

# Narrowing the gap: Using aided language stimulation (ALS) in the inclusive classroom

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## ABSTRACT

*This article presents a description of a training programme designed to increase teachers' knowledge and skill regarding the use of aided language stimulation (ALS) in the inclusive classroom. The development of the two-phase training programme is discussed in terms of the content and presentation method utilised. Phase 1 focused on increasing knowledge related to inclusive teaching practices and Phase 2 focused on increasing skills in using ALS as an adapted teaching strategy. Phase 2 employed a pre-test – post-test over time design. Three aspects related to teaching practice were investigated during this phase, ie, classroom management strategies, use of ALS, and facilitation of interaction. Teachers' performances were plotted over six sessions. Results from Phase 2 indicated that ALS was successfully implemented in this context, with significant differences evidenced across each of the three aspects evaluated. The use of adult learning principles incorporated within ALS may have contributed towards the rapid skill acquisition demonstrated by the teachers. Finally, the training programme is evaluated and implications with regard to promoting sustainable outcome are presented.*

**Key words:** teacher training, inclusion, interaction, activity-based intervention, Aided Language Stimulation (ALS)

## Positioning the programme within South Africa's current educational landscape

It is recognised that current strategies and programmes have largely been insufficient or inappropriate with regard to the needs of children and youth who are vulnerable to marginalisation and exclusion<sup>1</sup>. When analysing barriers to learning and development in South Africa, the NCT-SCET and NCESS<sup>2</sup>, stated that inequalities in society, lack of access to basic services and poverty are factors which place children at risk, and thus contribute to learning breakdown and exclusion of children with disabilities. According to the Education White Paper 5: Early Childhood Education<sup>3</sup>, approximately 40% of children in South Africa grow up in conditions of poverty and neglect. It is well known that children raised in such conditions are at risk for low birth weight, delayed development, poor adjustment to school and learning problems. When taking cognisance of these numbers it becomes clear that it is imperative that the early learning experiences of such children are optimised, in order to minimise the effects of early deprivation and exclusion.

The South African Government's strategic plan, the National Programme of Action for Children, focuses on the delivery of appropriate inclusive and integrated programmes for all children, but in particular for those from poor families, those who experience barriers to learning and those affected by the HIV/AIDS pandemic. In addition, Education White Paper 6: Special Needs Education<sup>4</sup> describes how policy will systematically move away from using segregation according to types of disability as an organising principle for access to schools and services. Current legislation mandates that teachers meet the needs of all learners and this implies inclusion of all learners in mainstream contexts. Furthermore, for inclusion to be realised, emphasis is placed on two aspects of classroom teaching, firstly early identification of barriers to learning and secondly, effective modifications to teaching environments, curricula and methods<sup>4,5</sup>. Thus inclusion is seen as a process of addressing and responding to the diversity of needs of all learners through increasing participation in learning, cultures and communities, and reducing exclusion within and from education<sup>6</sup>.

The aim of inclusion is therefore to provide education environments where diversity is seen in a positive light by both teachers and learners, and accommodations are made for all<sup>1</sup>. According to Pendlebury and Enslin<sup>7</sup> "marginalized people must have authentic opportunities to influence [their] outcomes" (p. 46). Furthermore they stated that educational exclusion, for example for learners with disabilities, serves not only as a barrier to inclusion and participation, but also inhibits self-development. They conclude by stating that "without educational inclusion, individuals are deprived of opportunities for developing those capabilities essential to

living a fully human life" (pg 47). Mittler<sup>8</sup> echoed this sentiment and stated that inclusive education is an essential building block in cultivating a more inclusive society where diversity and difference are integrated into the experiences of all who form part of a community.

South Africa's progressive legislation supports inclusion, thus providing a potential vehicle for change. However the greatest challenge to implementing inclusive practices arose as a result of cumulative changes in both the context in which education takes place, as well as changes in the process of educating learners. Mainstream and special education teachers were trained separately and until 1994, different educational support services in South Africa were managed by racially segregated education departments – thus service provision was characterised by glaring inequalities and inconsistencies<sup>2</sup>. As a result many teachers' preparation programmes did not provide teachers in mainstream education with the experience to develop the necessary skills and to cope with learners with disabilities in their classrooms<sup>9,10</sup>. Thus the introduction of inclusive practices in the classroom, whilst benefiting the learners, has impacted on teachers' stress<sup>11,12,13</sup>, as mainstream teachers continue to perceive that they are unable to handle the needs of the learners, as a result of the limited knowledge and skills they possess regarding teaching learners with barriers to learning. This has led to feelings of incompetence as well as negative attitudes towards the process of inclusion amongst many teachers.

It is possible to minimise the apparent stressful experience and negative consequences perceived by the teachers, by addressing these areas of concern through pre-service and in-service training<sup>14</sup>. However, it would be insufficient to address issues related to inclusive teaching practice within teacher training without taking into consideration the specific challenges within the South African context vis à vis multi-level teaching in relation not only to various levels of ability, but also in relation to diverse languages, cultures and special needs. Whilst this lack of knowledge, skills and competence to teach in an inclusive classroom is widely acknowledged in the literature<sup>15,16,17</sup>, very little data are available in South Africa that document successful inclusive practices and in-service training programmes.

For this reason the activity-based intervention framework was chosen as a point of departure for teacher training on inclusion within this context. Activity-based intervention can be defined as a transactional approach that uses naturally occurring actions and reactions to develop functional skills, by embedding children's learning in play activities or routines which are often child initiated. The approach emphasises meaningful, functional and developmentally appropriate activities and recognises the interaction between the learner and environment. The role of the facilitator



(teacher or interventionist) is to mediate the child's environment as the premise of this approach is that learning should not be separated from the context in which it occurs<sup>18</sup>. This mediation is primarily achieved through arranging the environment in order to provide an incentive for children to explore, initiate and master the environment. In order to achieve this Bricker and Cripe<sup>18</sup> emphasise that learning should occur in activities that reflect the demands of the daily life environment. Activity-based intervention has been the subject of much research<sup>18,19,20,21,22</sup> and the results of these studies indicate that children acquire skills rapidly and also generalise skills to other contexts when utilising activities naturally occurring in the environment. In addition, this approach has been widely used in early childhood intervention programmes in the past and has successfully been used as an instructional approach for both children with and without disabilities. This is primarily as it recognises the link between child and his/her environment through the use of meaningful, functional and developmentally appropriate activities.

Within this activity-based intervention strategy, ALS was chosen as a basis on which to build teachers' knowledge and skills and promote communication development of the child. ALS is a group strategy that fits well into the philosophy of inclusion, as the teacher can engage many learners simultaneously. When using ALS the facilitator (often a teacher) simultaneously points to symbols on a board in conjunction with providing ongoing spoken language stimulation. ALS therefore provides extra visual cues through the use of graphic symbols together with the written word and spoken word. These cues also serve as a memory cue for learners in play activities and stories in the classroom, and encourage the learners' participation during these activities<sup>23</sup>. ALS is firmly embedded within the activity-based intervention framework, in that instruction is provided in an activity-based format within the learners' natural contexts<sup>23,24,25</sup>. It also aims to promote a sound language base, which the learner can then refer to and apply in other contexts and across other curricular activities. This is important as in South Africa the language of instruction (or language of learning and teaching) is often different from the home language of the learners and the language that is used in their immediate community<sup>1</sup>.

Much has been written regarding the components of inclusive training programmes as well as aspects impacting on the success of such training endeavours. Attitudes towards inclusion appear to be influenced by the age of the teachers, level of skill in terms of special education, as well as the number of years of practical experience the teacher has had in teaching in inclusive settings and the severity levels of the children in the class<sup>26</sup>. Common barriers to implementation of inclusion identified in the literature include, lack of training<sup>15</sup>, classroom disruptions, lack of planning time, funding and a lack of resources<sup>27,15,16</sup>. Similar findings were reported by Cegelka and Doorlag<sup>26</sup> when they asked special education teachers to comment on their pre-service training. Interestingly the skills areas in which the teachers felt the least equipped included those typically associated with managing effective inclusion programmes, ie, responding to linguistic diversity, adapting the curriculum, dealing with severe disruptive behaviour and collaborating with other members of staff.

According to Buell, Hallam and Gamel-McCormick<sup>16</sup> training topics identified by 289 surveys from a statewide programme in the US to examine the availability of support to promote inclusion as well as to identify specific needs for further in-service training, yielded the following interesting information. Training needs identified included "programme modifications, assessing academic progress, adapting curriculum, managing students' behaviour, developing IEPs and using assistive technology" (p 154). Furthermore according to UNESCO's<sup>1</sup> conceptual paper entitled "Overcoming exclusion through inclusive approaches in education" (2001 p V.2), the following aspects, amongst others, need to be considered when developing and designing training programmes to inform teachers about inclusive education:

- include the relationship between theory and practice and opportunities for reflection in all training actions
- start from the needs felt by the teachers themselves
- promote self development, creating opportunities for networking amongst teachers, schools and communities
- encourage teachers themselves to develop new teaching materials

Thus this current training programme attempted to integrate many of these identified aspects together with the principles suggested by

UNESCO<sup>1</sup> in the presentation method and activities forming the basis of the programme.

## Methodology

The project consists of two distinct phases and each will be discussed separately before concluding with the evaluation of the project.

### Phase 1: Training of a large group of teachers

#### Aims of the training programme

The aim of the first phase focused on theoretical understanding to increase teachers' knowledge of inclusive education practices. Inclusion is a relatively new practice in South Africa and established teachers have received little or no training regarding management of learners with disabilities. In order to address the knowledge component the following broad aims were formulated bearing in mind the areas highlighted by Buell, et al<sup>16</sup>: a) to present an introduction to disabilities and create awareness for matters of concern for people with disabilities; b) to increase teachers' knowledge in terms of the different ways in which optimal communication stimulation can be provided, by using multiple communication means, eg, speech, objects, gestures and graphic symbols and voice output communication devices; and c) to increase the scope of teachers' knowledge of teaching strategies that can facilitate and enrich classroom participation of all learners.

#### Participants

The initial training was presented to a group of 80 preschool and grade one teachers in the North West Province of South Africa. The composition of the participants was 98% teachers and the remaining 2% were therapists. The qualifications of the teachers varied: 8% had a grade 12 education or less, 12% had a one to two year teaching diploma, 47% had a three to four year teaching diploma and 33% had a four year post-graduate teaching degree. All the teachers came from rural, under-developed and under-resourced schools where they experienced overcrowding in the classrooms (average of 45 learners in each classroom) as a result of lack of resources in the area. In relation to exposure to learners with disabilities, 50% of the teachers had no experience, 25% of the group relied on in-service training regarding the management of learners with disabilities in the classroom, while 24% and 6% respectively obtained either diplomas or degrees in the field of special education.

#### Content and presentation of the training programme

The training continued over a two-day period and the time was allocated according to the aims stated above. The percentage of time spent on each area was as follows: 10% - discussion of disability issues and an overview of most prevalent disabilities; 50% - discussion of adapted curriculum-based activities which included play as a teaching medium and the importance of communication for a learner. Here augmentative and alternative communication strategies were introduced to facilitate learning and development of communication of all the learners. The remaining 40% incorporated discussions of strategies to optimise the development of learners with disabilities. Adaptive teaching strategies were demonstrated and practised using curriculum-based activities (eg, strategies to adapt materials, facilitate different learning styles, correct seating)<sup>28</sup>. These strategies were not only applicable to learners with disabilities, but could also be successfully implemented to facilitate learning for the whole class.

The training was based on adult learning principles<sup>29</sup>. Teachers' prior knowledge was incorporated during these discussions and the focus was on realistic problems through the use of video recordings and role-play of real cases. Thus the training consisted of theoretical input supplemented by a practical session, as adults learn best through direct participation. The practical session focused on skill training and included the practice of teaching strategies as well as the development and manufacture of adapted teaching materials for their own schools.

### Phase 2: Follow-up session at identified schools

#### Aim

A pre-test-post-test over time design was used to evaluate the implementation of ALS by teachers in their respective classrooms. Three specific aspects were included in the training and evaluated in this phase, namely: a) classroom management strategies, b) use of ALS, and c) fa-



cilitation of interaction. The teachers' performance was plotted during the follow-up sessions.

### Development of material for curriculum-based activities

After the initial theoretical training, materials for the follow-up skill development sessions were designed for three distinct activities: sand play, story time, and an arts and crafts activity for the grade R classrooms, and three themes: family, friends and emotions, safe neighbourhoods and healthy eating habits, for the grade I classrooms. The facilitator board used in the preschool classroom, as seen in Figure 1, consisted of 16 graphic symbols (Picture Communication Symbols)<sup>30</sup> with their background colour coded according to the Fitzgerald Key approach<sup>31</sup>. The board consisted of four descriptors (orange), three prepositions (green) and five exclamations (blue). They were glued to an A1 size sheet of black cardboard and then laminated. Two additional strips of Velcro were attached to the board so that the supplementary symbols for the three activities could be attached. Each activity had a script which incorporated all the strategies of ALS and therefore assisted the teachers in using the boards optimally as well as ensuring participation of the learners.

In the grade I classrooms a separate facilitator's board was designed for each activity to assist with formal curriculum adaptation, maintaining the use of ALS. The vocabulary on the boards and cards was provided in both the home language of the learners (English or Setswana or Afrikaans) as well as the language of teaching and learning (English or Setswana or Afrikaans). In classes where the home language and language of teaching and learning was the same, teachers were allowed to choose which language they wished to have as the additional language on the material. The material and content can be viewed in Figure 1 and Table 1.

### Follow-up skills training

Four follow-up visits were then organised with six grade R and six grade I teachers at six different schools. The focus of these visits was to assist teachers in the implementation of ALS, to identify the challenges to implementing the activities, and to facilitate problem solving of these issues. The procedure for each session included a demonstration by the researchers of one activity, using the adapted teaching strategies. This training and learning opportunity was used to teach and problem solve uncertainties before the teacher had to present the activity to the class<sup>29</sup>. After each session, the teachers engaged in a process of self-reflection and rated their performance on the three aspects discussed under the aims. Each teacher was rated twice on each activity, with a one-week break in between the ratings in which she could incorporate the comments given during the feedback session. Therefore, the teacher had one week to practise her skills before another evaluation was done. A schematic representation of the data collection process and procedures is shown in Figure 2.

### Teaching materials

The materials for each activity utilised during this training included facilitation board and supplementary symbols for the activities, scripts indicating the logical sequence of the activity, suggestions on how to utilise the ALS boards, consumable materials for each activity, and teachers' self-rating scale of classroom interaction patterns.

### Data collection instruments used

The teachers completed a self-rating scale after each follow-up session to monitor their own performance. This scale consisted of three items relating to the three aspects mentioned previously. Examples of the

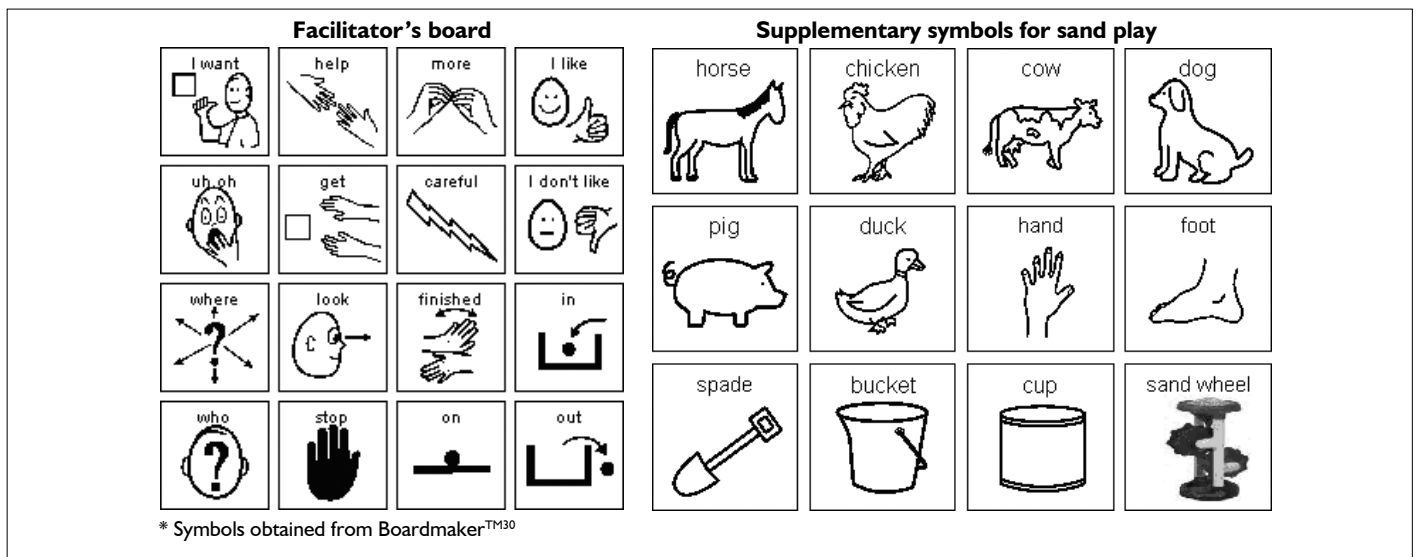


Figure 1: Picture Communication Symbols used on the grade R teachers' facilitator board for the sand play activity

Theme	Learning Outcome (LO) according to the National Curriculum Statement		Activity	Supplementary words
	Literacy programme	Life skills programme		
<b>Story activity</b> Family, friends and emotions	LO1: Listening LO2: Speaking LO5: Thinking and reasoning LO6: Language structure and use	LO2: Social development LO3: Personal development	Lotto game – matching emotions	Happy, sad, excited, surprised, angry, worried
<b>Song activity</b> Safe neighborhoods	LO1: Listening LO2: Speaking LO5: Thinking and reasoning LO6: Language structure and use	LO1: Health promotion LO2: Social development LO3: Personal development	Sequencing cards with the following scenarios: - clothes are on fire - house is on fire	Fire, move away, feeling safe, roll over, house, call for help, put out (extinguish)
<b>Arts and crafts activity</b> Healthy eating habits	LO1: Listening LO2: Speaking LO5: Thinking and reasoning LO6: Language structure and use	LO1: Health promotion LO4: Physical development and movement	Buying fruit at the shop and making fruit salad	How much is.....? My change please? Hello, do you have...? Fruits: apple, paw-paw, banana, orange Tools: spoon, knife

Table 1: Grade I teachers' ALS materials and supplementary symbols

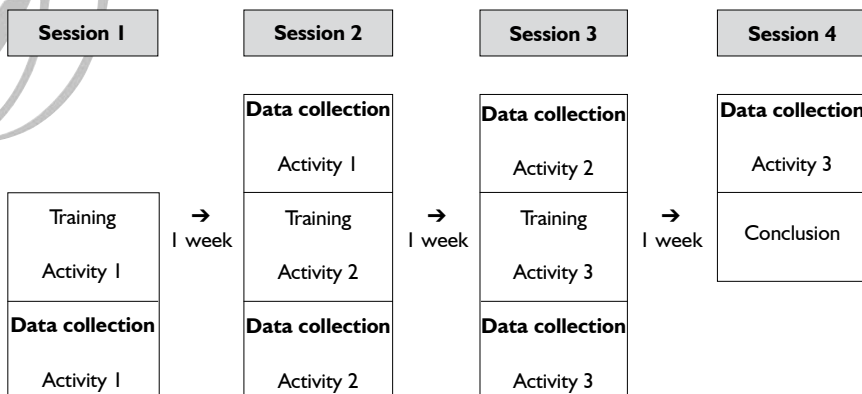


Figure 2 Data collection process and procedures

types of questions for each aspect are: Is the teacher able to accommodate or adjust her teaching strategies for learners with different needs? Does the teacher coordinate her pointing to the board and speaking simultaneously? Is the teacher able to assist learners who demonstrate a breakdown in comprehension? The format of the scale utilised a four point Likert type scale ranging from seldom, sometimes, most times to always. The teachers and researchers independently completed the rating scales and then agreed upon a consensus score based on feedback. This opportunity for the teacher to compare her self-rating to experienced external raters, provided a learning opportunity regarding objective rating of performance.

## Results and discussion

The Friedman test was used to measure differences in the teachers' performance across the six sessions, for each of the three aspects investigated. The Friedman test is a non-parametric statistical test which is an alternative to the repeated measures ANOVA. The results are discussed according to the teachers' gains across sessions, as well as the general patterns that emerged regarding each of the three aspects, namely classroom management strategies, use of ALS and facilitation of interaction. The results from the Friedman test appear in Table II. Significant differences between sessions are indicated by the use of the different postscripts <sup>a</sup> and <sup>b</sup>.

### Teachers' gains across sessions

As seen in Table II the difference between first and last performance rating was significant for all three constructs, as indicated by the different postscripts in Table II. Further investigation revealed that for all of the constructs there was a significant difference between the initial rating of the first activity ( $A_1S_1$ ) and the second rating of the second activity ( $A_2S_2$ ). In addition, no statistically significant difference occurred between the initial rating of the first activity and the initial rating of the second activity ( $A_1S_1:A_2S_1$ ) and the second rating of the second activity and the second rating of activity three ( $A_2S_2:A_3S_2$ ). This indicates that mastery of new skills is developing, as the teachers' skill levels are reaching a plateau.

This difference between the initial rating of the first activity ( $A_1S_1$ ) and the second rating of the second activity ( $A_2S_2$ ) implies that teachers used the successive practice attempts to refine the skills taught. The teachers acquired skills which were maintained, and utilised in subsequent sessions to improve their performance further. This was, however, coupled with a decrease in their performance with the introduction of each new activity, as can be viewed in Figure 3. The nature of the task differed slightly for each activity and therefore required adjustment in terms of lesson ma-

terials and outcomes, which may have accounted for the decrease, although the strategy of ALS remained constant across all the activities.

### Teachers' gains across constructs

It is clear that adaptation in teachers' behaviours with regard to presentation strategies and methods occurred. A distinctive pattern of skill acquisition can be seen in Figure 3 and Table II in which teachers' classroom management strategies trail facilitation of interaction and use of ALS. This pattern is to be expected, as interaction and use of ALS are focused on the implementation of strategies, which formed the basis of the training. Similar findings were reported within the group of teachers with regard to the impact of ALS in the classroom<sup>23</sup>. The rapid increase in skills

within these aspects may be as a result of the demonstration and immediate feedback received. Both of these are fundamental adult learning principles and should be built into all adult training programmes<sup>29</sup>.

Skills in using ALS and facilitation of interaction developed in tandem. Therefore, teachers' exposure to ALS facilitated the realisation that they could use ALS to assist them in monitoring and assessing children's interactions. This may be one possible reason why these skills developed in tandem, as teachers used their newfound skills to manage the curriculum-based activities as well as the learners' interactions. It would appear that by rating their own performance the teachers gained insight, not only into their own teaching strategies, but also into the interaction patterns of learners in their classroom. In addition, a movement away from a teaching strategy where questions and answers were used to measure understanding, towards augmenting this by using alternative responses such as pointing, signing and drawing, is evident. Classroom management strategies was the area in which the least gain was observed across the teachers' performance. This finding is similar to and aligns with the results reported by Cegelka and Doorlag<sup>26</sup>. Facilitation and the use of ALS were maintained and eventually become habitual and, through repeated practice sessions, it is expected that the teachers' classroom management skills will also become habitual.

### Evaluation and implications

As so aptly expressed by Bruner (as cited in Brewer)<sup>32</sup>, "It matters not what we learnt. What we can do with what we have learned... that is the issue" (p. 3)<sup>33</sup>. Narrowing the gap between practice and theory, ie, knowledge and skills<sup>33</sup>, is therefore pivotal to the success of teacher training. It is

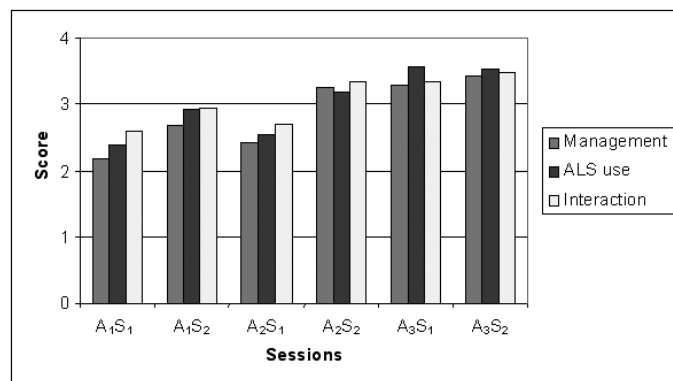


Figure 3: Teachers' skill acquisition process

	A <sub>1</sub> S <sub>1</sub>		A <sub>1</sub> S <sub>2</sub>		A <sub>2</sub> S <sub>1</sub>		A <sub>2</sub> S <sub>2</sub>		A <sub>3</sub> S <sub>1</sub>		A <sub>3</sub> S <sub>2</sub>		Significance p=0.05
	Mean	Std	Mean	Std	Mean	Std	Mean	Std	Mean	Std	Mean	Std	
Classroom management	2.2 <sup>a</sup>	0.53	2.7 <sup>ab</sup>	0.58	2.5 <sup>a</sup>	0.52	3.2 <sup>b</sup>	0.58	3.1 <sup>b</sup>	0.63	3.4 <sup>b</sup>	0.39	2.94
Use of ALS	2.4 <sup>a</sup>	0.48	2.9 <sup>ab</sup>	0.56	2.5 <sup>a</sup>	0.58	3.2 <sup>b</sup>	0.54	3.2 <sup>b</sup>	0.57	3.5 <sup>b</sup>	0.46	2.94
Facilitation of interaction	2.6 <sup>a</sup>	0.43	3.0 <sup>a</sup>	0.56	2.9 <sup>a</sup>	0.38	3.4 <sup>b</sup>	0.48	3.1 <sup>ab</sup>	0.43	3.6 <sup>b</sup>	0.51	2.94

\* Note: Means with different postscripts indicate significant difference  
A = activity; S = session

Table II: Results from the Friedman test for all 12 teachers





evident that the orientation session together with the follow-up sessions allowed the teachers to create the link between the theory, presented during the orientation session, and the skills training facilitated during the follow-up sessions. ALS as a strategy was successfully employed within this context and facilitated an increase in teachers' performance in the three aspects measured. Adult learning principles work best when incorporating a variety of teaching methods and perceptual modalities<sup>24</sup> and this is characteristic of ALS as a strategy in which visual, print, oral, interactive, tactile and kinaesthetic modalities are incorporated. This multi-modal approach to facilitating skill acquisition may have contributed towards the rapid gain in skill which the teachers experienced while using ALS principles in the classroom. In addition, the very nature of ALS as an adapted teaching strategy, due to its scripted routine, enabled teachers to become more observant regarding the children's participation once the teachers became familiar with the script.

As the training programme was based on the guidelines stipulated by UNESCO<sup>1</sup>, improved levels of knowledge and skills were observed. The fact that the training programme was developed using a core set of valid principles proven from literature to yield effective results, contributed largely to the successful outcomes achieved. The need for in-service training targeting inclusive teaching practices was identified by the Department of Education. Therefore, there was a willingness from the teachers to become engaged in a process of self-development. The training in Phase I created opportunities for teachers to consolidate support networks with colleagues in the same region. The fact that selected teachers had the chance to connect theory and practice together by participating in both phases of the training, created additional opportunities for learning through self-reflection. The repeated opportunities to engage in self-reflection mediated by experts, contributed to the sustainability of the teaching strategies taught.

It is difficult to develop a model of best practice for training in this context. Evidence-based practice refers to the extent to which strategies utilised in practice are based on fundamental principles supported by research<sup>25</sup>. However, documenting and sharing findings are essential not only to facilitate critical reflection of the strengths and weaknesses of the process, but also to provide the guidelines onto which subsequent endeavours can be projected. It is therefore critical that researchers rise to the challenge to reflect continuously on the effectiveness, versatility and sustainability of projects.

## Conclusion

Results from this study indicate that ALS is a means to increase teachers' ability to facilitate interaction in the classroom, using curriculum-based activities. Teaching is a tension filled practice and challenges of inclusion should be addressed to ensure sustainable changes in attitudes, acquisition of knowledge and skills and engagement in the process of self-development. It is only by evaluating outcomes in relation to training effectiveness that training can become more sustainable and versatile, thus facilitating positive functioning of teachers in mainstream classrooms<sup>26</sup>.

## References

- UNESCO. Overcoming exclusion through inclusive approaches in education. A challenge and a vision. Conceptual paper for the education sector. 2001. <<http://education.pwv.gov.za/content/documents/80.pdf>> (June 24 2007).
- Department of Education. *Quality education for all: Report of the NCSNET & NCESS*. Pretoria, South Africa: Government Printer, 1997.
- Department of Education. *Education White Paper 5: Early Childhood Education: Meeting the challenge of early childhood development in South Africa*. Pretoria, South Africa: Government Printer, 2001.
- Department of Education. *Education White Paper 6: Special Needs Education: Building an inclusive education and training system*. Pretoria, South Africa: Government Printer, 2001.
- Department of Education. *Guidelines for inclusive learning programmes*. Pretoria, South Africa: Government Printer, 2005.
- Booth T. Stories of exclusion: natural and unnatural selection. In: Blyth E, Milner J, editors. *Exclusion from School: Inter-professional Issues for Policy and Practice*. London: Routledge, 1996.
- Pendlebury S, Enslin P. Social justice and inclusion in education and politics: the South African case. *Journal of Education* 2004; 34:31-50.
- Mittler P. Including children with disabilities. *Prospects* 2004; 34(4):385-396.
- Engelbrecht P, Snyman HM. Educating pre-service teachers in inclusive education: Reflections on the Stellenbosch experience in South Africa. *International Journal of Special Education* 1999; 14(1):96-100.
- Villa RA, Thousand JS, Chapple JW. Preparing teachers to support inclusion pre-service and in-service programmes. *Theory and Practices* 1996; 35(1):43-50.
- Eloff I, Kriel EJ. 'n Narratief oor die stresbeleving en hantering van 'n opvoeder in insluitende onderwys. [A narrative on the stress and coping of a teacher in inclusive education]. *South African Journal of Education* 2005; 25(2):120-126.
- Eloff I, Swart E, Engelbrecht P. Including learners with physical disabilities: Stressful for teachers? *Koers* 2002; 67(1):77-99.
- Engelbrecht P, Swart E, Eloff I. Stress and coping skills of teachers with a learner with Down's syndrome in inclusive classrooms. *South African Journal of Education* 2001; 21(4):256-260.
- Engelbrecht P, Forlin C, Eloff I, Swart E. Developing a support programme for teachers involved with inclusion in South Africa. *International Journal of Special Education* 2001; 16:80-89.
- Ross FC, Wax I. *Inclusionary programs for children with language and/or learning disabilities: Issues in teacher readiness*. Unpublished report, University of Illinois: Chicago, 1993.
- Buell MJ, Gamel-McCormick M, Hallam RA. Inclusion in a childcare context: Experiences and attitudes of family childcare providers. *Topics in Early Childhood Special Education* 1999; 19(4):217-224.
- Putnam J. Future directions in education and inclusion of students with disabilities: A Delphi investigation. *Exceptional Children* 1995; 61:553-577.
- Bricker D, Cripe JJW. *An activity based approach to early intervention*. Baltimore: Paul H. Brookes, 1992.
- Hemmeter ML, Grisham-Brown JL. Developing children's language in inclusive early childhood classrooms. *Dimensions of Early Education* 1997; 25:6-13.
- Losardo A, Bricker DD. An activity-based intervention and direct instruction: A comparison study. *American Journal of Mental Retardation* 1994; 98(6):744-765.
- Pretti-Frontczak KL, Barr DM, Carter MMA. Research and resources related to activity-based intervention, embedded learning opportunities and routines-based instructions: An annotated bibliography. *Topics in Early Childhood Special Education* 2003; 23(1):29-39.
- Dada S, Granlund M, Alant E. A discussion of individual variability, in activity-based interventions, using the niche concept. *Child: Care, Health and Development* 2007; 33(4):424-431.
- Dada S, Alant E. Teacher training for AAC classroom implementation. In: Alant E, Lloyd LL, editors. *Augmentative and Alternative Communication: Beyond Poverty*. London: Whurr Publishers, 2005:300-322.
- Goossens' C. Aided communication intervention before assessment: A case study of a child with cerebral palsy. *Augmentative and Alternative Communication* 1989; 5:14-26.
- Goossens' C, Crain S. *Augmentative communication intervention resource*. Wauconda, IL: Don Johnson, 1986.
- Cegelka P, Doorlag D. Personnel Preparation: Relationship to Job Satisfaction. *Draft Report. Working Paper #7*. Paper presented at the National Dissemination Forum on Issues Relating to Special Education Teacher Satisfaction, Retention and Attrition, Washington, DC, 1995.
- Trump G, Hange J. *Concerns about and effective strategies for inclusion: Focus group interview findings from Virginia teachers*. Charleston, WV: Appalachia Educational Laboratory, 1996.
- Uys CJE, Alant E, Lloyd LL. A play package for children with severe disabilities: a validation. *Journal of Developmental and Physical Disabilities* 2005; 17(2):133-154.
- LaLonde TL. Using adult learning principles to increase training effectiveness. *NALP Bulletin* 2004(October):1-3.
- Mayer-Johnson Co. (1989). *Boardmaker™* [Computer software]. Solana Beach, CA: Author.
- Fitzgerald E. *Straight language for the deaf: A system of instruction for deaf children*. Washington, DC: The Volta Bureau, 1949.
- Brewer IM. *Learning more and teaching less: A decade of innovation in self-instruction and small group learning*. Surrey: SRHE & NFER-Nelson, 1985.
- Adler J. *Teaching mathematics in multi-lingual classrooms*. Dordrecht: Kluwer, 2001.
- Birkenholz RA. *Effective adult learning*. Danville, IL: Interstate publishers, 1999.
- Alant E. Intervention issues. In: Alant E, Lloyd L, editors. *Augmentative and alternative communication and severe disabilities*. London: Whurr Publishers, 2005:9-29.

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