'Story Boxes': Using a Multisensory Story Approach to Develop Vocabulary in Children Experiencing Language-Learning Difficulties

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Abstract

One challenge faced by special education teachers in Sri Lanka is in the implementation of whole-class vocabulary enrichment activities. There has been a growing interest in using multisensory, interactive storytelling as a means of encouraging vocabulary development. This study aimed to evaluate the effectiveness of integrating local stories into multi-sensory story-telling and story-making activities as part of a whole-class speech and language therapy programme to assist the teaching and learning of target vocabulary.

Two local children's stories together with relevant story-telling and story-making activities were introduced to 30 children with language-learning difficulties accessing special education in the south of the country. The children received weekly storytelling sessions for 3 months via trained teaching staff. Receptive and expressive vocabulary measures were undertaken before and after the introduction of the approach together with teacher and parent comments.

There was a positive difference in the target receptive and expressive vocabulary of each student following the block of therapy using the Story boxes multi-sensory storytelling/story-making approach. Additional positive changes were noticed in the children's attention and listening skills and in their motivation to attend to activities during 'story time'.

The use of local, traditional stories incorporating a multi-sensory storytelling and story-making framework was found to aid the receptive and expressive vocabulary skills of children with language-learning difficulties.

1. Introduction

Reflecting the global philosophical shift from segregated special educational facilities to inclusive educational policies [1], Sri Lanka too has made and continues to make changes to its policy on education for children with special educational needs. Every 5-14 year old child's right to free and compulsory education, regardless of any difference in skill, is stipulated within legislation [2]. This safeguards the right to education for children experiencing for instance, cognitive, language, psychosocial or physical difficulties. Nevertheless, the financial load involved makes the establishing of an inclusive educational framework elusive to many resource-poor nations [3, 4].

In Sri Lanka, diverse conceptualizations of 'inclusion' and the dearth of resources have hampered the implementation of the inclusive educational policy [5, 6,] At present, there are mostly private special education schools supported by charities or non-governmental organizations (national and international), special units or integrated educational settings within mainstream government schools and private and government schools accommodating children with special educational needs within the mainstream classroom, albeit few in number [6].

Rural schools in Sri Lanka are generally under-resourced. Special education schools or special education units within mainstream schools in the rural sector are often doubly disadvantaged due to limited resources and inadequate training. The reality of the 'special education teacher' in Sri Lanka, particularly for those working outside of the capital city, is a lack of opportunities for continued professional development and training in specific techniques and limitations of classroom resources, both material and personnel. While the right to access education for young children is stipulated within the current legislation [1], the ground reality of implementing appropriate educational facilities for children with language-learning difficulties or children with 'disabilities' has continued to be a challenge.

'Inclusion' places greater demands on the teacher with regard to knowledge and skills [7]. The classroom consists of children with varied difficulties and varied, complex needs (e.g. children with hearing difficulties, motor difficulties or on the autistic spectrum), making teaching a challenge. This is made worse by a lack of resource personnel (i.e. classroom assistants or individual support teachers) in the classroom. It makes differentiating the lesson and offering individualized activities to children with language-learning difficulties or any child with special educational needs a great challenge.

Moving towards an inclusive educational policy requires the support of healthcare professionals, particularly speech and language therapists, physiotherapists, educational therapists and occupational therapists within the educational setting. It necessitates teachers working together in

collaborative practice with healthcare professionals such as speech and language therapists, devising Individual Educational Plans, differentiating lessons to facilitate access to the curriculum and incorporating student-centred pedagogical techniques [7].

Children with language-learning difficulties may find acquiring new words and concepts and recalling sequences quite demanding while teachers may find offering whole-class based vocabulary learning activities or deciding on student-centred pedagogical methods a challenge. Given the scarcity of qualified speech and language therapists in Sri Lanka [8] there is a push towards offering collaborative whole-class intervention approaches to children with language – learning difficulties (either in mainstream or special educational settings), facilitated by teachers, under the supervision of a speech and language therapist.

2. Literature Review

There is a growing interest in the use of multisensory stories as a means of including children with profound and multiple learning difficulties (PMLD) in classroom activities within the special education and mainstream school contexts. Much emphasis has been placed on individualizing classroom activities to increase social participation and access to the curriculum. Speech and language therapy research supports the use of multi-sensory stimuli to encourage communication and language learning in people with learning disabilities [9, 10, 11, 12, 13].

The use of stories as a whole-class vocabulary or language enrichment programme such as *Story Boxes* may be of benefit as an assessment tool and a remedial programme. Competence at stories can be an important prognostic indicator of age-appropriate language development or atypical patterns in children with language or cognitive difficulties [14, 15].

Mellon [16] asserts that combining iconic gesture and voice with the imagination advances expression. Similarly, McGregor [17] posits that the use of movement and gesture encourage stronger vocal output, resulting in better understanding. Therefore, within the multisensory framework, vocabulary learning becomes a sensory experience and not merely the acquisition of concepts.

In addition, the use of traditional stories for vocabulary development is also gaining ground. Traditional stories are repetitive and have a very clear story line to them. As a result, they can be easily learnt and remembered by children in primary school. They allow language to be reinforced in a context that is culturally relevant to them encouraging acquisition of structures and vocabulary [18]. At primary level, vocabulary teaching mainly focuses on single words. However, traditional stories allow children to learn chunks of language or meaningful phrases rather than single words within the familiar structure and context of the story.

When children are familiar with the structure and context, they feel confident in learning the story or remembering vocabulary items from the story. Since everyone in the class is familiar with the traditional stories, activities based on traditional stories can be done as part of a group or as whole-class activities. This promotes and develops a sense of team spirit, class unity and class identity. Coigley [19] corroborates this view by asserting that interactive storytelling fosters group work and encourages group participation. In contrast, Penne and her colleagues [20] report on a lack of change in caregiver interaction style in an observational study of caregiver-partner multisensory storytelling. Although the results showed no change in caregiver interaction behaviour on the Maternal Behaviour Rating Scale, the authors remain positive to the approach, stressing the need for training.

2.1 Research Rationale

Currently, there is no provision for speech and language therapists to work directly or in-partnership with special education teachers within government schools, either in mainstream or special-education schools in Sri Lanka, to support children with language-learning difficulties. Within this backdrop, this research project is important as it has the potential to be introduced island-wide as a collaborative teaching-learning model in special education and within mainstream, inclusive education.

3. Methodology

3.1 Participants

This is part of a large-scale three-year study to be conducted across the country with children with language-learning difficulties and with typically-developing children who use Sinhala, Sri Lankan Tamil, English or Sri Lankan Sign Language. Thirty children with language-learning difficulties were included in this pilot phase. They were from three local schools in the South: a special education unit within a mainstream school and two special educational facilities.

Eligibility criteria
In this pilot phase, children eligible for participation were:
• Between 3-11 years
• First language speakers of Sinhala

• Diagnosed with cognitive and language-learning difficulties

A purposive sample was used in this phase. Participants were identified and recommended to the study by preschool teachers and primary-school teachers who were willing to run the intervention programme.

3.2. Objective

The main objective of the pilot study was to evaluate the effectiveness of a multi-sensory storytelling approach on vocabulary development in children with language-learning difficulties

3.3 *Story boxes* intervention approach

A simple script was devised by the two researchers for two target stories, incorporating sensory stimuli together with sign support and simple, repetitive songs. One story, *'Gamerala Divyeloke giya hati'* ('How the farmer went to heaven') is a traditional folk tale while the other *'Ude giya baba'* ('How the child who refused to eat went up to the sky') is a popular children's story [21]. The key components of rhythm and role, rhyme, repetition and ritual were used [19] in the construction of the stories. The sensory stimuli included a colourful cloth elephant, textured elephant's tail with rope and cloth, transparent plastic spray can, coconut shells and painted rigiform vegetables.

The stories were demonstrated to the teachers and the story boxes with the sensory stimuli and story scripts provided. The teachers conducted weekly story sessions for 12 weeks. The storytelling sessions were inclusive learning environments with typically-developing peers from the mainstream classroom or siblings and children from the neighborhood included as available.

3.4 Data collection

The following data collection methods were employed:
  • an informal receptive language picture and object-naming task
  • an informal expressive language picture and object-naming task
  • observations recorded during the storytelling activities
  • comments by teachers and parents
Language data were collected pre- and post-intervention through the same tasks. Within this pilot study, the data was analyzed quantitatively using related t-tests and qualitatively, using aspects of Framework Analysis [22].

3.5 Ethical considerations

Ethical clearance was obtained from the Ethical Research Committee of the Faculty of Medicine, Ragama, Sri Lanka. The researchers explained the study to the teachers and parents, who were offered an information sheet in Sinhala. All the parents gave written consent for their children to be included in the study.

4. Analysis of findings

The following trends were observed in the quantitative and qualitative analyses of the pre- and post- intervention measures undertaken, the observations made and teacher comments.

  • There was a marked change in the understanding of the target word list (receptive language) in the post-intervention measures compared to the measures taken prior to the beginning of the programme in the group (Figure 1). This reached statistical significance (t (29) = 9.261, p < .000).
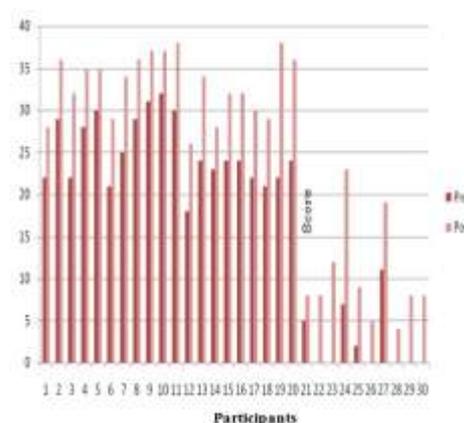

Figure 1. Changes in receptive language skills on target words (N=30)

Changes in receptive language skills were evident even in children with very limited expressive language skills. For instance, Samanmalee[1], a 7 year old student with moderate-severe language learning difficulties was observed to point at target items when requested, even though her expressive vocabulary consisted of just 5 single words.

  • There was a noticeable positive difference in the use of the target concepts (expressive language) across the group of participants post-intervention (Figure 2). The use of

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[1] Pseudonyms used throughout

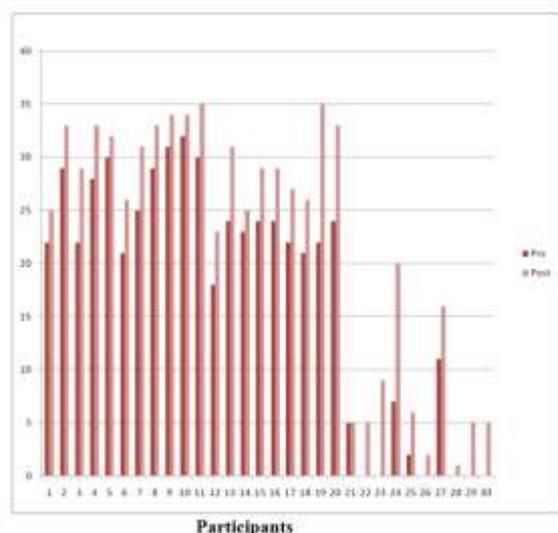target words reached statistical significance (t (29) = 14. 691, p < .000).

Figure 2. Changes in expressive language skills on target words (N=30)

The changes in expressive language skills were evident in the production of spoken words or signs/gestures. One example is of Dinithi, a female student aged 7 years and 3 months, diagnosed with moderate learning difficulties and autism that seldom uses speech to communicate. Prior to introducing Dinithi to the interaction approach, both her teacher and mother reported that they were skeptical about Dinithi's participation in storytelling activities. Her teacher noted with surprise how Dinithi *'came alive'* while listening to the stories. Dinithi was observed to engage with the story of the elephant in particular, reaching for, grabbing and hugging a toy elephant saying *'aliya'* ('elephant') several times. She was also seen to make eye contact with the two researchers while smiling and hugging the elephant.

Another example is of Sajana, a 6 year old student with Down syndrome and moderate learning difficulties. She displayed positive changes in her use of sign following the intervention programme. She showed a particular interest in signing to indicate the 'sky', 'rain' and the concept of 'going up', which are all target concepts from the *'Ude giya baba'* story.

- Increase in the level and duration of attention and listening skills demonstrated during *Story boxes* time by all participants.

Although maintaining attention to task was reported as an area of concern for many of the students, only two children were observed to leave their seats during the 'story time' activities. That said, they were both seen to engage with the stories at times displaying different levels of competence.

Fathima, a 6 year old girl diagnosed with Down syndrome and moderate learning difficulties was seen to leave her seat to try and get an object that she liked from the story box. With time, she was seen to leave her seat but request for the object she wanted via signs and vocalizations.

The other student Kamal, a boy of 5 years diagnosed with Down syndrome, moderate-severe learning difficulties and ADHD was initially observed to run out of class, requiring support to refocus on the activity at hand, which the teacher said was not unusual for him. However, as he appeared to be motivated by the object representing an 'elephant's tail', he was observed to sit down with the others in the group, pull the tail together with his peers while smiling and vocalizing using open vowel sounds.

- Increase in the level of motivation displayed by all during the storytelling and story-making activities.

For example, Kumara, a 5 year old student with Down syndrome and moderate-severe learning difficulties was seen to look down and rock in his chair during the first *Story boxes* session. With time, he was observed to listen, look up and vocalize, particularly in response to the object of a 'fire flare'. A similar interest in the 'fire flare' was observed in Azra, a 6 year old student with Down syndrome and moderate learning difficulties. She was seen to sit up straight in her chair and request for the object through gesture and vocalizations, indicating a high level of motivation.

- Evidence of co-operative working

We observed examples of children with language-learning difficulties and their typically-developing peers working together, supporting each other during the storytelling sessions. All the typically-developing children were enthusiastic about taking part, often requesting to lead the story and to support their peers with language-learning difficulties. The children with language-learning difficulties were encouraged to pass the objects to others and enact the story together.

5. Discussion

In summary, two multisensory stories based on traditional children's tales and activities associated with these stories were offered to 30 children with language-learning difficulties as part of a whole-class vocabulary enrichment programme. The pre- and post-intervention receptive and expressive language measures used included a list of target words in object and picture form. In addition, observations made were documented and teacher views recorded. The language measures indicate marked positive changes in the receptive and expressive vocabulary knowledge of the participants

and in their level of attention, listening and motivation.

The trend observed of an increase in receptive and expressive language skills as a result of a multisensory storytelling programme is in keeping with the literature [9, 10, 11, 12, 13]. The combination of visual, tactile and auditory stimuli assisted in better understanding and use (either with sign/gesture or spoken words) of the key concepts targeted within the stories. This finding confirms Mellon's [8] as well as McGregor's [9] assertion of a connection between iconic gesture and voice with the imagination in the enhancement of expression. While the sensory stimuli were observed to generate much attention and interest, it is not possible at this stage to identify which type of stimuli such as auditory, tactile, kinesthetic or visual were more useful than others. The larger-scale study to follow may be able to shed more light on this and enabling the use of more appropriate stimuli to language-learning.

This finding of an increase in receptive and expressive language skills may also be due to the nature of the stories chosen. The two stories were short as well as traditional and had repetitive lines both as dialogue spoken by 'characters' and in the simple songs incorporated into the script. As Porras Gonzalez [10] contends, the repetitive nature of traditional stories promotes vocabulary learning and recall. Of the two stories chosen, one was clearly embedded within a local, rural setting of a farmer who was visited by an elephant while the other was based on a child who is a 'fussy eater', again, within the experiences or 'culture' of the children included in the study. Again, Porras Gonzalez [10] argues that learning within a culturally-relevant context promotes the acquisition of vocabulary and other syntactic structures, which was upheld within this study.

The positive changes in the children's overall communication skills, with eye contact, turn taking, attention and listening skills is particularly noteworthy. This supports Grove and Park's [7] report on the benefits of interactive multisensory stories to develop social cognition in people with learning difficulties. The opportunity of an inclusive learning environment during the storytelling activities supported language-learning as well as encouraging peer relationships and team work. This is consonant with the views proposed by Coigley [11] as well as Porras Gonzalez [10], which highlight the benefits of interactive storytelling in promoting group participation and group work. More focused attention within the main study on typically-developing children and the potential benefits gained by all participants may be useful in promoting a policy of inclusive education. It supports the integration of children with special educational needs with mainstream students, particularly in activities such as storytelling, music and art.

The main limitation of this study is that the participant group consisted of children with diverse diagnoses and different levels of learning difficulty. So, while as a group the participants showed positive changes in receptive and expressive language skills as well as in other communication skills following the intervention programme, this may not be an accurate representation of the participants based on their cognitive abilities. Therefore, the main study to follow should include a clear and comprehensive assessment of the participants' cognitive and language skills to enable more acute analyses based on cognitive skills and language competence.

6. Conclusions

The use of multisensory local and/or traditional stories has the potential to promote vocabulary development in children with language-learning difficulties. It also has the possibility of encouraging overall communication skills and fostering team work within an inclusive learning environment.

7. References

[1] UNESCO, The Salamanca Statement and Framework for Action on Special Needs Education. Paper presented at the World Conference on Special Needs Education: Access and Quality, Salamanca, Spain, (1994, June).

[2] Parliament of Sri Lanka, Compulsory Education Ordinance of Sri Lanka. No. 1003/5 of 1997.

[3] J. Eleweke, and M. Rodda, "The challenge of enhancing inclusive education in developing countries", *International Journal of Inclusive Education, 6,* 2002, pp. 113-126.

[4] J. Kisanji, "The march towards inclusive education in non-Western countries: Retracing the steps", *International Journal of Inclusive Education, 2,* 1998, pp. 55-72.

[5] Ahuja, A. and P. Mendis, *Review of Inclusive Education for Children who have Disability.* UNICEF, Colombo, 2002.

[6] H. Furuta, "Responding to Educational Needs of Children with Disabilities: Care and Education in Special Pre-Schools in the North Western Province of Sri Lanka", *Japanese Journal of Special Education, 46*(6), 2009, pp. 457-471.

[7] A. K. Das, *Perceived Training Needs of Primary and Secondary Regular School Teachers to Implement Inclusive Education Programs in Delhi, India,* Unpublished Doctoral Dissertation, The University of Melbourne, 2001.

[8] Doman, S. and K. Read, "The Sri Lankan experience", *Royal College of Speech and Language Therapists Bulletin,* 2006, pp. 18-19.

[9] Caldwell, P., *From Isolation to Intimacy: Making Friends Without Words,* London: Jessica Kingsley, 2007

[10] Corke, M., *Approaches to Communication Through Music,* London; David Fulton, 2002.

[11] Coupe O'Kane, J. and J. Goldbart, *Communication Before Speech,* London; David Fulton, 1998.

[12] Fyfe, C., *Gulliver's Travels: A Multisensory Approach,* London: Bag Books, 2001.

[13] Grove, N. and K. Park, *Social Cognition through Drama and Literature for People with Learning Disabilities: Macbeth in Mind* London: Jessica Kingsley, 2001.

[14] N. Botting, "Narrative as a tool for the assessment of linguistic and pragmatic impairments", *Child Language Teaching and Therapy*, 18(1), 2002, pp.1-22.

[15] T. A. Ukrainetz, L. M. Justice, J. N. Kaderavek, S. L. Eisenberg, R. B. Gillam and H. M. Harm. "The Development of Expressive Elaboration in Fictional Narratives". *Journal of Speech, Language, and Hearing Research,* American Speech-Language-Hearing Association, December 2005, 48, pp. 1363-1377.

[16] Mellon, N., *Storytelling and the Art of the Imagination*, Yellow Moon Press, 2003.

[17] McGregor, K., "Gesture supports children's word learning", *International Journal of Speech-Language Pathology;* 2008, *10*(3), pp. 112 – 117.

[18] Porras Gonzalez, N. I., "Teaching English through Stories: A Meaningful and Fun Way for Children to Learn the Language", *Profile Issues in Teachers` Professional Development, vol. 12*, núm. 1, abril, 2010, pp. 95-106.

[19] Coigley, L., *What Hinders and What Helps Lis'n Tell: live inclusive storytelling,* Presentation to The London Speech and Language Therapy Special Interest Group in Autism, City University, London, 2008.

[20] A. Penne, A. ten Brug, V. Munde, V., van der Putten, A., C. Vlaskamp, C. and B. Maes, B., " Staff interactive style during multisensory storytelling with persons with profound intellectual and multiple disabilities", *Journal of Intellectual Disability Research,* 2011, *56,* pp. 167–178

[21] Wettasinghe, S., *Uda Giya Baba,* M.D. Gunasena Publishers, 2012.

[22] Ritchie, J. and L. Spencer, L. *Qualitative Data Analysis for Applied Policy research*, In: A. Bryman and R. Burgess (Eds.), *Analysing Qualitative Data,* London, Routledge, 1994, pp. 172-194.