

REPORT

The effect of drama activities on speech production in children with dysarthria: a survey of parental perceptions

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Summary

Taking part in performing arts activities that include vocal activities such as group singing, and drama classes can have psychosocial benefits (Barnish & Barran, 2020). Recent evidence suggests that there are potential therapeutic benefits of such activities for adults with dysarthria (e.g. Abell et al., 2017; Fogg-Rogers et al., 2016). However, there is limited knowledge on whether children with dysarthria might equally benefit from vocal performing arts activities. This report is based on a project that aimed to determine whether children with dysarthria benefit from drama classes in a similar way as adults. For this purpose, a survey was developed and distributed to parents, whose children have dysarthria and participate in drama workshops offered by a small charity in Scotland. Parental reports showed that their children benefit from these activities, not just in terms of psychosocial development such as self-confidence, but also in terms of greater clarity of speech as well as increased communication participation in social contexts.

Introduction

Participating in performing arts activities can have psychosocial benefits including increased self-confidence (Barnish & Barran, 2020; Barnish et al., 2017). In recent years, there has been increasing interest in the potential therapeutic benefits of such activities for people with speech problems, in particular performing arts that involve vocal activities such as group singing, as well as drama and theatre classes. For instance, group singing was found to improve health-related quality of life and mood in adults with motor speech disorders, also known as dysarthria, due to Parkinson's disease (PD; Abell et al., 2017; Fogg-Rogers et al., 2016; Irons et al., 2021). In addition, some participants reported improvements in breathing and voice quality (Fogg-Rogers et al., 2016). These findings suggest that group singing can have positive effects on psychosocial aspects of life, as well as improve speech in people with dysarthria due to PD.

Psychosocial benefits including increased self-confidence were also observed in children and young people with learning disabilities (LD), who participated in performing arts activities, particularly drama workshops (e.g. Wu et al., 2019; Zyga et al., 2018). Losardo and colleagues (2019) further offered theatre training sessions to young people with LD to specifically work on their speech and communication skills and reported measurable improvements regarding targeted speech goals in terms of intelligibility, fluency, voicing as well as the ability to initiate

social conversations. This observation was supported by parents' reports, who noticed gains in self-confidence and improvements in speech.

Whilst these findings are promising, they are currently limited to children with LD. We currently do not know whether children with dysarthria, which can be due to physical disabilities such as cerebral palsy might also benefit from drama activities. Our research addressed this knowledge gap by determining whether taking part in drama classes has an impact on children's speech, communication participation and social skills.

Aims

Our project investigated whether children with dysarthria as a result of e.g. cerebral palsy might benefit from drama classes and, if so, whether the benefits are psychosocial in nature or extend to improvements in speech production and communication participation.

Methods

Parents and carers of children with dysarthria were asked to complete a cross-sectional online survey. The survey was specifically developed to determine any changes parents may have noticed regarding their children's speech, communication participation and social skills as a result of taking part in drama workshops. The drama classes were offered by *Speech Bubble*, a small Scottish charity that aims to empower vocal confidence in young people aged 5-24 years, who have physical disabilities as a result of e.g. cerebral palsy that affect their speech. The charity works with experienced vocal coaches, who provide tailored weekly online one-to-one and group sessions for children across Scotland.

The online survey was specifically designed for this project using Qualtrics. Thirty-five binary choice questions, Likert scale questions and open questions were used to collect information on children's speech production - including respiration, phonation, resonance and articulation -, communication participation, and social skills. The survey was distributed by the charity to all parents whose children participated in drama classes at the time. Participants accessing the survey were provided with a participant information sheet and asked to consent to their data being collected in an anonymised way before proceeding to the survey questions. The survey took 15 minutes to fill in and had to be completed in one sitting. The survey was available in December 2021 and was open for six weeks for the parents to respond. Results were analysed using descriptive statistics.

Responses – Demographic information

Six parents responded to the survey (50% response rate) and all responses were included in the analysis. Responses were provided for four girls and two boys, aged between 6-18 years, who attended sessions for 1-24 months. In terms of frequency of sessions, all children attended weekly sessions, which were either group sessions (2 children) or group as well as one-to-one sessions (4 children). Children's motor speech difficulties were reported as moderate (four children) or severe (two children). Only one parent reported that their child attended speech and language therapy services at the time.

Key findings

Parents reported improvements in all areas investigated i.e. speech, communication participation and social skills.

Speech

In terms of speech production, all parents reported improvements in one or more speech subsystems, i.e. respiration, phonation, resonance and articulation, as a result of attending drama classes.

Respiration: Five out of six parents reported that their children can produce more words in one breath. Two parents further reported that their children's speech is either less rushed towards the end of utterances, less breathy and/or less effortful. None of the parents reported a change in speech rate as a result of participating in drama classes.

Phonation: Parents noticed voice-related improvements, with four respondents reporting that the children's voice is louder and more stable. One parent recorded that their child's voice is less audibly strained, and the pitch is no longer as low as it used to be.

Resonance: In terms of resonance, two parents reported that their children's speech is less nasal.

Articulation: All parents reported improvements in articulation, in particular speech clarity, with three parents reporting considerable improvements, two parents reporting moderate improvements and one parent reporting a slight improvement. Specifically, half of the parents reported that most of their child's speech sounds are clearer, while two parents reported that some sounds are clearer. One parent stated that all speech sounds are clearer. Four parents further noticed improvements in terms of speech intelligibility, reporting that they find it easier to understand their child. The same parents also reported that friends and family as well as unfamiliar people find it easier to understand their child.

Communication participation

All parents reported improvements in aspects of communication behaviours, whereby changes ranged from slight to remarkable. Specifically, parents reported remarkable improvements for asking questions and seeking clarifications (4/6), listening to others (3/6) and willingness to share ideas (3/6). Moderate improvements were reported in the children's ability to maintain a conversation (4/6) and to express themselves (3/6). All parents further reported an increase in their child's interest to start a conversation (2 – remarkably; 2 - moderately; 2 – slightly). Similar patterns were found for actively engaging in conversations (2 – remarkably; 2 - moderately; 1 – slightly; 1 – no change). Turn taking behaviours improved for some children but not for all (2 – remarkably; 1 - moderately; 1 – slightly; 2 – no change). The same was found for showing agreement/disagreement (2 – remarkably; 2 - moderately; 2 – no change).

Since attending drama classes, all parents reported that their children engaged more readily in conversations with others. Children were most likely to engage more with family members (6 responses), followed by friends (5) and neighbours (4). Two children would also be more likely to start a conversation with people they did not know, i.e. strangers.

Social skills

Five of the six respondents noticed an improvement in their child's social skills, with one parent reporting no changes. The five parents, who noticed improvements, reported that their children have become more self-confident. In addition, three parents observed that their child finds it easier to make friends as well as understand and express emotions. Being more cooperative and more sociable overall was reported by another two parents, respectively.

Additional findings

Wellbeing

In terms of wellbeing, five parents reported that their child enjoys attending the classes and that they look forward to the next class. The same number of parents agreed that their child is happier as a result of attending the classes and that the classes can help reduce children's stress levels.

Physical changes

As part of the survey, parents were asked whether they have noticed any physical changes. Four parents did report improvements in physical skills, with three noticing less drooling and better lip closure. One parent further reported improvements in overall posture.

Overall benefit of attending drama classes

Parents were also asked to give reasons for their child to join the drama classes. All six parents, who responded to the survey, wanted their child to make friends, become more confident and learn new skills. Five parents further wanted their child to have fun and hoped their child's communication and speech would improve.

Four of the six parents specified that their child benefitted considerably from attending the classes, whereas two of the parents reported moderate benefits. When asked about the most beneficial aspects for their child, five parents provided more in-depth text answers. Thematic analyses showed that one of the greatest benefits of attending drama classes was improved self-confidence, which was mentioned by four parents. Three parents further reported improved social interactions and a stronger understanding of social interaction as particularly beneficial. Improved speech and meeting new people or being part of a social group, was considered beneficial by two parents each. One parent reported that the interest in drama has led to a greater interest in reading and writing overall. Some of the benefits were echoed in the comments parents' made when asked about additional thoughts on their child's speech:

'I can see it having huge benefits to [...]s confidence and ability in social situations.'

'One of the most powerful things they have gained is that they now have an awareness that their speech can be influenced by things that they do e.g. taking a breath at the right time, altering posture etc.'

'Improvement in clarity is a massive benefit'

Discussion

Parents reported improvements in all areas investigated i.e. speech, communication participation and social skills. This finding suggests that children with dysarthria, who participate in drama classes, benefit from vocal performing arts activities, and that these benefits extend beyond psychosocial aspects.

Our results show that psychosocial benefits such as increased self-confidence were one of the key benefits parents reported as a result of their child attending drama classes. This mirrors findings from the literature, which found increased self-confidence in children and young people with LD who participated in performing arts activities including theatre sessions (Wu et al., 2019; Zyga et al., 2018). This finding shows that children with dysarthria due to physical disabilities do benefit from performing arts activities in a similar way as children and young people with LD, by enabling the child to develop confidence to interact with their social environment.

Similar to Losardo et al. (2019) our research also found that parents noticed improvements in speech production. The improvements reported were related to the subsystems of respiration and phonation, with almost all children being able to say more words in one breath and having a louder and more stable voice. Fewer or no changes were reported for resonance. The greatest changes, however, were reported for the articulatory subsystem, which - according to parental reports - showed improvements in all children. The improvements reported in terms of articulatory clarity and precision led to perceived changes in speech intelligibility, with the majority of parents reporting that family, friends and unfamiliar people find it easier to understand their child. This again ties in with Losardo et al.'s findings (2019) of improved intelligibility as a result of attending theatre workshops.

The observed changes associated with the respiratory, phonatory and articulatory subsystems are most likely to be a result of children participating in repeated, intensive activities that target these areas. The workshops offered by *Speech Bubble* comprise a range of activities including, drama exercises as well as vocal exercises. The latter comprise specific activities on breathing and articulation, and are aimed at improving volume, clarity and diction. Some of the children attended the drama classes regularly for at least 18 months, which means they had the opportunity to practice relevant vocal activities over an extended period of time. According to the principles of motor learning, frequent, intensive practice is required to establish and retain new, functional patterns. As a motor skill, speech production is assumed to be governed by these principles (Maas et al., 2008). Current dysarthria intervention approaches are based on motor learning principles, and it is likely that the vocal exercises that are part of the drama classes follow these motor principles in similar ways. In addition, similar to some dysarthria intervention approaches, the vocal exercises in the drama classes focus on the vocal signal to achieve loud, clear speech. In combination with the work on posture and breathing, which might allow children to develop better control of breath for speech, the vocal exercises might lead to more precise articulation and improved speech intelligibility. The repeated practice of relevant activities might also explain some of the physical changes observed, with e.g. better lip closure being a result of repeated exercises targeting the muscle groups required for this movement.

According to our findings, attending drama classes has also led to perceived positive changes in terms of general communication abilities, which again mirrors findings from Losardo et al.

(2019). Specifically, parents reported improvements in social interactions through improved conversation skills. Attending drama classes has enabled some of the children to initiate conversations more readily, and to maintain these conversations. This might be related to the improved confidence reported by parents. The drama exercises that are part of the classes are aimed at encouraging participants to engage in imagination and creative self-expression, allowing them to develop and increase confidence within themselves and when interacting with others.

It is important to highlight though that this research reports the findings of a small number of respondents only. The observed improvements, whilst promising, can therefore not be generalised. In addition, the children, who participated in the drama classes varied considerably in terms of their age as well as how long they have participated in the drama activities. In the future, it would be beneficial to conduct this research with a larger number of children and parents as this would allow subset analyses to explore whether participation in drama classes over a longer period of time leads to greater improvements and whether other factors such as age and severity of dysarthria influence outcomes. Further studies are also needed to quantify the observed speech changes using objective measures. Finally, the views of the children and young people participating in the drama workshops should be sought to get an understanding of their perspective.

Conclusions

Practising drama activities in an enjoyable, social context has led to improvements in all areas investigated, with particular benefits noticed regarding children's self-confidence and greater engagement in social interactions and conversations. Improvements with regard to speech, in particular speech clarity and intelligibility, were also noted, and considered important to parents. Overall, it can be concluded that parental expectations and reasons for their children to join drama classes have been met, with children becoming more confident communicators in a social context that enables them to make friends and learn new skills.

Key points

- Children with dysarthria benefitted from participating in drama classes, with parents reporting improvements in their children's self-confidence, speech production, communication participation and social skills
- Improvements also extended to physical changes such as better posture and lip closure for some children with dysarthria
- Further studies are needed to explore the mechanisms of change and to quantify observed changes using objective measures

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