 Numerous psychological, biological and neurological theories have been
87 proposed to explain autism. These theories of autism share the assumption that there is a
88 deficit in autists that should be researched, classified, and, ultimately, modified. Therefore,
89 the common link among these theories is an assumption that there is something wrong with
90 the person with autism [5].

91 In general, in the scientific community, autism is not regarded as a single
92 disease but as a syndrome with multiple nongenetic and genetic causes [20]. Moy, a
93 molecular psychiatry researcher, states that the etiology of autism is thought to involve an
94 interaction between genetic susceptibility, mediated by multiple genes, and possible
95 environmental factors, leading to aberrant neurodevelopment [19]. In a recent review article it
96 is stated that autism spectrum disorder is highly genetic [17]. The relative risk of a second
97 child having this diagnosis is 20–50 times higher than the population base rate if the first child
98 is affected. Heritability estimates from family and twin studies suggest that about 90% of
99 variance is attributable to genetic factors, making this disorder the neuropsychiatric disorder
100 most affected by genetic factors.

101 At present Autistic Disorder and Asperger's Disorder are two separate diagnoses
102 included in the Diagnostic and Statistical Manual of Mental Disorders-IV TR (DSM-IV TR).

103 The latest development at the time of writing this paper is that the work group of DSM-V
104 proposes Asperger’s disorder to be subsumed into an existing disorder: Autistic Disorder
105 (Autism Spectrum Disorder) [33].

106 In our opinion, high-functioning autism should neither be regarded as a disorder
107 or a disability nor as an undesirable condition *per se*, but rather as a condition with a
108 particular vulnerability. Autism can also have desirable and enabling consequences, both to
109 the individual and to society. Dr. Temple Grandin refers to this when she speaks about the
110 origin of her own success:

111
112 “In some ways, I credit my autism for enabling me to understand cattle. After
113 all, if I hadn’t used the squeeze chute on myself, I might not have wondered how
114 it affected cattle. I have been lucky, because my understanding of animals and
115 visual thinking led me to a satisfying career in which my autistic traits don’t
116 impede my progress.” [11:111]

117
118

119 **Neurodiversity**

120

121 Judy Singer [22, 26] argued for a politics of “neurodiversity,” asserting that “[t]he
122 ‘neurologically different’ represent a new addition to the familiar political categories of
123 class/gender/race”. Sparked by this first articulation of neurodiversity the bush fire of
124 neurodiversity quickly spread across the internet. As a consequence different conceptions of
125 neurodiversity emerged in the past decade. These can be roughly divided into broad and
126 narrow conceptions.

127 In its broadest sense the concept of neurodiversity defines all atypical
128 neurological development as a normal human difference that should be tolerated and
129 respected in the same way as other human differences [12]. In slightly different ways a
130 number of authors [2, 4, 8] suggest that people with different neurological conditions are just
131 different, not handicapped or pathological.

132 One conception, referring only to autism, is suggested by Baker [2]. She states
133 that in the case of autism and other neurological differences, the former is called
134 neurodiversity and the latter is neurological disability. Proponents of the neurodiversity
135 movement claim their condition is not something to be cured, but rather a human specificity

136 or difference, with different ways of socializing, communicating and sensing, that may not
137 necessarily be disadvantageous and that must be equally respected [22].

138 Brain structure and neurological development figure prominently in some of the
139 descriptions of neurodiversity on the internet: “Neurodiversity is the idea that variation in
140 brain development and function should be appreciated and accepted as any other form of
141 physical variation.” [30] And: “Neurodiversity is defined as the whole of human mental or
142 psychological neurological structures or behaviors, seen as not necessarily problematic, but as
143 alternate, acceptable forms of human biology.” [31]

144 The moral and political aspects of neurodiversity are also emphasized.
145 “Neurodiversity, in its broadest usage, is a philosophy of social acceptance and equal
146 opportunity for all individuals regardless of their neurology.”[32] Essentially, from a moral
147 and political point differences in brain structure and neurological functioning are claimed to
148 have no more significance than differences in skin colour or sex.

149 As outlined above the neurodiversity claim contains at least two different
150 aspects. One aspect is that autism (or at least high-functioning autism) is not to be treated like
151 a disability or a handicap but rather as a natural variation. The other aspect is about conferring
152 rights and in particular value to the neurodiversity condition, perhaps again to high-
153 functioning autism. This condition is not just natural and not pathological, but also valuable.
154 The political claim of the neurodiversity movement goes beyond just giving rights to autistic
155 persons similar to rights to handicapped people; it also claims for recognition and acceptance.
156 We will start with discussing autism as a natural variation and leave the moral and political
157 claims to a later section.

158

159

160 **Natural variation**

161

162 The first point to be made is obviously that “normal variation” is a concept that can be
163 understood both in a statistical sense (how common is it?) but also in an evaluative sense
164 (how normal is it?). A typical example of the statistical sense is that there is a certain gene
165 variety with a certain frequency in the human gene pool. Such a gene can be connected to
166 diseases or to more desirable traits. From an evolutionary point of view such a gene being part
167 of the normal (statistical) variation should not just be caused by a mutation (it may of course
168 have started its existence in this way). Its survival in the human gene pool should have some
169 evolutionary explanation; basically that it has some beneficial effects. One example is Sickle

170 Cell Anemia, where having one allele of the genes gives enhanced resistance to malaria;
171 having two alleles causes Sickle cell anemia. The gene survives in the human gene pool
172 because having one allele is good for survival and propagation even if two alleles are harmful.
173 If autism is a normal variation in the statistical sense, there should be some evolutionary
174 explanation of its continued existence.

175 If autism is caused by environmental factors during the fetal time, it is not a
176 natural variation in this particular sense. It is then caused by something other than a specific
177 gene, more like a harm that happened. If it had been true that autism was connected to
178 vaccinations, then autism could not be a natural variation. (If only a part of autism was caused
179 in that way, at least that part could not be a natural variation.) If however autism is caused
180 randomly during the fetal development of the brain, it could still be seen as a natural
181 variation, namely if such random processes are naturally occurring without any clear outside
182 cause. A possibility is also a combination; there may be a combination of genes that makes
183 the brain susceptible to certain random changes etc. All these variants can be part of normal
184 variations.

185

186

187 **Effects of DSM classification**

188

189 The DSM classification is a typical example of the so-called ‘medical model’ of interpreting
190 behavior. According to this model individuals are disabled because of their deficits and
191 difficulties, which are summed up in DSM-IV TR (see e.g. Diagnostic criteria for 299.00
192 Autistic Disorder and Diagnostic criteria for 299.80 Asperger's Disorder). The focus , in the
193 medical model, is upon fixing, curing and correcting deficits and difficulties to enable the
194 individual to live in normal society [16]. Neurodiversity movement adherents have protested
195 against the medicalisation of the condition now known as Asperger’s Disorder. Sarah Allred
196 suggests that they should take as an example a successful precedent: the gay rights movement
197 [1]. The American Psychiatric Association (1973) declared that homosexuality per se was no
198 longer a psychiatric disorder. The philosopher Lennart Nordenfelt explains the rationale
199 behind this significant change [21]. Homosexuality was no longer seen as a disorder because
200 it did not regularly cause subjective distress or was associated with general impairment in
201 social effectiveness or functioning. In the new outlook on the general concept of a mental
202 disorder it was argued that the consequences of a condition, and not its etiology, determined
203 whether the condition should be considered as a disorder.

204 An important observation regarding homosexuality is this. In a society with
205 strong prejudice of homosexuality the lives of homosexuals will be troubled. They will be
206 afraid to be open about it and try to pass as heterosexuals. Homosexuals will be unhappy and
207 will have many psychological and psychiatric problems caused not by their sexual preferences
208 but by society. In a homophobic society nearly all homosexuals will appear pathological. The
209 cure for these problems has simply been a wider acceptance of homosexuality. We should
210 expect that many autists in a similar way have psychiatric and psychological problems due to
211 the “autism-phobic” character of present society. In similarity with homosexuals most of the
212 problems for high-functioning autists may be due to social conditions. To say that these
213 people have a mental disorder because of the consequences of their condition is in a sense
214 blaming the victim. The consequences of their condition are perhaps for a very important part
215 the result of society’s reaction to their condition. Nordenfelt wrote that much of the distress of
216 homosexuals can be explained in terms of severe circumstances rather than in terms of inner
217 constitution [21]. It is our belief that the same, mutatis mutandis, can be said of high-
218 functioning autists.

219 To subsume Asperger’s Disorder into Autistic disorder in DSM-V is a wrong
220 way to go. To be put in the same category together with low-functioning autists may be
221 regarded by some of the persons with Asperger’s as an even worse stigmatization.

222

223

224 **Autism as a culture**

225

226 Is there a specific autistic culture? Dawn Prince-Hughes, an Asperger Syndrome
227 autobiographical writer, believes there is: “[m]uch like the Deaf community, we autists are
228 building an emergent culture. We individuals, with our cultures of one, are building a culture
229 of many” [6:793]. Joyce Davidson notices distinctive autistic styles of communication
230 particularly online, which she calls Wittgensteinian ‘language games’. There is a parallel
231 between the ‘language games’ of deaf people and those of autistic people in that both
232 populations have a communication style that is different from the norm [6].

233

234 Davidson calls the autistic culture a ‘minoritized’ culture, referring to
235 discrimination and exclusion, comparable to Queer, Black or Deaf cultures. The internet,
236 however, has given autists the means to find a way around social and communicative
237 exclusion, “[f]reed from the constraints of NT [neurotypical] timing, NTways of interpreting
body language, free from the information overwhelm of eye contact, the energy demands of

238 managing body language” [6:801]. Many of those with autism are using the internet to
239 connect with similar others, binding them together, somewhat paradoxically, into groups. The
240 new virtual environment is much more autism compatible than the regular social environment,
241 which has become more and more autism incompatible during the last centuries [6].

242 Using the internet in a particular way seems to be a solution for some of the
243 psychosocial problems high-functioning autists encounter. More communication, mutual
244 support, group bonding, even the creation of an autistic culture, all these have become
245 possible for autists because of the autism-compatible features of the internet. The internet,
246 though, should be seen only as a way of facilitating communication, not as constituting a
247 specific culture in itself. The claim that there is a specific autistic culture can be based on
248 autistic persons difference in language style, ways of relating to others, values etc. Above all
249 is the common interest that they share, similar to most other cultural or ethnic groups. Typical
250 for such groups are that their members want to identify with the group.

251 One of the possible strategies for the neurodiversity movement is to have autists
252 (or at least high-functioning autists) recognized as a special group in need of certain “group
253 rights” similar to what has been conferred on various minority groups. The core of such
254 claims is often that there is something special to be protected, for example a certain culture in
255 risk of being swallowed by the majority culture.

256 They can, like other minority groups, base their claim for special treatment on
257 the pervasive discrimination against them, both historically and also present. The Inuit in
258 Canada, Native Americans in the USA, and Sami population in the Scandinavia are examples
259 of groups that claim special rights. In their case this is based on a common origin and a shared
260 history. This is not the case for autistic people, nor do they have a homeland of their own. The
261 claims from the autistic culture are similar to the Deaf culture, which also live dispersed
262 among the majority. But how to determine whether somebody is a member of the autistic
263 culture? Is it enough with self identification as autistic or do we need some “objective” way to
264 characterize them? In the case of Sami people or Inuit there are “objective” ways; each
265 member shares a common history and background. Although neither autistic people nor Deaf
266 people have a common origin it seems that there are rather simple behavioral traits that
267 together with self-identification will single out members of such a culture.

268 The autistic culture may benefit from making use of the same philosophical
269 foundations to argue for their minority group rights that the philosopher Will Kymlicka
270 described for ethnocultural minority group rights. Group-specific rights for minorities are
271 needed to ensure that all citizens are treated with genuine equality. On this view, “the

272 accommodation of differences is the essence of true equality” [15:108], and group-specific
273 rights are needed to accommodate our differences.

274 When we apply Kymlicka’s thoughts to the autistic culture, we can say that the
275 autistic culture is unfairly disadvantaged in the cultural market-place. Political recognition
276 and support can rectify this disadvantage. The viability of the autistic culture may be
277 undermined by economic and political decisions made by the majority of neurotypicals. The
278 members of the majority culture of neurotypicals do not face this problem. Given the
279 importance of cultural membership, this is a significant inequality which, if not addressed,
280 becomes a serious injustice.

281 What if the environment of autists is not yet autism-compatible? The
282 environment would be autism-compatible when the society they live in would have adopted
283 the so-called ‘social model of disability’. This model suggests that the society is equally
284 responsible for enabling individuals with disabilities to live and exist within the society as
285 disabled people. According to this model we should not want to change the individual so
286 much as accommodate that person and support him or her in ways that enable them to live
287 positively [16]. While most cultures, including the Deaf culture, usually are able to manage
288 on their own, this is not quite clear for the autistic culture. Or rather, one needs a restrictive
289 view of the autistic culture, only including high-functioning autists, to get a potentially
290 independent culture. So, first let us discuss autistic culture from the broad conception, which
291 we deem problematic, and later turn to the more plausible narrow conception.

292

293

294 **Autistic vulnerability**

295

296 Considering the broad conception of neurodiversity, a paradox becomes clear. If
297 neurodiversity is accepted by society as a special culture, the autists that need care [13] may
298 face a hard time getting it, because their state of being will be regarded as just a natural
299 variation. The high-functioning autists that do not need care live happily in the knowledge
300 that they are freed from the burden of having a deficit and may have a better life with non
301 interference. But it may not be so good for low-functioning autists or even high-functioning
302 autists that *do* need care. Acceptance does not ‘cure’ difficulties with social relationships,
303 social communication, rigidity and sensory issues. On the other hand if neurodiversity is not
304 accepted by society as a separate culture, high-functioning autists will still suffer the stigma of
305 having a deficit, even if some of them do not need special care and support.

306 Two strategies can be used to get around this paradox. The first strategy is to
307 recognize the vulnerability in general of most autists. The word “vulnerability” is derived
308 from the Latin verb *vulnerare*, “to wound.” To be vulnerable means to face a significant
309 probability of incurring an identifiable harm while substantially lacking ability and/or means
310 to protect oneself [25]. Autists are vulnerable in this sense. The concept of vulnerability is
311 essential to bioethics. The vulnerability of other human beings is the source of our special
312 responsibilities to them [10].

313 There are arguments against the labeling and categorization of vulnerable
314 individuals and populations [24]. Labeling individuals as ‘vulnerable’ risks viewing
315 vulnerable individuals as ‘others’ worthy of pity, a view rarely appreciated. The essence of
316 these arguments is that the label of ‘vulnerability’ leads to inequality. These arguments are not
317 plausible, as we will try to show. Vulnerability is something we all, autists and non-autists
318 alike, experience in our lives. We all belong to vulnerable populations during some time of
319 our lives. Vulnerability as a concept does not separate a particular group of people from the
320 rest of mankind, unlike the concepts of disability and disorder. Therefore, vulnerability
321 implies equality rather than inequality.

322 However, it does remain clear that some people are more vulnerable than other
323 people, e.g. infants, the elderly and of course, by their very nature, autists. These particularly
324 vulnerable people may need care and support. Let us briefly stay inside the broad conception
325 of neurodiversity including all autists. Because vulnerabilities are grounds for special
326 responsibilities, losing the diagnosis of ‘disorder’ by replacing it with a characterization based
327 on ‘vulnerability’ should at first sight not have any detrimental effect on the protection of
328 people with autism. The discovery and assessment of autistic vulnerabilities can build upon
329 the existing bodies of knowledge about the natural causes of autism and about the
330 consequences for autists of neurotypicals’ actions, choices and social conventions [11].
331 However, applied to the broad conception of neurodiversity this strategy is problematic, for
332 the pragmatic reason of the enormous amount of resistance that needs to be overcome to stop
333 speaking about ‘disorder’ in the case of high-functioning autists as well as low-functioning
334 autists.

335 A better strategy to tackle the difficulties that accompany the acceptance of
336 neurodiversity by society is to adhere only to the narrow version of the neurodiversity claim.
337 The reason for this preferred adherence is that the broad version of the neurodiversity claim is
338 problematic. It is clear that people with low-functioning autism are extremely vulnerable and
339 their condition justifies the qualification “disability”. However, the degree of social

340 construction of their disability has to be taken into account. Members of the group of high-
341 functioning autists most often can have rather independent lives in the right kind of
342 environment. For what are now disabling traits of these people, may, in a differently
343 constructed social environment, become “neutral” characteristics [23]. Wendy Lawson,
344 autism advocate and scholar, formulates it like this: “[...] only as a society gains
345 understanding of an individual and their cognitive difference (‘diff-ability’) and also use the
346 understanding to inform appropriate interventions, will that individual’s ‘disability’ be less
347 disabling.” [16: 53] So, disability in autism is always, at least partially, socially constructed
348 disability.

349

350

351 **Conclusion**

352

353 Some autism inside the narrow conception of neurodiversity can be seen as a natural variation
354 on par with for example homosexuality. (Lower-functioning autism is also part of natural
355 variation but may rightly be viewed as a disability.) Just as homosexuals in a homo-phobic
356 society, the conditions in which autists have to live in an autism-incompatible or even autism-
357 phobic society are unreasonable. Therefore, it is not fair to place the locus of the problem
358 solely on the autistic individual. What also is needed is a discourse about the detrimental
359 effects of an autism-incompatible and autism-phobic society on the well-being of autists.
360 Therefore, in the case of high-functioning autists, society should not stigmatize these persons
361 as being disabled, or as having a disorder or use some other deficit-based language to refer to
362 these people. It is much less morally problematic to refer to the particular vulnerability of
363 these autists. Also, group-specific rights for autists are needed to ensure that the autistic
364 culture is treated with genuine equality.

365 It is our conclusion that it is wrong to subsume all persons with Asperger’s
366 Syndrome and high-functioning autists into the wide diagnostic category of Autistic Disorder
367 (Autism Spectrum Disorder), as the work group of the American Psychiatric Association for
368 the Diagnostic and Statistical Manual of Mental Disorders-V (DSM-V) proposes. Some of
369 these persons are not benefited with such a psychiatric defect-based diagnosis. In fact, some
370 of them are being harmed by it, because of the disrespect the diagnosis displays for their
371 natural way of being, which is of course contradictory to the Hippocratic principle of *primum*
372 *non nocere*. However, we think that it is still reasonable to include other categories of autism

373 in the psychiatric diagnostics. The narrow conception of the neurodiversity claim should be
374 accepted but the broader claim should not.

375

376

377 **References**

378

379 1. Allred, S (2009) 'Reframing Asperger syndrome: lessons from other challenges to the Diagnostic and
380 statistical manual and ICIDH approaches', *Disability & Society*, 24: 3, 343 - 355.

381 2. Baker (2006) 'Neurodiversity, neurological disability and the public sector: notes on the autism
382 spectrum', *Disability & Society*, 21(1), 15- 29.

383 3. Baron-Cohen, S (2002) Is Asperger Syndrome Necessarily Viewed as a Disability? *Focus on autism
384 and other developmental disabilities*, 17(3), 186-191.

385 4. Broderick, AA (2008) 'Autism as metaphor: narrative and counter-narrative', *International Journal of
386 Inclusive Education*, 12(5), 459- 476.

387 5. Brownlow, C, O'Dell, L (2009) Challenging understandings of Theory of Mind: A brief report.
388 *Intellectual and developmental disabilities* 47 (6): 473-478.

389 6. Davidson, J (2008) Autistic culture online: virtual communication and cultural expression on the
390 spectrum. *Social & Cultural Geography* 9 (7):791-806.

391 7. Farrugia, D (2009) Exploring stigma: medical knowledge and the stigmatisation of parents of children
392 diagnosed with autism spectrum disorder. *Sociology of Health & Illness* 31 (7) 1011–1027.

393 8. Fenton, A, Krahn, T (2007) Autism, Neurodiversity and Equality Beyond the 'Normal'. *Journal of
394 Ethics in Mental Health* 2(2) 1-6.

395 9. Fitzgerald, M., O'Brien, B., (2007) *Genius genes. how Asperger talents changed the world*. Shawnee
396 Mission/Autism Asperger Publishing Company

397 10. Goodin, R E (1985) *Protecting the vulnerable: a reanalysis of our social responsibilities*. Chicago: The
398 University of Chicago Press.

399 11. Grandin, T (2006) *Thinking in pictures and other reports from my life with autism*. London:
400 Bloomsbury.

401 12. Griffin, E, Pollak, D (2009) Student Experiences of Neurodiversity in Higher Education: Insights from
402 the BRAINHE Project, *Dyslexia* 15: 23–41.

403 13. Jones, R.S.P., Zahl, A., Huws, J.C. (2001) *First-hand Accounts of Emotional Experiences in Autism: a
404 qualitative analysis*. *Disability & Society*, 16(3), 393-401.

405 14. Jurecic, A (2006) Mindblindness: Autism, Writing, and the Problem of Empathy, *Literature and
406 Medicine* 25 (1): 1–23.

407 15. Kymlicka, W (1996) *Multicultural Citizenship - A Liberal Theory of Minority Rights* (p. 107-110)
408 Oxford: Oxford University Press.

409 16. Lawson, W (2009) Single attention and associated cognition in autism (SAACA). PhD thesis Deakin
410 University.

411 17. Levy, S (2009) Autism, *Lancet*. 374: 1627–1638.

- 412 18. McGeer, V (2004) Autistic self-awareness. *Philosophy, Psychiatry & Psychology* 11(3): 253-251.
- 413 19. Moy, SS, Nadler, JJ (2008) Advances in behavioral genetics: mouse models of autism, *Molecular*
- 414 *Psychiatry*, 13, 4-26
- 415 20. Muhle, R (2004) The genetics of autism. *Pediatrics* 113: e472-e486.
- 416 21. Nordenfelt, L (1987) *On the nature of health*. Dordrecht: Reidel.
- 417 22. Ortega, F (2009) The cerebral subject and the challenge of neurodiversity. *Biosciences* 4, 425-445.
- 418 23. Parens, E, Asch, A (2003) Disability rights critique of prenatal genetic testing: reflections and
- 419 recommendations. *Mental retardation and developmental disabilities* 9: 40–47 (2003)
- 420 24. Ruof, M C (2004) Vulnerability, Vulnerable Populations, and Policy. *Kennedy Institute of Ethics*
- 421 *Journal*, 14 (4), 411-425
- 422 25. Schroeder, D, Gefenas, E (2009) Vulnerability: Too Vague and Too Broad? *Cambridge Quarterly of*
- 423 *Healthcare Ethics* , 18, 113–121.
- 424 26. Singer, J (1999) ‘Why can’t you be normal for once in your life?’ From a ‘problem with no name’ to
- 425 the emergence of a new category of difference. In: *Disability Discourse*, Corker, M and French, S (eds),
- 426 Buckingham/Philadelphia: Open University Press.
- 427 27. Williams, D (2002) *Exposure Anxiety--The Invisible Cage : An Exploration of Self-Protection*
- 428 *Responses in the Autism Spectrum*, Jessica Kingsley Publishers.
- 429 28. Wing, L (1997) The autistic spectrum. *The Lancet*, 350 (9093), 1761-1766
- 430 29. Aspies for freedom. Pro-neurodiversity website. Found at: <http://www.aspiesforfreedom.com>. Accessed
- 431 15/09/2010.
- 432 30. The human neurodiversity laboratory. Pro-neurodiversity website. Found at:
- 433 <http://eckertlab.org/neurodiversity>, accessed 15/09/2010
- 434 31. Wolbring, G (2007) Neurodiversity, Neuroenhancement, Neurodisease, and Neurobusiness. Pro-
- 435 neurodiversity website. Found at: [http://innovationwatch-archive.com/choiceisyours/choiceisyours-](http://innovationwatch-archive.com/choiceisyours/choiceisyours-2007-04-30.htm)
- 436 [2007-04-30.htm](http://innovationwatch-archive.com/choiceisyours/choiceisyours-2007-04-30.htm), accessed 15/09/2010.
- 437 32. Ventura33's Neurodiversity Page. Pro-neurodiversity website. Found at:
- 438 <http://www.ventura33.com/neurodiversity/>, accessed 15/09/2010.
- 439 33. American Psychiatric Association: DSM-V development. Found at:
- 440 <http://www.dsm5.org/ProposedRevisions/Pages/proposedrevision.aspx?rid=97>, Accessed 15/09/2010.
- 441
- 442
- 443