

Disability simulation: Developing a school-based intervention to promote positive attitudes
towards children and adolescents with postural care needs

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Although a significant amount of the UK population is disabled, 43% of the British public do not know anyone who has a disability, while 67% say that they feel uncomfortable having a conversation with a disabled person (Aiden & McCarthy, 2014). For such reasons, disabled people frequently deal with negative attitudes within their daily life. To counteract these harmful attitudes, many feel that a greater understanding of disabled people's needs and capabilities should be encouraged among non-disabled people.

Positive attitudes and understanding can be shaped at an early age and the UK's policy of inclusion (see Education Act, 1996; Special Educational Needs and Disability Order, 2005) means that most disabled children now attend mainstream education, therefore, the school environment represents a valuable first opportunity for many non-disabled children to develop positive disability attitudes. However, recent research conducted by Bossaert et al (2012) highlighted that students with special educational needs are at a greater risk of experiencing loneliness in mainstream schooling. Research on how effective contact with disabled children is at achieving these positive attitudes towards disability is mixed. In fact, this evidence suggests that, unless interactions between non-disabled and disabled children take place under strictly positive conditions, such contact may well worsen disability attitudes (Maras & Brown, 2000). Unfortunately, it is difficult to ensure that these interactions always take place under the best conditions. For example, class sizes in some schools may be large, meaning teachers cannot always make sure contact between non-disabled and disabled children possesses positive features like co-operation and equality.

In light of this, researchers have begun to test whether less direct school-based interventions may be able to improve children's disability attitudes. Such investigation has already highlighted some promising avenues. For example, initial evidence suggests that asking children to simulate positive interactions with disabled peers via their imagination improves disability attitudes (Cameron, Rutland, Turner, Holman-Nicolas & Powell, 2011). However, so far, research

has not explored whether other forms of simulation may have a similar beneficial impact. In particular, encouraging non-disabled children to simulate physical and postural impairments may provide a powerful route to helping them understand the needs and capabilities of disabled people.

Moreover, recent research amongst adults has found promising findings for disability simulation. For example, Hutton and colleagues (2011) developed a postural care education intervention programme entitled “An A to Z of Postural Care”. This work allowed teachers and parents of children with postural care needs the opportunity to simulate what it is like to have compromised postural control, and the impact this has on functional ability (e.g. the simulation of an everyday task, such as drinking from a cup, from the perspective of someone with postural care needs¹). In their evaluation of the “A to Z” program, the postural care disability-simulation aspect of the program was found to be the most memorable and fun component. Moreover, many participants reported increased knowledge, understanding, confidence and empathy towards children with postural care needs as a result of the “A to Z” program.

This type of training approach is novel but has been trialled and evaluated (in the “A to Z” program), and it is currently used by occupational therapists and physiotherapists in existing training sessions with adults who care for children with postural care needs. Considering the positive effects of this prior work, the current project aimed to adapt the postural care intervention programme to target *children and adolescent’s* attitudes towards disabled peers with postural care needs. The activities that were previously used with adults to simulate some of the challenges faced by young people, who have limited postural control, were piloted within Primary and Secondary school children and adolescents. Importantly, rather than simply simulating the disability (such as sitting in a wheelchair, which has been the basis of previous disability-simulation research), the current research engaged participants in activities that simulated what it is like to try to *complete a task* with postural care needs, for example: simulating walking. Moreover, this project aimed to also identify new activities that both disabled and non-disabled

children can engage to simulate *school-based activities* from the perspective of a child with postural care needs (i.e. key functional tasks in school, e.g. handwriting).

In addition to piloting the 'A to Z' activities with children and adolescents, another key aim was to develop and test the reliability of a measure of attitudes towards those with *postural care needs*. Previous research with children and adolescents has measured more general attitudes towards disability (Bossaert & Petry, 2013; Bossaert et al. 2012; Cameron & Rutland, 2006; Laat et al, 2013). Therefore, in order to more specifically measure attitudes towards those with postural care needs a new measure was designed and piloted.

In summary, the aim of this project was to develop an intervention to improve the attitudes of non-disabled school children and adolescents towards those with postural care disabilities. The specific objectives were two-fold: 1) To develop postural care disability-simulation activities that can be used as an intervention with school children and adolescents, 2) To develop a measure suitable for non-disabled children and adolescents, measuring their attitudes towards those with *postural care needs*.

Method

Design

This pilot research was designed to have two components: 1) the design and evaluation of the disability-simulation activities and 2) the design and evaluation of the measure of attitudes towards those with postural care needs. The first component was experimental, piloting several activities with children and adolescents in small groups of 4 to 5. The second component comprised of a questionnaire design, which was completed by children and adolescents individually, whilst in class.

Participants

A total of 112 children and adolescents took part in the research. For the first component, the evaluation of the disability-simulation activities, participants included: 8 children (aged 10-11 years) who took part in 2 groups of 4 and 12 adolescents (aged 13-14 years) in 3 groups of 4. For

the second component, the evaluation of the attitude measure, participants included: 52 children (aged 10 to 11 years) and 60 adolescents (aged 11-16 years).

Materials

Following a literature review of existing disability measures and the discussion of the measures at the steering group meeting, the measure that the current research was grounded in was the recently adapted CATCH (Chedoke-McMaster Attitudes Towards Children with Handicaps) measure by Armstrong, Morris, Abraham, Ukomunne and Tarrant (2015).

Attitudes towards postural care needs. The Armstrong et al. (2015) was adapted to refer specifically to postural care needs and a definition of postural care needs was provided at the start of the questionnaire. Each item of the CATCH (Armstrong et al. 2015) scale was adapted to refer to postural care needs, rather than physical disability more generally, for example, “I would worry if a child with a *physical disability* sat next to me at school” was adapted to “I would worry if a child with *postural care needs* sat next to me at school”. Finally, the wording was slightly different for the final child and adolescent versions of the measure, in that the child version referred to “a child with postural care needs”, whereas the adolescent version referred to “a teenager with postural needs”. To see the full final version, please see the Appendix.

Procedure

The current research took place in five phases: **Phase 1** involved gaining ethical approval (Reference 14/SAS/198). **Phase 2 and 3** involved the development and evaluation of the disability-simulation activities and **Phase 4 and 5** consisted of the development and evaluation of the attitude measure.

Phase 2 involved the development of the disability-simulation activities. Firstly the steering committee (previously established from the previous “A to Z” program) met and decided on several disability-simulation activities to pilot with children and adolescents. During this meeting the Movement ABC was suggested as a potential method of obtaining age appropriate

activities. Through further research and email and phone correspondence, it was decided that the Movement ABC would be used to form the basis on the simulation activities.

Phase 3 involved the evaluation of the disability-simulation activities. To evaluate the activities children were interviewed after completing the activities. They were asked how difficult they found the activities and what they thought they learnt from each activity, to identify any knowledge, empathy and skills gained.

Phase 4 comprised of the measure development. The principle researcher developed a list of measurement items that were grounded in previously validated psychological measures of children's and adolescent's attitudes towards physical disabilities. This initial list of items was discussed with the steering committee (which consisted of developmental psychologists, parents, teachers, and occupational therapist and physiotherapists). The final list of questions and the response format was discussed and agreed before piloting.

Phase 5 consisted of the reliability and validity analyses of the attitude measure. The resulting items agreed by the steering committee were piloted with 112 children (52 in Key Stage 2 and 60 in Key Stage 3, covering 10-14 years of age). Responses were analysed using principal component analysis (in order to examine the factor structure of the scale) and scale reliability using Cronbach's alpha (in order to determine internal consistency of the scale).

Results

Pilot of the disability-simulation activities

A total of 11 activities were piloted, each of which were developed from the Movement ABC. Table 1 shows the mean scores for each of the activities for feedback on the participants enjoyment of the activity, how difficult they found the activity and whether they thought it helped them understand what it would be like to have a postural care need. Each of these three measures were measured on a 5 point Likert scale, with a higher score associated with greater levels of enjoyment, difficulty and understanding.

Table 1. *Mean scores for enjoyment, difficulty and understanding for each of the 11 disability-simulation activities that were piloted.*

Activity name	Enjoyment	Difficulty	Understanding
Standing	4.06	3.12	4.60
Walking	3.78	3.56	3.13
Drawing	3.75	2.67	3.50
Nuts and bolts	3.57	3.00	3.75
Threading a safety needle	4.50	3.50	4.50
Throwing a ball	3.86	2.43	3.29
Turning pegs in a board	4.40	2.40	3.75
Balancing a ball on a board	4.00	2.33	2.33
Bounce and catch a ball	4.20	2.40	4.00
Catch a beanbag	4.50	2.00	3.20
Throw a beanbag into a box	3.25	2.40	3.50

Note. Means reports to 2 decimal places.

In addition to the quantitative feedback on the piloting of the activities, qualitative feedback was obtained after each activity. Students were asked to write down and discuss with the researcher their answers to each of the following prompt discussion questions: 1) In what ways (if any) have your thoughts or feelings about children/teenagers with postural care needs changed? 2) Do you think your behaviour will be different the next time you interact with a child/teenager with postural care needs? If yes, in what ways? 3) What kind of barriers did you encounter, and how did they affect your performance? 4) Do you feel more confident about interacting with a child/teenager with postural care needs in the future? 5) Do you feel less concerned about interacting with a child/teenager with postural care needs in the future? 6) Do you think you have gained more knowledge or understanding of children/teenagers with postural care needs?

There was variability in the responses giving to these feedback questions. However, most of the adolescent participants expressed feelings such as greater empathy and understanding. Some reported that they would be more patient in the future due to greater understanding of the difficulties of being unstable or “wobbly”. Overall, the feedback was positive and the majority of participants understood the purpose of the disability-simulation and felt they took away some understanding from the exercise.

Pilot of the postural care needs attitude measure

Responses were analysed using principal component analysis (in order to examine the factor structure of the scale) and scale reliability using Cronbach’s alpha (in order to determine internal consistency of the scale). Principle component analysis revealed 4 factors, rather than the 2 factors expected (e.g. affective attitudes and behavioural intentions). However, reliability analysis revealed good reliability for the scale, Cronbach’s alpha =.88. Comparison of the reliability for the two age groups, revealed an expected higher, notably excellent, reliability amongst the adolescents (Cronbach’s alpha=.92), compared to a lower, yet still good reliability amongst the children (Cronbach’s alpha=.81). No items were found to have a low total correlation ($\leq .3$) or to significantly improve the Cronbach’s alpha if deleted, therefore, no items were excluded from the scale.

Discussion

The findings from this pilot project are promising. Firstly, the current research developed and evaluated a bank of 11 disability-simulation activities. The quantitative and qualitative findings demonstrate that the activities were well-received by both children and adolescents. Importantly they were seen as enjoyable, they were not reported as too easy or difficult, and they each were found to provide some understanding of what it would be like to have a postural care need. Secondly, the current research successfully developed two reliable measures of attitudes towards those with postural care needs, one to be used with children and another amongst adolescents. We predicted that the children and adolescents involved will gain knowledge,

understanding, empathy and social skills. These pilot study findings suggest that there is support for these predictions and that these disability-simulation activities, grounded in the 'A to Z', could prove a fruitful for further research.

Dissemination of the findings was shared at a steering group meeting in December 2015. The findings were well received and the steering group and I are keen to pursue this research further. The next phase will be to secure funding for a large-scale systematic evaluation of the intervention developed in this pilot study. Further dissemination will be held back until future funding has been secured to systematically evaluate the effectiveness of the intervention developed from this important preliminary work.

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Appendix A

Full Child/Teenager Questionnaire

When your teacher tells you to “sit up straight” or to “stop leaning back on your chair” it is because they are trying to help you to have a good posture. Good posture means that you are sitting, standing, exercising or relaxing in a position that is healthy and is good for your body. Some *children/teenagers* have disabilities that can mean that they do not have good posture. Teachers would say that they have **postural care needs**. This means that they need help to keep a good posture. For example, they may need to use equipment (like a cushion to sit on, something to help them walk or a wheelchair) or they might need to do exercises. We would like you to answer some questions about what you think about **disabled children/teenagers with postural care needs**. Please read each of the following questions and put a tick in the answer that is most true for you.

1. I would worry if a disabled child/teenager with postural care needs sat next to me at school

Strongly disagree	Disagree	Can't decide	Agree	Strongly agree
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2. I would be afraid of a disabled child/teenager with postural care needs

Strongly disagree	Disagree	Can't decide	Agree	Strongly agree
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3. I would be happy to have a disabled child/teenager with postural care needs best friend

Strongly disagree	Disagree	Can't decide	Agree	Strongly agree
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4. I would be unhappy if a disabled child/teenager with postural care needs invited me to their house

Strongly disagree	Disagree	Can't decide	Agree	Strongly agree
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5. I would feel good doing a school project with a disabled child/teenager with postural care needs

Strongly disagree	Disagree	Can't decide	Agree	Strongly agree
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6. Being near a disabled child/teenager with postural care needs scares me

Strongly disagree	Disagree	Can't decide	Agree	Strongly agree
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7. I would be embarrassed if a disabled child/teenager with postural care needs invited me to their birthday party

Strongly disagree	Disagree	Can't decide	Agree	Strongly agree
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8. I would enjoy being with a disabled child/teenager with postural care needs

Strongly disagree	Disagree	Can't decide	Agree	Strongly agree
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9. I would introduce a disabled child/teenager with postural care needs to my friends

Strongly disagree	Disagree	Can't decide	Agree	Strongly agree
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10. I would stick up for a disabled child/teenager with postural care needs if they were being teased or bullied

Strongly disagree	Disagree	Can't decide	Agree	Strongly agree
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11. I would invite a disabled child/teenager with postural care needs to my birthday party

Strongly disagree	Disagree	Can't decide	Agree	Strongly agree
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12. At school I would talk to a disabled child/teenager with postural care needs I did not know

Strongly disagree	Disagree	Can't decide	Agree	Strongly agree
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13. I would invite a disabled child/teenager with postural care needs for a sleep over at my house

Strongly disagree	Disagree	Can't decide	Agree	Strongly agree
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14. I would tell my secrets to a disabled child/teenager with postural care needs

Strongly disagree	Disagree	Can't decide	Agree	Strongly agree
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15. I would go to a disabled child/teenager with postural care needs house if I was invited

Strongly disagree	Disagree	Can't decide	Agree	Strongly agree
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16. At school I would miss break time to spend time with a disabled child/teenager with postural care needs

Strongly disagree	Disagree	Can't decide	Agree	Strongly agree
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ⁱ 'Postural care' can be described as the constant promotion of good posture to enable an individual to participate in all activities, thus enabling them to fulfil their potential. 'Postural care needs' refers to any need (e.g. a disability or otherwise) that requires an individual to have additional equipment, therapy or other support to ensure good postural care.