Back to Ourth Playgrounds: addressing sensory needs of children in deprived settings

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With special acknowledgement: Erna Liebenberg, Elize Janse van Rensburg & Cornél van Rooyen
OUTCOMES OF THE PRESENTATION

• The presentation will tell the story of how an interdisciplinary, collaborative effort between the UFS & communities in the Southern Free State led to the building of low cost, sustainable playgrounds.

Provide a glimpse on research results of the impact of a sensory rich programme presented on a playground.
REALITIES

• Nearly 60% of children in SA live in poverty

• The minority (about 20 %) of population have access to private healthcare & thus “gold standard” assessment & intervention

• Although early childhood development receives attention, focus is on:
  • providing basic health care services,
  • basic nutrition,
  • basic education &
  • social services
QUESTIONS

• If development is dependent on sensory experiences to nourish the brain & contribute to development (Ayres, 1977; Schaaf & Smith Roley, 2006) what happens if…….
  • A child is deprived of quality sensory experiences?
  • A child grows up in unorganised sensory environment?

SA research:

1. Children from low socio-economic settings are more prone to sensory integration difficulties (Van Jaarsveld, Venter, Van Vuuren & Joubert, 2001a; Van Jaarsveld, 2010)

2. Improvement in development & SI functions are evident when children from low SES are exposed to a SI orientated stimulation program (Van Jaarsveld, Venter, Van Vuuren & Joubert, 2001b)
In middle- to high socio economic settings: Children with delays contributing to poor school performance are usually referred to an occupational therapist.

20% .......  ...the other 80%??
Involvement of the Dept of Occupational Therapy, University of the Free State in rural communities in the Southern Free State led to the questions:

How do we address these challenges??
How do we reach more children growing up in low SES in rural communities??
In 2015 our 3\textsuperscript{rd} year OT students were introduced to a sustainable building method aimed at shack replacement.
If this method allows for sustainable building of houses............

.............why not build sustainable low cost playgrounds that will “foster” sensory integration??

Sustainable, cost effective with “green footprints”

Unique community involvement

Balanced sensory experiences, fostering SI

.....& will additionally allows for a unique training platform for students
Led to the conception of……

“Back to Urth” Playgrounds ©

“Back to Urth” Playgrounds (BUP’s) are cost effective, sustainable & unique, providing in the sensory needs of children growing up in deprived rural settings (3rd world settings)
The first “Back to Urth” Playground© was built at a school in Springfontein in 2015.

Collaborative effort between UFS, Qala Phelang Tala, Dept of Education, Springfontein community members and the Engineering Dept of the Central University of Technology, FS
THE UNIQUENESS OF THESE PLAYGROUNDS:

• Each part of the playground is developed using the Adapted Version of the Wall Model & research results
  
  • Focusing on abilities supported by especially the vestibular, proprioceptive & tactile systems, such as:
    • Postural control
    • Balance
    • Dissociation between movements
    • Midline crossing
    • Bilateral integration
    • Sequencing
    • Praxis
  
  • Ensuring that there is possibilities for sensory modulation, discriminatory functions, refined use & praxis
Second playground was built in Fauresmith in 2016

Video:

With special thanks & appreciation to Ané Otto & Cara Mc Donald
4th year OT students, 2016
What are the impact of the playgrounds on development?
Aim: To investigate the impact of a sensory-motor stimulation programme, presented by educators on a sustainable, low cost playground that was designed for enriched sensory experiences, on the development & functioning of Grade R & 1 learners of a rural school in the Free State.
METHODOLOGY

• A classic experimental non-randomised pre-test-post-test control group design was used for this study

• Research population:
  • Grade R & 1 learners from two schools in the Southern Free State
    • (one school was the experimental school & the other the control school)

• Measuring Instruments:
  – BOT-2 (short form), Revised Ayres Clinical Observations (SAISI) and OPTIMA School readiness test
RESULTS

1. BOT-2 Test of motor proficiency
   - Post-testing results indicated no statistical differences in the sub-test scores but on total test scores:
     - Experimental School's total test scores were significantly higher than control school (Kruskal-Wallis Test Pr > Chi-Square = <.0001)

2. Revised Ayres Clinical Observations:
   - Learners of the experimental school performed better in 22 of the 26 test items
   - Statistical significant differences in:
     - Equilibrium Reactions four-point: Fisher's Exact Test Pr <= P 0.0337
     - Equilibrium Reactions long sit: Fisher's Exact Test Pr <= P 0.0064
     - Equilibrium Reactions long sit: Fisher's Exact Test Pr <= P <0.0001
     - Standing Balance Eye Closed R Fisher's Exact Test Pr <= P 0.0252
The biggest surprise for us as researchers was the results of the Optima Test for School Readiness:

- Statistical significant differences on 14 of the 21 test items
  - Experimental School’s test scores were significantly higher than control school

<table>
<thead>
<tr>
<th>Test Item</th>
<th>p-value</th>
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<tbody>
<tr>
<td>Test 1.2 Perception of shapes</td>
<td>0.0009</td>
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<tr>
<td>Test 1.3 Fore/Background discrimination</td>
<td>0.0213</td>
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<tr>
<td>Test 1.4 Incomplete man drawing</td>
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<tr>
<td>Test 1.5 Gestalt Perception</td>
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<td>Test 1.7 Visual Sequence</td>
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<td>Test 2.1 Discrimination</td>
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<td>Test 2.5 Picture Riddles</td>
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<td>Test 3.2 Sense of direction</td>
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<td>Test 3.3 Midline crossing</td>
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<td>Test 4.3 Life skills</td>
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<tr>
<td>Test 5.1 Fine motor coordination</td>
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</tr>
<tr>
<td>Test 5.2 Gross motor coordination</td>
<td>&lt;.0001</td>
</tr>
</tbody>
</table>
This study provides support for Ayres’ hypothesis that through the provision of enriched sensory opportunities at brain stem level, higher level adaptive responses can be made possible (Ayres, 1979)
THE WAY FORWARD......

• Publication of research results

• Longitudinal study planned for 2019

• Explore funding opportunities & build more Back to Urhth playgrounds & provide training to educators on the optimal use of playgrounds
Acknowledgements:

Without whom this journey would not have been possible...!!

Heidi Morgan & colleagues

Anita Venter & QPT crew

Research Team

Monique, Ané, Cara, Kelly, Caley, Megan & other OT students

“Back to Earth” Playgrounds©
REFERENCES


Thank You