



Parents' Responses to Toys Representing Physical Impairments

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Parents' Responses to Toys Representing Physical Impairment

Toys play a central role in children's socialization. Alongside the advancement of cognitive skills, they inspire pretend play that lays the foundations for understanding the social world (Cherney and Dempsey 2010). Historically, toys have been used to communicate cultural ideas. Indeed, toy companies such as Playmobil™ reputedly aim to represent the "real world" to children (Playmobil, 1977). Given heightened discrimination towards people with physical impairments, representation through toys is important (e.g., Dixon et al., 2018; Trepanier-Street, 2010; Pinquart 2017; Keith, et al., 2015). It is one way in which children may imagine an inclusive future, with research showing that children without impairments have more positive intentions towards those with one following play with such toys (e.g., Jones and Mariezcurrena, under review). Nevertheless, the paucity of toys representing impairments on the market means it is also important to look at the specific predictors of willingness to purchase such toys, for those with and without impairments alike. One known determinant of toy preference is parental preference (e.g., Kollmayer, et al., 2018). To the best of the authors' knowledge, this has not been examined when it comes to toys representing physical impairment. Thus, the aim of the current paper is to look at the views of parents who do and do not identify their child as having a disability. It explores parental openness to the topic of disability, children's direct contact with people with disabilities, and whether parents think their child is willing to form friendships with children with disabilities as key determinants of parents' beliefs surrounding toys that aim to represent disability.

Framing dis/ability

The language used to refer to disability has changed dramatically in recent years (e.g., American Psychological Association, 2020), as thinking both inside and out of the academy has evolved, in response to social activism. In the UK, where the current study is based, the Equality Act (2010) refers to the protected characteristic of ‘disability’. Similarly, the American Sociological Association’s (2020) Diversity Statement and the British Sociological Association’s Disability study group use the terms ‘disability’ and ‘persons with disabilities’, whilst recognizing the complex relationship between person and environment¹. The American Psychological Association (2020) further acknowledges the evolving nature of discourse around ‘disability’ in its guidelines. Accordingly, it advises its members not working directly (face-to-face) with their participants, to use either identity-first (disabled person) or person-first (person with a disability) language in their research, as both, it states, aim to respect disabled people. It was with this in mind, that in developing the current study, a mix of identity-first and person-first language was used. Nonetheless, in considering representation in the toy industry, a secondary aim of this paper is to reflect on discourse around disability, and the ways in which different models of disability might frame the concept of representation.

The social model reframes the ways in which disability is perceived, and has been significant for government policy, and international classification systems for disability (UN Convention on the Rights of Persons with Disabilities, 2006). The social model of disability, in contrast with the medical model, draws attention to a distinction between the concepts of *impairment* and *disability* (e.g., Kattari, et al., 2017) and argues that disability is a socially constructed term. More specifically, this model suggests that impairment should be defined from a biological perspective as, for example, lacking a limb, whereas disability is ‘the disadvantage

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3 or restriction of activity caused by social organization that takes little or no account of people
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5 with physical impairments and thus excludes them from participation in the mainstream of social
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7 activities' (Oliver, 1996, p. 22). As such, the social model of disability "locates disability not in
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9 the impairment or malfunctioning body, but in an excluding and oppressive social environment"
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11 (Marks, 1999, p. 79). The social model of disability focuses on barriers or obstacles a disabled
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13 person may encounter in their everyday life as a result of the societal view on disability (French
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15 and Swain, 2007). In this way, it emphasizes that impairments do not disable, but societal
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17 practices do. According to Walschmidt's (2018) review of the social model of disability,
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19 disability is a label put on the individual by society for differing from what is considered to be
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21 typical. Impairment should not automatically equal disability, however, when the environment is
22
23 not fit to include individuals with such impairments, they will inevitably face disadvantages. For
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25 example, an individual may have a speech impairment but not consider themselves to be
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27 disabled, yet still find themselves in a situation in which they are being discriminated against for
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29 that speech impairment. It shifts the focus from an individual's inability to perform a certain task
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31 to how society has failed to meet the requirements of that individual to perform that task.
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38 It follows from this that it is society's responsibility to remove the obstacles that people
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40 with an impairment are facing. In this way, the social model has identified policy-based
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42 strategies, like removing barriers, in order to promote the inclusion of people with impairments,
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44 rather than pursuing a strategy of medical rehabilitation, as might be recommended by the
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46 medical model. Shakespeare (2013) identifies how discrimination continues to be present from
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48 the non-disabled community through a variety of sources such as phrases used casually in
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50 everyday interaction and commonly unsupported misconceptions of disabled people's
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3 capabilities. Oliver (2013) stresses the misrepresentative depiction of disabled people further by
4 stressing how inequality continues to prevail in settings that should be serving to oppress it.
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7 The presence of such assumptions causes society to place unnecessary restrictions on the
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9 impaired person by failing to create accessible and person-centered environments that account
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11 for an inclusive range of needs.
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15 Discrimination towards disabled people is prevalent in the UK. According to a survey by
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17 the charity, Scope, one third of their disabled participants had experienced discrimination, while
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19 only one in five non-disabled participants considered disability discrimination a current issue
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21 (Dixon, et al., 2018). Reported perceptions included disabled people being perceived as *less*
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23 productive and *less* able to care for themselves. Worryingly, evidence shows commensurate
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25 attitudes towards disabled people are prominent in children. One study found that 5-8-year-old
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27 children with physical impairments were consistently more positive about the physical and
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29 academic skills of those with impairments than were non-impaired children (Trepanier-Street,
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31 2010). A review study by Piquart (2017) found that children with disabilities were 1.5 times
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33 more likely to be the targets of bullying than their non-disabled peers. Considering these
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35 findings, increased positive representation of those with disabilities and meaningful contact
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37 between disabled and non-disabled people have been brought to attention as avenues for
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39 reducing prejudice (Dixon et al., 2018; Keith, et al., 2015).
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44 **Towards positive representation in the toy industry**

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46 One argument is that representative toys offer the benefit of positive representation to
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48 children with impairments (O'Neill, et al., 2018). Even within the context of a positive
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50 environment, when surrounded by non-disabled peers, young people with a physical impairment
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52 may struggle to acquire a sense of genuine inclusion and belonging amongst them (Spencer-
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3 Cavaliere and Watkinson, 2010). This is reflected already in toy research: when children with
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5 Down's syndrome were given a choice of dolls, they preferred to play with the non-disabled doll
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7 as opposed to the doll with features of Down's syndrome (Saha et al., 2014). In addition, the
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9 children attributed more positive traits to the non-disabled doll (Saha et al., 2014). Toys, then,
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11 are important not just for representation, but for opening dialogue around diversity, impairment,
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13 and what this means.
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17 The existence of disabled toys matters, so that disabled children and adults may be seen
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19 as a part of society and can imagine the different roles that they may have within it through their
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21 play. Representation of impairment is now emerging in the toy industry. Following the example
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23 of toy companies such as Playmobil (Langsworthy, 2015) and Lego (Rajan, 2016), Mattel has
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25 now added two new dolls, one in a wheelchair and another with a prosthetic limb, to their
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27 collection of Barbie dolls (McNamara, 2019). Toys that meet the physical and psychological
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29 needs of all and provide a fairer representation of real-world diversity arguably could help
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31 children with an impairment to feel more accepted in society.
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34 35 **Positive representations and imagined contact**

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37 Positive representations of impairment through toys are also important because they
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39 afford an opportunity for *imagined contact* with people with impairments for children. Imagined
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41 contact is a form of non-threatening intergroup interaction that occurs as participants are asked to
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43 imagine themselves meeting someone else with a given characteristic (Crisp and Turner, 2009).
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45 Miles and Crisp (2014) conducted a meta-analysis and found over 70 studies which confirmed
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47 that imagined contact positively influences attitudes, and is more effective in childhood than
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49 adulthood, making imaginary play at an early age very important.
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3 This paper argues that imagined contact through toys is one route by which children
4 consolidate positive attitudes towards children with a variety of impairments. Jones and
5 Mariezcurrena (under review) induced imagined contact via pretend play. Two hundred and
6 forty-four children without an impairment took part in a three-minute intervention, involving
7 playing with a target figure, in a friendship context. Results showed that imagined contact with a
8 toy figure with a visible impairment led to increased friendship facilitation intentions toward
9 children with impairments compared to playing with a figure without an impairment or with a
10 leg cast. This effect was moderated by intergroup anxiety: lower anxiety following the play led
11 to a more positive attitude towards peers with an impairment. For those children who played with
12 a toy figure representing an impairment it was additionally found that a reduction in ingroup bias
13 (a tendency to see peers without an impairment more favorably) led to an increased positivity in
14 friendship intentions towards peers with an impairment following the play session. Similarly,
15 Cameron et al. (2011) used photographs and story boards to ask children to either imagine
16 interacting with a physically disabled child - or not (these latter children were in the control
17 group). In contrast with the control group, children in the imagined contact group later showed
18 reduced bias in ratings of warmth and competence towards those with a disability. This finding is
19 in line with arguments against a medical model of disability outlined above, that a positive but
20 paternalistic stereotyping of those with impairments is unhelpful. Research in the US has found
21 that adults tend to take a paternalistic view of the those with physical and intellectual
22 impairments (see Fiske, et al., 2007) displaying reactions such as pity and sympathy (Cuddy, et
23 al., 2007). Yet, this imagined contact study showed reductions in these stereotypes among
24 children. In a similar vein to the imagined contact research cited above, it is already recognized
25 that such toys reduce anxiety and prejudice that children without disabilities experience towards
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3 those children who have (Spencer-Cavaliere and Watkinson, 2010), and increase feelings of
4 empathy towards them (Smith, 2013). Representative toys are then, a promising route for
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6 prejudice reduction.
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9 10 **Parents' Influence and Toy Choice**

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12 In spite of the evidence reviewed above that representative toys are associated with
13 positive responses to impairment, there is less research regarding parental influence on children's
14 attitudes towards impairment and how this is linked to toy choice. However, it is known that
15 parents have a role in shaping their children's attitudes towards disability. Meloni et al. (2015),
16 reported that children, aged 6–8 years, thought of people with disabilities as being ill. Older
17 children (aged 9– 11 years) had more knowledge of disability and children in this study had
18 tended to adopt their parents' representations, which were overwhelmingly consistent with a
19 medical model of disability. In other words, children's framework for understanding of
20 impairment and disability was linked to that of their parents. However, this study did not include
21 the views of parents of children with disabilities. Taken together, the above research points to
22 parents having a role in children's responses to social groups, including their responses towards
23 people with disabilities, and that this influence is well-established by four years of age. For this
24 reason, this paper looks at parental attitudes about disability among parents of children with and
25 without physical impairments, aged 4-10 years, as a key predictor of propensity to engage with
26 representative toys.
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47 This paper focuses on parental openness, because research shows that many adults do not
48 broach the topic of disability or impairment with children in their care (e.g., Yee, 2002), even
49 though children notice differences related to impairment. Instead, they are given to understand
50 that it is inappropriate to mention another person's impairment (Lawrence, 1995). This is
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3 problematic because silence makes disability and impairment seem ‘taboo’, leaving children
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5 feeling awkward discussing it as they have not learned how to do so (Watson, 2018). Ultimately,
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7 treating disability as a ‘taboo’ topic may cause children to become less sensitive to issues
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9 relating to disability and, concerningly, may leave the children with impairments feeling like
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11 they need to hide their impairment and pass for a ‘normal’ person (Sapon-Shevin, 2017). On the
12
13 other hand, if parents encourage talk about disability, that talk is more likely to be positive and
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15 lead to more positive attitudes. In fact, the work of Smith (2013) suggests that having an open
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17 dialogue around disability increases empathy towards people with disabilities. Similarly,
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19 Visintin, et al. (2017) found that people with physical disabilities were perceived as warmer
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21 when participants took an approach involving naming and acknowledging differences rather than
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23 one that ignores them. Thus, openness may predict opportunities for positive contact. Therefore,
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25 it is possible that parents who are open about disability are more likely to buy representative toys
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27 for their children.
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32 33 **The Role of Contact and Behavioral Intentions**

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35 Another factor that is known to predict positive responses to people with impairments is
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37 direct contact. That is to say that research on the ‘contact hypothesis’ (Allport, 1954) highlights
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39 the positive impact that direct (i.e., face-to-face) interactions can have on people’s attitudes
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41 towards members of different social groups. With respect to disability, research indicates that the
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43 greater the amount of contact children have with positive representations of disability, the more
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45 positive are their attitudes towards disability (e.g., MacMillan, et al., 2013). In a study of over
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47 1800 UK children aged 7-16 years, Armstrong et al. (2016) found evidence for this link, and that
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49 it is mediated by a lessening of anxiety about interacting with people with disabilities and greater
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51 empathy for them. In a meta-analytic study of contact interventions that aimed to promote
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3 positive attitudes among children towards others with disabilities, Armstrong et al. (2017)
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5 determined that all the direct contact interventions included in the review were effective. Further
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7 research indicates that whether one has direct contact experiences at all may be affected by initial
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9 attitudes towards the social group in question (e.g., Munniksma, et al., 2013). Direct contact is
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11 then demonstrably associated with more positive attitudes, with meta-analytic results indicating a
12
13 positive relationship between attitudes and contact toward children with special educational
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15 needs (SEN) (Nowicki and Sandieson, 2002). Here the level of children's direct contact with
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17 people with disability is used as one predictor of their parents' beliefs surrounding their child's
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19 willingness to play with toys representing disability, since it likely at elementary school age that
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21 parents afford this opportunity for their children. Specifically, the authors examine whether
22
23 heightened parental openness around disability is linked to more direct contact experiences for
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25 their children, and in turn, whether it is this direct contact experience that predicts greater
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27 positivity among parents surrounding the toys representing disability.
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33 In the contact literature, attitudes towards a social group are also linked strongly to
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35 behavioral intentions towards group members (e.g., West, et al., 2015). This has been
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37 demonstrated, for example, in favorable attitudes and behavioral intentions toward children with
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39 special educational needs (Armstrong, et al., 1987; Laws and Kelly, 2005; Maras and Brown,
40
41 1996, 2000). Relatedly, Abbott and Cameron (2014) showed that cultural openness predicted
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43 positive behavioral intentions towards immigrants. Accordingly, this study, measures the link
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45 between parents' openness around disability, and their intentions for their children to make
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47 friends with others with disabilities. It is hypothesized that more openness will lead to more
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49 positive friendship facilitation intentions and in turn, this intention will predict more positive
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51 beliefs surrounding representative toys.
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Present Study

There are arguably benefits for all children to playing with toys representing impairment. Positive representation is desired by adults and children with impairments and promotes a sense of inclusion. Further, by introducing toys that represent different impairments the number of imagined contact situations children without impairments experience could be increased, leading to children being more positive towards their peers with such differences. Research on children's understanding of disability and impairment also indicates that this is influenced by parental conceptions. However, the intentions of parents with regards to toys representing impairment, and what predicts their responses to these toys has not been directly tested. This study looks at the responses of parents of children who do and do not identify their child as having a disability, aged 4-10 years, towards these toys. Parental openness to the topic of disability is considered, as well as the amount of direct contact children have with people with disabilities and parents' willingness to facilitate friendships between children with and without disabilities as predictors of beliefs surrounding the toys representing impairment. The main goal was to identify whether parental openness would predict parents' beliefs surrounding their child's willingness to play with toys representing impairment. The hypotheses were that (a) parental openness about disability would be positively related to parental beliefs about their child's willingness to play with toys representing impairment, (b) openness would be positively linked to a desire to facilitate friendship between children who do and do not identify as having a disability and (c) the relationship between parental openness and beliefs around their children's willingness to play with the toys would be mediated. Specifically, it was expected that this association would be mediated both by parents' desire for friendships between children with and without disability, and by the amount of direct contact their child had with children with a

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3 disability (where the child themselves did not have a disability, in line with research on the
4 contact hypothesis).
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7 **Methods**

8 **Participants**

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12 Three hundred and twenty-six participant-parents (of whom 234 were female) responded
13 to an online questionnaire about their child's toy preferences through parenting websites and
14 #toylikeme social media channels during June – July 2017. The children they responded about
15 were aged between 4 and 10 years (157 girls, $M = 6.32$ years, $SD = 2.20$ years). Ethical approval
16 for this study was obtained from the University ethics committee. Approximately equal numbers
17 of parents were responsible for children with ($n = 160$) and without ($n = 166$) a disability. Of
18 those parents whose child had a disability, 93 declared a physical disability, 19 declared a
19 developmental disability, 19 declared multiple disabilities, and 31 did not specify the impairment
20 of their child. Out of the parents, 41 identified as having a disability themselves.
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32 **Design**

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35 A correlational design was used. The measured variables were (a) the parents' openness
36 about disability, (b) the child's direct contact with people with disabilities, (c) the parents'
37 positive intentions regarding interaction with children with disabilities and (d) their perception
38 that their child would want to play with a range of toys representing physical disability.
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44 **Materials and Procedure**

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47 After reading introductory information and giving consent, participants were asked to
48 respond to a series of demographic questions about their child, including age, sex and disability.
49 Following this were a number of measures to which parents responded on a five-point Likert-
50 type scale from 1 – strongly disagree to 5 – strongly agree.
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3 **Openness to Disability.** Parents answered two questions concerning their openness to discussion
4 around disability, ‘I have talked to my child about disability’ and ‘I encourage my child to ask
5 me questions about disability’ ($r = .817, p < .001$).
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10 **Child Direct Contact.** Following this were three items concerning direct contact with a person
11 with a disability, for example ‘My child has met a family member with a disability’ ($\alpha = .530$).
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14 **Friendship facilitation intentions.** Participants were asked to imagine their child wanted to
15 make friends with a child with a disability. They then answered four questions to determine the
16 likelihood that they would support that friendship through hypothetical situations. An example
17 item is ‘I would like be happy for them to have a meal at their new friend’s house’ ($\alpha = .781$).
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21 **Play Propensity.** Respondents were asked if their child would be likely to play with ten
22 commercially available toys that had been changed to represent physical disability. These were
23 prototype models that are unavailable to purchase, and which were developed by #toylikeme.
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25 These are given in Figures 1. A mean score for all toys made up this scale, ($\alpha = .750$).
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32 [INSERT FIGURE 1 HERE]
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34 35 **Results**

36 37 **Data screening.**

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40 Prior to analysis, the data were screened for patterns in missing values, outliers and violations of
41 parametric data assumptions. Univariate outliers were removed for each relevant analysis to
42 ensure they did not have a disproportionate influence on the results. A series of one-way
43 ANOVAs was run on each of the outcome measures in turn. These ANOVAs revealed no
44 significant differences between children whose parent or caregiver had declared either a
45 physical, a developmental, or multiple disabilities. However, there was one significant
46 difference identified, on positive friendship intentions, $F(1, 288) = 6.42, p < .001$, arising
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3 because children whose parents declared no disability scored higher than others. Therefore, two
4 mediation analyses were run: one that considered all children, and one that considered children
5 whose caregiver identified them as having, or as not having a disability separately. Descriptive
6 statistics and bivariate correlations among the key dependent measures, disability, age, and sex,
7 are given in Table 1.
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10 [INSERT TABLE 1].
11

12 Correlational analysis revealed that there was a significant relationship between play propensity,
13 age, and gender, suggesting that if the child was younger the parent was more likely to think that
14 they would play with the prototype. Parents' were also more likely to think so if the child was
15 female.
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17 **Mediation Analyses.**

18 Regression analysis was used to investigate the hypothesis that the Parents' Positive Intentions
19 and Child Direct Contact would mediate the association between Parental Openness and
20 Prototype Play Propensity, using PROCESS Model 4, concerning children with and without
21 disability, in the same model. Age, parental disability, and sex were entered as covariates but
22 were not significant in either model. Therefore, the models without these covariates are
23 presented. This analysis revealed that Positive Intentions significantly mediated the association
24 between Parental Openness and Prototype Play Propensity, $b = .0283$ $SE = .0158$ $LLCI = .0034$,
25 $ULCI = .0643$. Child Direct Contact, $b = .0266$ $SE = .0193$ $LLCI = -.0090$ $ULCI = .0669$ did
26 not mediate this association
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Regression analysis was then used to investigate the hypothesis that the Parents' Positive
Intentions and Child Direct Contact would mediate the association between Parental Openness

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3 and Prototype Play Propensity, using PROCESS Model 4, concerning children with and without
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5 disability, separately.

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8 For parents of children who declared that their child had a disability, results indicated that
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10 there was an indirect effect of Parents' Positive Intentions on the association between Parental
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12 Openness and Prototype Play Propensity, $b = .0414$, $SE = .0283$, $LLCI = .0005$, $ULCI = .1075$.
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14 Child Direct Contact, $b = .0030$ $SE = .0225$ $LLCI = -.0451$, $ULCI = .0462$ did not mediate
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16 this association. This model is illustrated in Figure 2a.

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19 Conversely, for parents who did not identify that their child had a disability, results
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21 indicated that there was an indirect effect of Child Direct Contact on the association between
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23 Parental Openness and Prototype Play Propensity, $b = .0602$, $SE = .0406$ $LLCI = .0001$, $ULCI$
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25 $= .1600$. Parents' Positive Intentions, $b = .0201$, $SE = .0300$, $LLCI = -.0211$, $ULCI = .0803$ did
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27 not mediate this association. This model is illustrated in Figure 2b.

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30 [INSERT FIGURE 2]

31 32 33 **Discussion**

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35 This study examined whether parental openness would predict parents' beliefs that their
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37 child would like to play with a range of toys representing disability, and whether this association
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39 was mediated by direct contact experiences, and by friendship facilitation intentions towards
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41 children with a disability. For the overall sample, no direct association was found between
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43 openness of parents to talking about disability and perceived willingness to play with the toys.
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45 However, mediation of this association was apparent: increased openness predicted perceived
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47 willingness to play with the toys indirectly, via friendship facilitation intentions. Data were also
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49 analyzed from those parents who did / did not identify their child as having an impairment
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51 separately. This showed that for children not identified as having an impairment, direct contact
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3 with people with disabilities mediated the association between openness and perceived
4 willingness to play with the toys. For parents of children who were identified as having an
5 impairment, friendship facilitation intentions towards disabled children mediated this
6 association. This difference in the mediation pathways between parents who identified their child
7 as having or as not having a disability is in line with the contact hypothesis and has implications
8 for the reasons why parents might purchase these toys, which we explore below.
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17 Current findings show that, regardless of whether their child has an impairment, parents'
18 openness about disability predicts their belief that their child would like to play with toys
19 representing physical impairments via either direct contact or friendship facilitation intentions.
20 This adds weight to the work of Sapon-Shevin (2017) and of Visintin et al. (2017) showing the
21 importance of openness around disability and impairment. Specifically, Sapon-Sevin (2017)
22 showed that treating disability as a 'taboo' topic may cause children to become less sensitive to
23 issues relating to impairment and, lead some children with disabilities to feel like they need to
24 hide their impairment. Similarly, and as highlighted above, Visintin, et al. (2017) found that
25 people with physical disabilities were perceived as warmer when participants took an approach
26 involving the acknowledgement of differences. Here, it is shown that parental openness around
27 disability and impairment is linked indirectly to parents' beliefs that their children will enjoy
28 playing with representative toys. Thus, openness may indirectly predict opportunities for future
29 positive imagined contact as parents who are open about disability are more likely to buy
30 representative toys for their children. In other words, the evidence indicates that taking an
31 approach that acknowledges differences, over one that ignores differences, is more likely to be
32 beneficial in decreasing prejudiced attitudes.
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3 These findings also indicate that, among parents of children without disabilities, where
4 the amount of contact children have with disabled people is higher, their parents' responses
5 towards representation in the toybox are likely to be more positive (their parents are more likely
6 to believe that they would want to play with these toys). Thus, it seems that, for parents who did
7 not identify their child as having a disability, those with more open attitudes may be more likely
8 to arrange opportunities to let their child have direct contact with a person with a disability, in
9 turn predicting a propensity to believe their child would enjoy playing with representative toys.
10 This evidence indicates that parental openness predicts frequency of direct contact with people
11 with disabilities. That parental openness affects positive responses to the toys via direct contact
12 for those parents of children without disabilities adds weight to the results of MacMillan et al.
13 (2013), that the amount of direct contact children experience has an impact on responses towards
14 disability, and to the findings of Dixon et al. (2018) that direct contact reduces prejudice and
15 stigma towards disability as a whole.
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33 It is important to note, that age and gender of the child seem to also affect whether the
34 parent thinks that the child would play with representative toys. The findings align with previous
35 literature which suggests that gender stereotypes lead to different expectations of boys and girls
36 regarding their interests in toys (Kite et al., 2008). As with toys that represent gender stereotypes
37 and affect children's roles and interests (Fredricks and Eccles, 2002), this finding has potential
38 implications on children's attitudes towards disability and impairment later in life. Yet, the effect
39 of gender has not been specifically investigated regarding representative toys, and this may in
40 future help make representative toys more engaging for different ages and genders to ultimately
41 increase inclusivity of people with impairments.
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3 For parents of children who did identify that their child had a disability, perceived
4 willingness to play with the toys was predicted by increased friendship facilitation intentions for
5 their children. That is, greater openness around disability predicted higher friendship facilitation
6 intentions towards children with impairments among parents of those children, which in turn
7 predicted perceived willingness to play with the toys. That greater parental openness around
8 disability predicted friendship facilitation intentions with other children with impairments is a
9 novel finding, but one that is echoed in the literature (e.g., Abbott and Cameron, 2014; Cameron
10 et al., 2011). In these studies, more positive attitudes were linked to increased friendship
11 intentions. This study builds on these findings, as from this initial evidence, it seems that for
12 these parents, toys are recognized as part of their child's socialization; as a means for enabling
13 friendships with other children with impairments, in line with the literature on toys and child
14 socialization (e.g., Cherney and Dempsey 2010). Friendship facilitation intentions in the current
15 study were linked to a higher belief that children with an impairment will want to play with
16 representative toys. This is a novel finding, where past studies have looked at the influence of
17 parental attitudes towards disability and impairment on the attitudes of their non-disabled
18 children. Nonetheless, this finding points to the social nature of toys. It is parents who have
19 higher support for the friendships of their children with other children with impairments who
20 were more likely to believe that their child would play with the representative toys. Perhaps this
21 was because these toys would affirm a part in a more inclusive society for these children. The
22 direction of this association could not be determined here as the research design was
23 correlational. However, the link between openness, friendship intentions and representative toys
24 is one that merits future research attention, regarding the ways in which toys that represent
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3 physical impairment afford children friendship opportunities, in the context of the wider
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5 literature surrounding the importance of toys for children's socialization.
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8 This research also highlights how parental attitudes may indirectly shape responses to
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10 toys representing impairment. The results showed that openness toward disability among the
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12 parents of children who did not declare a disability specifically, was linked to the contact their
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14 children had with children with disabilities and in turn to responses to the representative toys.
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16 Thus, in line with Kollmayer et al. (2018)'s work showing that parental views are reflected in
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18 their toy choices, the current study shows that parental attitudes affect children's opportunities
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20 regarding toys that represent impairment. This supports the contention that parental responses
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22 play an important role in shaping the toys to which children have access, in line with Kim (2002)
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24 and Flom and Johnson (2010), extending this research by applying it to the realm of disability. In
25
26 this way, these findings extend the work of Meloni et al. (2015) who showed that parental
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28 understandings of disability are reflected in their children. Here, evidence is in line with the
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30 imagined contact hypothesis, that the amount of direct contact a child has been afforded with
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32 children with impairments, is linked to parental responses to toys that represent impairment (and
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34 therefore, the toys' likely availability to their children).
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40 **Practical Implications**

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42 This research highlights one of the key indirect predictors of parents' propensity to buy
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44 representative toys for their children: an open dialogue around disability and impairment. This is
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46 true for both parents of children with and without impairments. Therefore, the toy industry needs
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48 to consider parental openness when it comes to representation of impairment. As previously
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50 discussed, Epstein (2016) identified how successfully this representation was received by parents
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52 when Lego launched the inclusion of disabled figures within their product range. Consequently,
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3 this finding affirms that the purple pound is a noteworthy factor for toy retailers to consider when
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5 striving to design suitable and effective products that attract the values of their customers. The
6
7 'purple pound' is the term coined in order to represent the spending power held by the U.K.'s
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9 disabled population, and in total accounts for an overall contribution of £249bn to the country's
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11 economy (McGregor, 2018). Simpson and Lynch (2003) found that families value the efforts of
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13 businesses that are striving to provide inclusive products by modifying the features of their pre-
14
15 existing toys. The release of Lego figures in wheelchairs in 2016 instigated a positive global
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17 response from the general public (Epstein 2016). However, solely addressing the potential for
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19 financial gain almost contradicts the moral impetus behind the intentions underpinning the new
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21 products. The pivotal moral motive may have been to create a range of toys that are more inclusive
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23 and reflective of society. This paper argues that the toy industry should acknowledge its role in
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25 successful social change on a broader level, not only in promoting more positive perceptions from
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27 the peers of children and young people with impairments but also in providing self-assurance to
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29 people with impairments.
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35 From the perspective of children with physical impairments, playing with the toys included
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37 in this study may support children in constructing the role of disabled people in society. As
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39 previously stated, children with physical impairments tend to struggle with feelings of belonging
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41 and inclusion (Spencer-Cavaliere and Watkinson, 2010). It follows from this that toys representing
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43 impairment could help the children with impairments see themselves as part of the social world
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45 and peer groups, and thus help to create positive representations of themselves and ultimately
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47 promote mental well-being. From the perspective of educators, the toys used in this study could
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49 be useful for teachers and other educators who wish to foster an anti-bias approach in their settings.
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54 As Derman-Sparks and Ramsey (2011) argue, toys and other classroom materials that reflect
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3 diversity are a key way of exposing children and families to difference and fostering an approach
4 that challenges stereotypes. However, to avoid a 'tourist' approach to difference (e.g. Derman-
5 Sparks et al 2015), the toys could be used actively as a prompt for dialogue with children and
6 families, with the goal of developing 'comfort and joy with human diversity; accurate language for
7 human differences; and deep, caring human connections' (Derman-Sparks and Ramsey 2011, 30).
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15 Research has shown that imagined contact has positive implications for reducing prejudice
16 among children without impairments (e.g., Cameron et al., 2011). A small body of work has also
17 looked at the role of diverse toys on attitudes. In a study by Srinivasan and Cruz (2015), children
18 aged 6-13 years used ethnically diverse dolls to verbalize their knowledge of 'race'. Children were
19 able to articulate how they related to these dolls. In a similar vein, toys representing impairment
20 might enable children without that impairment to voice their knowledge and beliefs around
21 disability, such that their attitudes can be explored with adults.
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30 31 **Limitations and Future Directions**

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33 Some limitations of this study should be mentioned. The "child direct contact" variable
34 had a low Cronbach's alpha, making replication of this finding important. Additionally, data
35 were collected from parents online, in the UK, and in English. The sample included parents of
36 children with different impairments. However, this sample was not fully representative.
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41 Moreover, the toy market is a fast-moving one. There is a need then to survey parents in other
42 countries about their views on toys representing impairment. It would also now be possible to
43 look at parents' and children's responses to commercially available toys, since Lego,
44 Playmobil, and Mattel have all released toys that represent physical impairment. Relatedly,
45 although parents buy toys for their children, children have an influence on what parents buy for
46 them. As such, it will be necessary to look at children's responses to these toys, and to consider
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3 other factors influencing their purchase, in future research. There were no interaction effects of
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5 gender here, since toys were gender-balanced. Nonetheless, given the abundance of research on
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7 the role of gender in toy choice (e.g., Freeman, 2007) it will be important for future research to
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9 look at the role of gender in toys that represent impairment.
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12 At a theoretical level, it is also worth considering again the limitations around the very
13
14 nature of representation. That is, that this paper worked from the viewpoint of the social model
15
16 of disability: that it is the notable *lack* of representation from the toy industry that is the cultural
17
18 barrier to inclusion, rather than any impairment, because such representation would affirm that
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20 children with impairments are not ‘other’. An alternative perspective is offered by the cultural
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22 model of dis/ability (Waldschmidt, 2018). This takes issue with the social model in contending
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24 that “disability” is not a clear-cut category, but one whose content can only be interpreted in light
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26 of what one understands “ability” to mean (Waldschmidt, 2018). This being the case, in
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28 constructing toys that purport to represent physical impairment, and research on their impact, it
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30 will be critical that varying ways of imagining dis/ability are portrayed, and that participants are
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32 asked about the extent to which they identify as having a disability, rather than categorizing on
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34 the basis of whether a disability was disclosed.
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40 Another limitation is that, although the sample contained children with a range of
41
42 different impairments, the toys only represented physical impairment. This distinction is
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44 important as it could potentially mean a different result in play propensity, as indicated by
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46 Venkatesan and Yashodharakumar (2017). Participants in this study were parents of children
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48 with developmental impairments, and they reported more negative attitudes toward toys made
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50 for children with developmental impairments. They believed that toys would bore or overwhelm
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52 the children, and therefore would not be used. This could explain why children with
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3 developmental impairments often have few toys to play with at home (Venkatesan, 2014). The
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5 findings of the present study are specific to parents responding to toys representing physical
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7 impairment, and that the findings cannot be generalized to toys for children with developmental
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9 impairments, without critique.

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12 Furthermore, even though the sample of this study included parents of children both with
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14 and without a disability, it looked at parents' predictions about their child's attitude towards toys
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16 representing impairment, not their actual behaviour. This measures how they would react to such
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18 toys; however, it lacks information about the possible change in their attitudes and interactions
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20 with disabled people in real life after being exposed to the toys. Future research could focus on
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22 this by children not experiencing impairment, as exposure to these toys and familiarizing oneself
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24 with impairment at a young age might lead to greater openness, more acceptance and
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26 understanding of disability later in life.

30 31 **Conclusions**

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33 Since toys representing impairment arguably have benefits for positive representation
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35 and for prejudice reduction, identifying what draws parents towards them is essential. This study
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37 identified key determinants of parents' perceptions of the likelihood that their child would play
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39 with a toy representative of impairment. It indicated that more positive perceptions among
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41 parents of children without impairments are linked via direct contact with others with
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43 impairments, to parental openness around disability. For parents who identify their child as
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45 having a disability, these perceptions were linked via friendship facilitation attentions to parental
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47 openness around disability. Future research could usefully consider children's responses to these
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49 toys, in relation to their parents' openness, friendship facilitation and their direct contact
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51 experiences.
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60¹Footnote

Indeed, it is possibly due to the guidance from the American Psychological Association and the American Sociological Association. that across the academic literature over the past thirty years, the language that is used to refer to impairment has shifted. This, together with a number of models that have been used to frame impairment, and which are reviewed here, has resulted in a mixture of person-first and disability-first language being used. In this paper, this mixture continues, because whilst recognizing that language has changed, we have not sought to change the language used by other authors whose work we cite here.

Table 1. Means and correlations between key dependent variables. Children without an impairment (below diagonal) and children whose parents did identify them as having an impairment (above diagonal).

	1	2	3	4	5	6	7
Mean: with an impairment (SD)	3.51 1.19	5.64 1.01	2.65 0.74	3.88 0.90	6.27 2.23	-	-
Mean: without an impairment (SD)	3.23 1.02	6.08 0.73	2.77 0.80	3.83 0.89	6.37 2.17		
1. Parental Openness	-	.221**	.293**	.054	.065	.107	.047
2. Parental Positive Intentions	.303* *	-	.333**	.266**	-.070	.060	-.113
3. Child Direct Contact	.521* *	.170*	-	.135	-.043	.035	.173
4. Prototype Play Propensity	.105	.192*	.168	-	-.333**	-.367**	-.168
5. Age	.158	.010	.036	-.326**	-	.090	-.075
6. Sex	.041	-.108	.097	-.278**	-.020	-	.073
7. Parental Disability	.360* *	.241	.351*	.022	.072	.026	

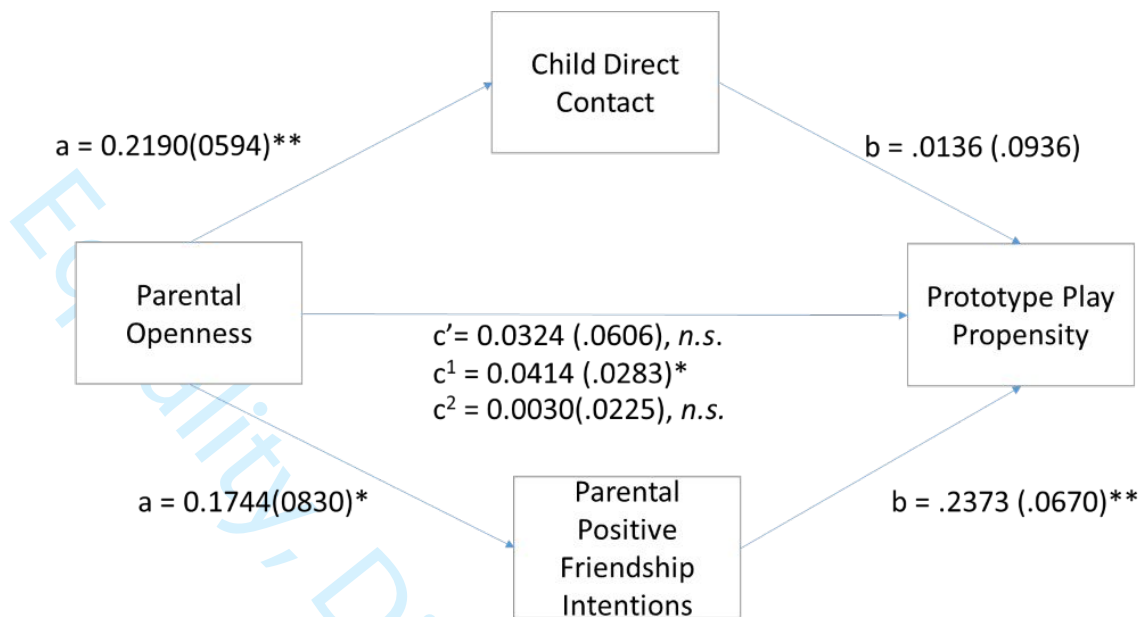
* $p < .010$, ** $p < .001$

Gender: 0 = Female, 1 = Male, Parental Disability: 0 = No, 1 = Yes

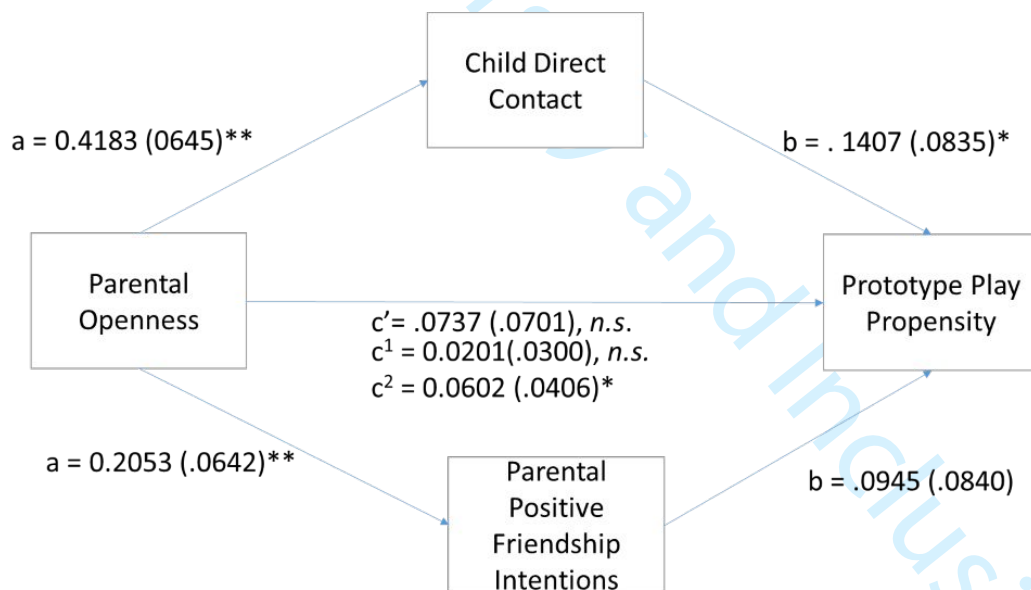
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Figure 1. Toys representing physical impairment



(a) children whose parents identified them as having a disability



(b) children not identified as having a disability

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Figure 2. Multiple mediation model of Child Direct Contact and Parents' Positive Friendship Intentions on the link between Parental Openness and Prototype Play Propensity for children whose parents identified them as (a) having a disability (b) not having a disability.

Equality, Diversity and Inclusion