

Disclosures

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Relevant financial relationships:

- Employed at University of Aveiro, Portugal;
- University of Aveiro, Portugal funded the travel to ASHA;
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Relevant nonfinancial relationships:

- Serves as reviewer for several peer-reviewed journals;
- Member of the The Acoustical Society of America (ASA), International Phonetic Association (IPA) and International Speech Communication Association (ISCA).

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Views of Service Users on a Novel Intervention for Children with Speech Sound Disorders: Design and Pretesting

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Background

Children with **Speech Sound Disorders (SSD)** represent a **significant proportion** of speech and language therapists' paediatric **caseload**.

Several **off-the-shelf tabletop** and **digital materials** are used by speech and language therapists (SLTs) to support intervention, but **information about their differential effectiveness** and **efficiency** is **limited**, particularly for non-English speaking populations.

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Background

Getting **feedback** is **essential** when developing materials.

When developing the Table to Tablet (T2T) intervention materials we had an **additional challenge** – the **participants** giving the feedback were **children with SSD**.



T2T is an intervention programme for SLTs in Portugal based on proven methodologies (Gillon, 2008; Hodson & Paden, 1991; Jesus, et al., 2015; Lancaster, 2008; Lousada et al., 2013), that coexists in a physical and a digital version.

More details will be presented at the ASHA convention on the 19th of November 2016, and I will be happy to talk more about it during the break.



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The T2T intervention areas

- Auditory bombardment
- Hearing and discrimination
- Grapheme-phoneme correspondence
- Phoneme identity
- Segmentation
- Blending
- Rhyme
- Phoneme manipulation

18 activities
+
Generalisation
task

A wide range of
illustrations,
animations and
scenarios are
included.

19 most common
European Portuguese
phonological
processes targeted

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Background

Studies including the [perspectives of children are rare](#), and those that do, rely on their [ability to express opinions](#).

This is a particular challenge for children with SSD who might struggle to understand and express themselves (Read, 2008; Bowen, 2015).

Design principles formulated for adults cannot simply be scaled down for children because they have their own needs and goals which may not necessarily be met by tools designed for adults (Druin, 1996).

Therefore an adapted [beta test approach](#), particularly in terms of their procedures and steps of their reporting systems was used to obtain feedback from the users.

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Aim

To obtain qualitative feedback of service users regarding user experience and user interaction on the developing T2T materials (piloting the materials before using them with a wider sample).

Method

To overcome the difficulty in obtaining feedback from children with SSD, an [adapted beta test approach](#)* was used.

Feedback from children was obtained using an [adapted Likert scale - smileyometer](#) (Read, 2008).

This feedback allowed us to:

- Better understand how children perceived the activities;
- Test if the materials were engaging;
- Explore ways of improving them.

* empirical evaluation of the quality of the product or service with respect to what it was designed to operate (Kaner, 2006)

Method

The T2T materials have been trialled on 9 children with phonologically based SSD (mean age = 56 months).

Feedback was obtained using direct observation of the children and gathering children's opinion based on a Likert style scale with smiles (a smileyometer) the children were asked a series of questions to target their views of the materials used (Read, 2008).

Method

Direct Observation

What were we looking for?

- How the children would interact with the materials and application.
- How could we improve this interaction?

Who did it?

- Observation done by the therapist.

How did we do it?

- During the intervention sessions, when applying each activity, looking at how children behave and annotating their behaviour.

Method

Questions asked:

Q1 - Did you like to play this game?

- Possible answers: 1 - I did not; 2 - A little; 3 - Liked, 4 - Liked a lot; 5 - Loved it

Q2 - Was it fun?

- Possible answers: 1 - No; 2 - No much fun; 3 - Some fun; 4 - Fun; 5 - A lot of fun

Q1 & Q2 Likert scale (adaptation from Read, 2008)



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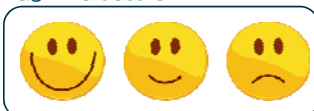
Method

Question asked:

Q3 - Would you play it again?

- Possible answers: 1 - Yes; 2 - Maybe; 3 - No

Q3 Likert scale



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Results

High levels of **satisfaction** across the activities with children **liking** the activities (Q1) and finding them **fun** (Q2). When asked if they wanted to **play them again** (Q3), the result was **yes**.

Q1		Q2		Q3	
Mean	SD	Mean	SD	Mean	SD
4.6	0.5	4.3	0.7	1.2	0.3

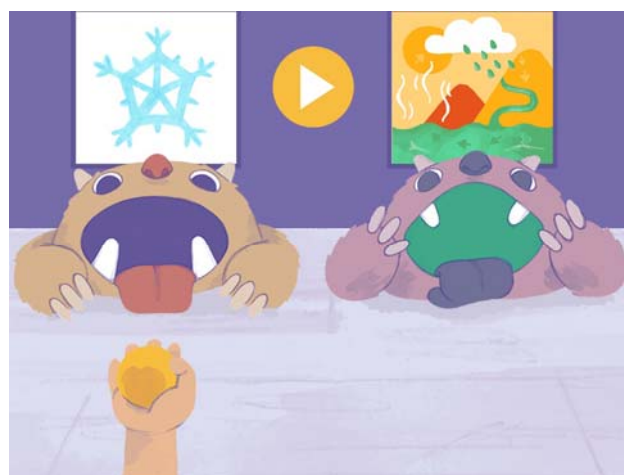
When combining the results of the likert scale plus the direct observation in a qualitative fashion, the team was able to perceive some areas of enhancement.

Modifications due to qualitative data gathering (e.g.)

Area: Hearing and Discrimination

Name: Munching Monsters

Description: The child is presented with two open mouth monsters each with an illustration of a minimal pair. At the bottom of the screen there is a hand with a ball moving sideways. The SLT presses "Play" and one of two possible words (minimal pairs) is heard. The child has to identify the corresponding image and release the ball with the right timing (into the mouth of the monsters). Digital audio feedback is given.



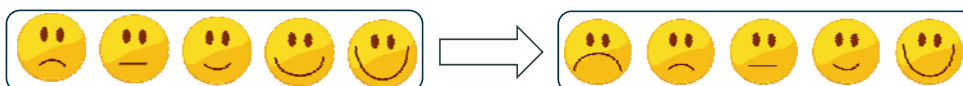
Initially, the action area that would trigger the ball release was the mouth of the monsters. After the application of this activity, the SLT observed that children were naturally inclined to press or even swipe the hand with the ball and not the monster (as initially thought). This was taken into consideration and the team changed the target area accordingly.

Conclusions

This way of obtaining feedback (likert scales plus direct observation) was found to be **facilitative**, **quick** and **efficient** and provided important opportunities for the children to provide input during their intervention, as well as for **ongoing refinement of the materials**.

Future Work

- Regarding the fact that the used smileyometer scale was not balanced in terms of presenting more perceived smiling faces than frowning ones, a change in this scale is suggested:



- Use this feedback strategy for a larger sample of children.
- Since the scale was applied by the therapist it may have influenced the results. Therefore it is suggested that someone else besides the therapist applies this scale in future studies.
- Apply the feedback to other activities and materials not yet tested such as traditional speech and language therapy, physical materials or digital educational apps currently available.

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