Teaching Children with Learning Difficulties via Community-Based Rehabilitation Projects in rural Sri Lanka

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ABSTRACT

Teachers in rural Sri Lanka find it challenging to support students with Learning Difficulties (LD) in regular classrooms. As a result, students with LD often quit school early. Community- Based Rehabilitation (CBR) projects located in rural areas sometimes provide learning opportunities for students who are school dropouts.

Purpose: *The research focussed on identifying an effective teaching approachthat Developmental Assistants (DAs) can employ when teaching students with LD.*

Methods: *An action research methodology with two action cycles was selected for this purpose. Each cycle consisted of four stages: analysing, reflecting, planning, and implementing and monitoring. Data collection involved semi-structured interviews and real-time observations. A combination of qualitative and quantitative methods was adopted for data analysis. Research participants included 11 students aged 8-14 years, their parents and two DAs.*

Results: *Outcomes suggest that students with LD actively engage in learning when an integrated approach that uses thematic units which reflect the students' world, is in force. They also benefit when some elements of the behavioural approach to teaching-learning: explicit direct instruction, modelling, scheduled practice, reinforcement and feedback, are combined with certain components of the constructivist approach: independent work, group discussions and reflection.*

Conclusions: *The study demonstrates that students with LD can succeed when the teaching-learning process is modified to suit their needs. Hence, CBR project workers ought to be trained to plan and design lessons that meet the needs of students with LD. It further validates the role CBR projects can play in diminishing negative views on disability and in creating inclusive societies.*

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Limitations: *The study's illuminative design was appropriate within a limited sample of students. However, this sample is not wholly representative of the multicultural and multi-religious student population with LD in hard-to-reach areas of Sri Lanka.*

Keywords: *Action research, theme-based curricula, teaching approaches, CBR.*

INTRODUCTION

Community-Based Rehabilitation (CBR) programmes were first established by the World Health Organisationin 1978 (Finkenflugel et al, 2005). CBR programmes are initiated to rehabilitate, provide equal opportunities, reduce poverty and include individuals with disabilities into the community (Deepak, 2003). Individuals with Learning Difficulties (LD) often display complex needs (Julie and Peter, 2005). Hence, when CBR programmes focus on teaching students with LD, the staff members should adopt an intervention approach that is suitable to address their needs.

Community-Based Rehabilitation (CBR)

CBR was introduced by the World Health Organisation (WHO) at the historic conference at Alma Ata in 1978, as a strategy within community development to provide rehabilitation, equal opportunities, and social inclusion of people with disabilities in developing countries (Finkenflugel et al, 2005). The report by the WHO Expert Committee on Disability Prevention and Rehabilitation (1981) states that, 'Community-based rehabilitation involves measures taken at the community level to use and build on the resources of the community, including the impaired, disabled, and handicapped persons themselves, their families, and their community as a whole' (World Health Organisation, 1981). The WHO model of CBR was subsequently replaced in 2001 by a joint statement of three United Nations agencies: ILO, UNESCO, WHO (Deepak, 2003). According to this definition, "CBR is a strategy within general community development for rehabilitation, equalisation of opportunities and social inclusion of all children and adults with disabilities. CBR is implemented through the combined efforts of people with disabilities themselves, their families and communities, and the appropriate health, education, vocational and social services. The major objective of CBR is to ensure that people with disabilities are empowered to maximise their physical and mental abilities, have access to regular services and opportunities and become active, contributing members of their communities and their societies"

(Deepak, 2003). Thus, CBR promotes inclusive communities where persons with disability live with dignity (Wee, 2010). Although CBR was initially intended for developing countries, the concept has since been embraced by more developed nations (Finkenflugel et al, 2005).

CBR programmes are usually sustained through the efforts of local residents and persons with disabilities who commit to meet regularly and seek the necessary services (Wee, 2010).

The success of CBR programmes is also dependent on efforts of multiple sectors within the community and country (Deepak, 2003). Despite complexities involved in initiating, sustaining and extending CBR programmes, there are examples that indicate its effectiveness including cleft lip/palate rehabilitation in Bangladesh, Sri Lanka, South Vietnam and Thailand (Prathanee et al, 2006), the rehabilitation of leprosy clients in Indonesia and India (Deepak, 2003), and within refugee camps in Kenya (Wee, 2010).

Learning Difficulties (LD)

The term 'learning difficulties' was coined in 1963 by Samuel Kirk, to describe students with relatively normal intelligence whose pace of learning is slower than the average student (Reddy et al, 2003). Currently, LD is considered as a generic term that describes learners who are developmentally and academically challenged, irrespective of the origin of the problems (Julie and Peter, 2005).

However, there is a lack of clarity and consensus regarding definitions at a global scale (Ellis, 2005). In Africa, students with LD, also referred to as slow learners or underachievers, are described as those ". . . who experience learning difficulties independent of obvious physical defects such as sensory disorders. … such children have the ability to learn but it takes them a longer time to comprehend than the average child" (Abosi, 2007). In UK, although the joint term Learning Difficulties and Disabilities (LDD) is recommended, adults with LDD prefer the term Learning Difficulties (Abbott, 2007). According to the National Health and Medical Research Council of Australia, LD is a generic term to describe children exhibiting developmental and academic problems due to intellectual, physical and sensory deficits, emotional difficulties, and environmental factors and in the absence of suitable educational opportunities (Ellis, 2005).The term 'learning disabilities' is widely used in USA and Canada (Watson and Boman, 2005). The Learning Disabilities Association of Canada (LDAC), views LD as a

group of disorders that arise due to deficits in acquisition, organisation, retention, understanding or use of verbal and non-verbal information (LDAC, 2015). In Sri Lanka, a specific definition for learning difficulties is non-existent. However, a person with a mental or health deficit, whether present at birth or acquired, who is unable to function independently either partially or wholly in daily living activities, is considered as a person with a disability (Japan International Cooperation Agency –JICA, 2002).

Since an acceptable global definition is not currently in operation, the present day identification process differs (Ellis, 2005). Hence, the prevalence of students with LD is subjective, according to the definition and diagnostic criteria used in individual countries (Scruggs and Mastropieri, 2002). A perusal of literature indicates that prevalence could range from as low as 2%to as high as 10% within a classroom (Watson and Boman, 2005; Learning Disabilities Association Ontario, 2011; Cortiella and Horowitz, 2014).

The causes for LD are considered to be varied. Studies indicate that complications during pregnancy and birth, insufficient early experiences and stimulation, poor or inadequate instruction, long absences from school due to illness, unfavourable school and home conditions and emotional barriers contribute significantly towards LD (Kar, 2003). Other studies identify school factors: teaching methods, teacher attitudes, culture, language of instruction; home- related factors, factors within the child, environmental changes, air pollutants and food additives as potential causes of LD (Ellis, 2005; Abosi, 2007; Kuyini and Abosi, 2011).

Despite ongoing debates and researchers' lack of consensus regarding a definition, there is however agreement regarding the characteristics and learning processes typical of students with LD (Watson and Boman, 2005). These students are often distracted, they display short attention spans, are not active participants in the learning process, are unable to bring together prior knowledge and personal experiences to current learning, exhibit learned helplessness and low self-esteem, and inability to succeed in academic tasks (Westwood, 2004; Ellis, 2005). Hence, in many countries students with LD drop out of school without completing primary school education (UNESCO, 2011).

Students with LD are often diagnosed with speech and language difficulties (Reddy et al, 2003). Children are considered to have speech and language difficulties when there is a mismatch between age-appropriate developmental expectations and development of their ability to communicate (Beitchman and

Brownlie, 2010). These difficulties manifest as a delay: development of speech and language according to the expected development pattern at a reduced speed; or a disorder: the distorted development of speech and/or language due to physiological or cognitive deficits (Royal College of Speech and Language Therapists-RCSLT, 2009). Speech and language difficulties could be a primary impairment in the absence of neuro-developmental problems or social causes, a secondary condition associated with another primary disorder, or a deficit due to socio-economic disadvantage (Gascoigne, 2006; Steppling et al, 2007).A child who fails to develop his/her native language in the absence of other deficits is considered to have a developmental language disorder (Meronen et al, 2013). Receptive language deficits are manifested through inability to maintain attention to linguistic input, react to verbal statements unless accompanied by gesture or repetition, to listen until verbal directions are complete and to follow oral directions (Reddy et al, 2003). Expressive language deficits are identifiable through incoherent speech, disfluent speech, a limited lexical base, slow retrieval of vocabulary and semantic-pragmatic difficulties (Reddy et al, 2003). Evidence suggests that children from low socioeconomic homes often lag behind their age mates from more advantaged circumstances in expressive language skills (Justice et al, 2008).

There is evidence that when teachers are sensitive to the needs of students who are struggling, and select and implement appropriate teaching methods, they create interested and engaged students (UNESCO, 2011).

Developing an Effective Intervention Approach for Students with LD

A search through literature indicates the popularity of teaching methods grounded in two prominent theories of educational psychology: the behavioural and constructivist approaches (Ellis, 2005).

The behavioural approach advocates that skills can be developed through good training and practice (Ellis, 2005). According to this view, the teacher is an instructor who transmits knowledge through explicit direct instruction, modelling, scheduled practice, reinforcement and feedback to enable students to absorb knowledge (Joyce et al, 2000). The flow of information is uni-directional as the students are considered passive recipients. Hence, the teaching-learning approach is based on drill, practice and rote memorisation (Abbott, 2007). This approach has been criticised by some researchers who consider that students who undergo such an intervention programme are unable to transfer knowledge

gained to varying and unpredictable naturalistic settings (Bygate et al, 2000). However, there is also research that supports direct, explicit and intensive teaching programmes based on the behavioural approach for students with LD (Jitendra et al, 2004; Ellis, 2005).

The constructivist approach considers learners as active participants of the learning process, capable of self-regulating and constructing knowledge in developmentally appropriate ways (Ellis, 2005). This approach seeks to transform the learning context rather than modify it (Abbott, 2007). According to Ellis (2005), the theory arises from the works of a range of philosophers and psychologists such as Bruner (1966), Piaget (1972) and Vygotsky (1978). Bruner believed that language acquisition is a psychobiological process that can be expedited through "systematic and contingent interactions between adults and children" (Bruner, 1966). According to Piaget (1972) cognitive development is a progressive reorganisation of mental processes that occur as a result of biological maturation and interactions with the environment (Huitt and Hummel, 2003). Vygotsky (1978) suggests that language is an essential tool for the development of higher cognitive processes (Swain and Lapkin, 2011). He introduced the concept Zone of Proximal Development (ZPD) which has been described as "the distance between the actual developmental level as determined by independent problem-solving, and the level of potential development as determined through problem-solving under adult guidance or in collaboration with more capable peers" (Vygotsky, 1978). Proponents of constructivism advocate integrated curricula that approach an area of study from a multitude of perspectives, honouring students' multiple forms of intelligence (Ellis, 2005). However, there are mixed opinions regarding teaching methods based on the constructivist approach for students with LD because multiple possibilities can cause confusion (Ellis, 2005) and hinder them from understanding core concepts and developing specific skills (Price and Cole, 2009).

Objective

This study focusses on ascertaining a teaching approach that CBR staff can adopt when teaching students with LD. For the purpose of this study, and in the absence of a national definition, learners who are developmentally and academically challenged to meet the demands of the national curriculum and who are out of school due to failure at grade examinations are considered as students with LD.

METHODS

Setting

The research was conducted in Sri Lanka, an island in the South Asian region. Sri Lanka has an estimated population of 20.26 million people (Department of Census and Statistics, 2012) and a literacy level of 97% (UNICEF, 2012).

The study setting was a sleepy hamlet located 96 kilometres away from Colombo, the bustling commercial city in the North Western province of Sri Lanka. The predominantly Sinhalese-Buddhist community earn a living by providing labour to the large coconut plantations. In addition, in most families, one member, usually a female, supplements income by going overseas to work in the Middle East.

Two years prior to the research, a non-governmental organisation (NGO) had initiated a CBR project in this village, to serve children with LD. The organization provided professional and material resources while the villagers supplied a site and volunteers (Wickremesooriya, 2004). In keeping with CBR norms, the project's aim was to empower individuals from 5-16 years of age, who do not attend school due to LD, to be independent and to be accepted by their communities, thereby encouraging the establishment of inclusive societies.

To achieve these goals, and in the absence of national guidelines, the administrators along with a special education teacher designed a programme based on the national curriculum for primary Grades 1- 3. The emphasis was on concrete and practical aspects of teaching and learning. Two Developmental Assistants (DAs) were employed to attend to the needs of 10 students. The DAs were enrolled in a two-week training programme, designed to teach students with special needs. Since inception the DAs had worked diligently to implement a typical school- based routine. However, annual evaluations revealed that their students remained disengaged, inattentive and non-communicative most of the time.

Study Sample

The two DAs, 11 students and their parents were invited to be research participants. Parents acted on behalf of their children, in keeping with the cultural norms. A meeting was held for parents and DAs, to inform them of the research objective, explain the process and obtain permission. Participants were assured

of confidentiality of information. Written consent was obtained after providing adequate time for queries and clarifications. All invitees agreed to participate.

The DAs were both 22-year-old females. They had completed the General Certificate of Education, Advanced Level examination, 3 years earlier. They live in neighbouring villages and have siblings with LD who are currently attending a special school in town, where both DAs had worked as volunteers.

The 11 students, 8-14 years of age, had not received a formal evaluation regarding their learning and/or language difficulties. Data collected during the registration process, summarised below (Table 1), provides an insight regarding each student.

Table 1: Student Data

Name Pseudonym	Age	Gender	Medical Diagnosis	Language Concerns	Outstanding Behaviours
Saman	8	Male	None	Spontaneously speaks a limited number of 2-3 word phrases. Follows basic instructions consistently.	Easily frustrated. Bites others. Does not complete tasks.
Madu	8	Female	Down's Syndrome	Spontaneously speaks a few single words. Follows basic instructions.	Drools. Friendly. Talks in own language.
Namal	9	Male	None	Spontaneously speaks a few single words. Follows basic instructions.	Loner. Prone to temper tantrums.
Sriyani	9	Female	None	Spontaneously speaks a limited number of 2-3 word phrases. Follows basic instructions irregularly.	Avoids social contact. Prefers creative tasks.
Chathura	10	Male	Epilepsy	Spontaneously speaks a limited number of 2-3 word phrases. Follows basic instructions selectively.	Prefers art and craft activities. Sociable, friendly and helpful.

Amal	10	Male	ADHD	Spontaneously speaks a limited number of 2-3 word phrases. Follows basic instructions consistently.	Spends most of his time outdoors. Friendly.
Mala	11	Female	None	Spontaneously speaks a few single words. Follows basic instructions consistently.	Lethargic. Dislikes play.
Banu	11	Male	None	Spontaneously speaks a few single words. Follows basic instructions selectively.	Enjoys listening to music. Sings.
Dinesh	12	Male	None	Speaks a few single words sometimes. Follows basic instructions consistently.	Avoids group activities.
Gayan	13	Male	ADHD	Spontaneously speaks a limited number of learned2-3 word phrases. Follows basic instructions consistently.	Usually spends time outdoors. Always hungry.
Harini	14	Female	None	Engages in some conversation selectively.	Prone to mood swings. Helpful.

Ethics

The research was approved by the Faculty of Education of the University of Birmingham, UK. Written consent was obtained from the participants. Privacy and confidentiality of information was maintained throughout the study and in subsequent publications.

Data Collection

Data collection involved triangulation or the scrutinising of data from multiple frames (Johnson and Christenson, 2012). Existing records, students and DAs provided the initial set of data. The semi-structured interview method, which consists of a predetermined set of questions amended according to the type of responses given by the interviewees, was selected to gather data from parents

(Kember, 2000). The data was recorded using an audio recorder (Kember, 2000). Observation, which enables understanding live, true situations by monitoring the different ways that people interact with each other, was selected to comprehend the dynamics in the teaching-learning situation (Fawcett, 2005). A video recorder helped capture the complex interactive styles (Rymes, 2008).

Action Research

Action research is a concept developed in the early twentieth century by John Collier, who was committed to developing a 'community' in relation to educational and social contexts, and Kurt Lewin, who shared Collier's views from an industrial perspective (McNiff and Whitehead, 2002). Lewin (1946) developed his theory to include a spiral of cycles, with each cycle comprising of planning, action, observation and reflection stages that continue to the next cycle, indicating change in thinking that results in learning (Ferrence, 2000). The popularity of action research is widespread and encompasses a variety of disciplines including social sciences, education, organisation and administration studies and management (Best et al, 2003).

This methodology was selected due to two key factors: openness to learning while making changes and continuity of the process even after the research project ceases.

Pre-Action Stage

Prior to embarking on the research, it was necessary to engage in a fact-finding mission. This was attempted as a two-step process: interviewing parents and observing students.

Interviewing Parents

Each set of parents was interviewed separately, according to their convenience, within the project location, in a quiet private setting to ensure confidentiality. A predetermined set of questions which invited elaboration, as shown in the example, was utilised (Table 2). The interviews were conducted in the Sinhalese language and audio-recorded with prior consent. Recorded data was transcribed to the English language to aid analysis and data sharing.

Table 2: Sample Questions - Parent Interviews

What is your understanding about your child's disability?
Did your child attend school and/or a kindergarten? For how long? Why did you discontinue schooling for your child?
How does your child communicate his/her needs at home? How often? Can you give me some examples?

Observing Students

Observations took place in the formal indoor setting and informal outdoor setting. The management granted permission to video- record these sessions. The students were initially distracted by the video recorder but relaxed as the recordings continued, and subsequently forgot its presence. To ensure authenticity of data, recordings of the first two days were not subjected to analysis.

According to the timetable, the students engaged in five pre-planned thirty-minute learning activities each day. The observations focused on students' participation in activities, focus time and spoken interactions during each activity. A grid per client was designed to record data for three days (Table 3). Participation was recorded as the voluntary engagement in learning activities for more than five minutes. A percentage value was attributed to this calculation. Focus time involved recording the minutes per activity (mpa) for all five activities each day, A1-A5, and gaining an average by dividing the total number of minutes by the total number of activities the student was involved in. Spoken interactions involved counting the number of times the student spoke to classmates and with DAs - initiating, responding or answering questions while the learning tasks were in progress. The total number for the three days was then divided by three to obtain an average per day, and rounded to the nearest whole number.

Table 3: Example Grid - Student Observation

Saman	Participation %	Focus time – mpa						Spoken interactions with	
		A1	A2	A3	A4	A5	Average	Classmates	DAs
Day 1	40	6	5	7	9	5	6.4	2	2
Day 2	40	10	7	6	7	5	11.7	3	3
Day 3	20	8	9	10	5	8	13.3	2	4
Average	33	10.5						2	3

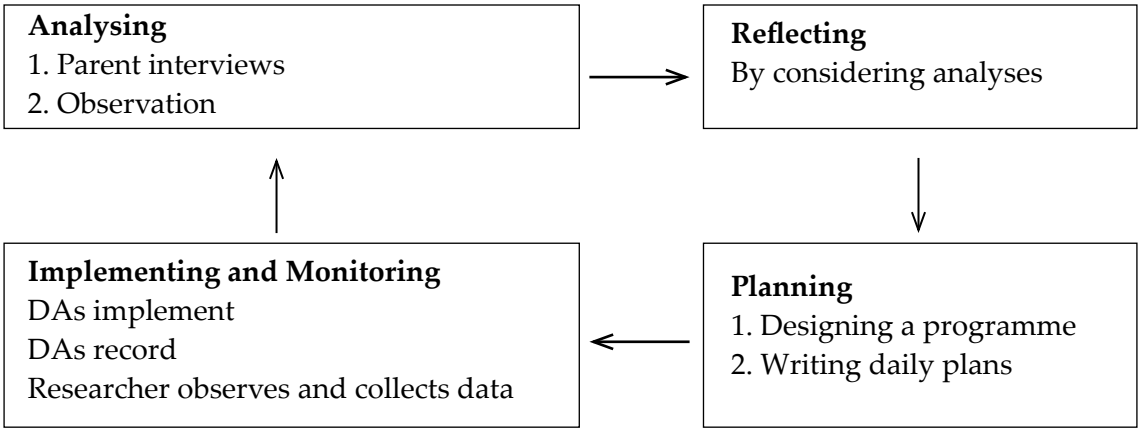
Data Analysis

Data was analysed using a mixed methods approach, a systematic approach to understand the interaction of variables in the environment by analysing data from two angles - quantitative and qualitative (Onwuegbuzie and Leech, 2006). Quantitative analysis involved considering numerical data in terms of percentage values, minutes per activity, number of times each student spoke with classmates and with DAs, and averages of these figures. Qualitative analysis was engaged to identify patterns and relationships in the data gathered from interviews and field diaries.

RESULTS

The following sections discuss Action Cycle 1 (AC1), and Action Cycle 2 (AC2) and the four stages of each cycle - analysing, reflecting, planning, and implementing and monitoring (Figure 1).

Figure 1: The Action Cycles



Action Cycle 1 – AC1

Analysing

Data collected from parent interviews and observation of students was subjected to analysis.

Parent Interviews

Data was arranged to identify patterns.

- All students are Sinhalese Buddhists from marginal income families.
- Parents of five students believe that their children have disability because they have to atone for past wrongs. Parents of six students believe it is due to a deficiency in their horoscope.
- All students had been enrolled in kindergarten and moved on to primary 1-3 at some stage of their lives, in the same school.
- All the students' parents had been requested by the administrators, to voluntarily remove their children from the school they attended, because they were deemed incapable of learning.
- Grandparents, unmarried relatives and older siblings, who are either illiterate or have attended primary school, care for the students with the exception of Chathura. His mother is a stay-at-home mother, who had attended school until the tenth Grade.
- Parents include the students in community life only for religious observances at the temple.
- All students use spoken language at home to make requests for everyday needs and to answer questions with an affirmation or negation. Harini joins in family conversation, initiates topics and asks questions when she is interested in communicating.

Student Observations

A summary of findings (Table 4) reveals the following information.

Participation ranged from 9.5% -72.3% with an average of 38%, focus time ranged from 5-15.9 mpa with an average of 8.7 mpa, and spoken interactions with classmates ranged from 1-9 with an average of 4, and interactions with DAs ranged from 1-11 with an average of 5.

Table 4: Summary Observations Pre-AC1

	Participation %	Focus time – mpa	Spoken interactions with	
			Classmates	DAs
Saman	33	10.5	2	3
Madu	40.5	8.3	5	6
Namal	15	5	2	3
Sriyani	16.4	5.2	2	1
Chathura	41.7	10.5	2	3
Amal	56.8	15.9	5	6
Mala	12.3	5.4	3	2
Banu	58.2	6.9	5	7
Dinesh	9.5	5	1	3
Gayan	62.6	11.7	6	8
Harini	72.3	11.6	9	11
Average	38	8.7	4	5

Reflecting

As the DAs and researcher engaged in collaborative reflection, they agreed that students' participation in learning activities, focus time and engagement in spoken interactions could be improved. Further scrutiny also highlighted the possibility that the existing approach could be improved to engage the students and keep them active.

Planning

Stage three required the development of action plans. A participatory process with the involvement of the DAs, speech and language therapist, psychologist, special education advisor and chief administrator was opted for, because negotiating and listening to the voices of all parties is fundamental to the successful implementation of a programme. Planning involved selecting an approach, deciding on the principles of instruction and designing aprogramme.

Having considered the pertinent theories of educational psychology, the resources available, human and material, and the student base, select aspects of teaching practices from the behavioural approach were merged with the constructivist

approach to teaching. Hence, explicit direct instruction, modelling, scheduled practice, reinforcement and feedback as advocated by the behavioural approach, were combined with features from the constructivist approach methods including independent work, group discussions and reflection. All participants agreed to a programme with a theme-based curriculum which reflects the clients' world, to engage the clients in meaningful learning that will ultimately support independent living and the advancement of language and communication skills. It was therefore decided that the activities, while being practical, would involve building numeracy, language and life skills, science, music, movement, art and craft and sports. The core lesson content was determined by perusing the Grade 3 national curriculum. This decision was made because all the students had attended school until Grade 3. However, the contents' complexity was adapted to students' profiles, to ensure that each student was actively engaged. Designing of the programme (Table 5) commenced thereafter.

Table 5: AC1 Programme

Topic	Farm Animals		Key words
Objectives	Students will: Become more knowledgeable about farm animals. Acquire new vocabulary. Use spoken language to communicate. Engage in activities based on science, language, numeracy, art, craft, music, dancing and sports.		Hen - Cock Hen - Gobbler Sow - Boar Nanny goat – Billy goat Doe- Buck Bitch - Dog Duck - Drake Cow – Bull Bucket Coop Grain Gate Fence Farmer Farmhouse Tractor Hay Herd Shovel
Time frame		19 sessions	
Session			
Lesson 1		Ascertain current knowledge	
	1	Gather data regarding familiarity with farm animals	
Lesson 2		Introduction	
	2	Names of animals	
	3	Vocabulary associated with a farm	
Lesson 3		Physical characteristics	
	4	Colour, size, sounds, skin/feathers	
Lesson 4		Habitats	
	5	Differences and similarities	

Lesson 5		Nourishment	Milk Cheese Eggs Yoghurt Meat Chicken Pork Pen Sty Pastures Kennel Sheds
	6	Food they eat	
Lesson 6		A day at the farm	
	7	Observe and participate in farm activities	
Lesson 7		Life cycles	
	8	Classify egg-laying and live birth animals	
	9	Names of young animals.	
Lesson 8		Animal produce	
	10	Names	
	11	Role play - farm shop	
	12	Visit a farm shop and purchase items	
	13	Prepare food from items purchased	
Lesson 9		Farms around the world	
	14	Story time	
	15	Repeat the story	
Lesson 10		Imagine	
	16	Craft: creation of a farm – group activity	
	17	Craft continued	
Lesson 11		What we know	
	18	Informal assessment – at the farm	
	19	Formal assessment	

On completing the design, daily plans were drawn up by identifying specific activities and locations. Two lessons were located on a farm and one at a farm store. It was also agreed that the DAs would benefit from workshops that focused on gaining knowledge and skills to implement the new programme.

Implementing and Monitoring

Three weekend workshops were conducted for the DAs in January. The students' programme commenced in February and continued for approximately four weeks. Each session was conducted from 9.00 a.m. to 1.00 p.m. on all weekdays.

Progress was monitored in two ways: the researcher acted as a passive observer and collected data via video recordings, and the DAs maintained a field diary. The video recordings were scrutinised daily to record data in the student grids similar to the grids used in the Pre-action stage. DAs recorded their reflections regarding suitability of activities and those that required modifications to meet programme goals.

Action Cycle 2 – AC2

Analysing

Data gathered during the monitoring process was analysed thereafter. Entries in the field diaries were subjected to qualitative analysis that focussed on identifying patterns. The individual data collection grids were summarised as in the Pre-AC1.

Field Diaries

The key features that emerged when analysing the field diary are as follows:

- Workshops for DAs: Helped in the transition from the familiar routine to the unfamiliar.
- Activities: In-house
  - Flashcards: Focus time decreased for all students for activities with flashcards.
  - Food preparation: The students were involved and interested. Nine students extended learning by getting involved in preparing food at home; something previously discouraged by the families due to fear of accidents.
  - Story activity: Initially the students did not comprehend the exercise. Subsequent demonstration by DAs and volunteers clarified and encouraged student involvement.
  - Art and Craft: The students actively participated and cooperated, producing a detailed final product.
- Activities: Outdoor
  - Field trips: The students were involved and interested. However, if the adult: student ratio was lower, the learning opportunities may have increased.

- Farm shop visit: Despite preparation, the students were hesitant to initiate and engage in conversation. The shop assistants were also unsure of the expectations.

- Spoken language: There was a visible change in the attempts made by the students to communicate with each other and the DAs.
- Social engagement: The field trips and farm shop visit resulted in people from the community inviting the students to view their cottage industries. Three individuals offered to teach pottery, weaving and coir making.
- Plan vs. Execution: Approximately 50% of the activities were implemented. It was agreed that time allocation per activity ought to be considered carefully when planning in the future, since the new method was creating an active atmosphere.

Student Observations

Individual student data for AC1 was summarised by following the identical process as in the Pre-action stage. In addition, percentage change for each category for each action cycle, Pre- and AC1, was recorded for comparison (Table 6).

Table 6: Summary Observations AC1

	Participation %		% change	Focus time – mpa		% change	Spoken interactions with				% change
	Pre-	AC1		Pre-	AC1		Classmates		DAs		
							Pre-	AC1	Pre-	AC1	
Saman	18.2	22.6	24.18	5.1	6.9	35.29	1	2	3	4	50
Madu	40.5	46	13.58	8.3	9.8	18.07	5	7	6	5	9.1
Namal	15	22	46.67	5	6.3	26	2	5	3	4	80
Sriyani	16.4	18.7	14.02	5.2	6.5	25	2	3	1	3	100
Chathura	41.7	50.2	20.38	10.5	13.7	30.48	2	4	3	7	120
Amal	56.8	65.3	14.96	15.9	18.9	18.87	5	8	6	9	54.55
Mala	12.3	18.7	52.03	5.4	7.1	31.48	3	4	2	1	0
Banu	58.2	71	21.99	6.9	13.8	100	5	9	7	11	66.67
Dinesh	9.5	11.2	17.89	5	5.7	14	1	1	3	4	25
Gayan	62.6	76.2	21.73	11.7	13.6	16.24	6	8	8	12	200
Harini	72.3	88	21.71	11.6	19	63.79	9	17	11	14	55

When considering the percentage changes for participation, focus time and spoken interactions for all students, a clear upward trend from pre-action to AC1 is noted. Mala is the only exception, with a 0% increase for spoken interactions.

Reflection

A careful study of the quantitative and qualitative analyses was carried out by the DAs and the researcher. The qualitative analysis indicated the activities that worked and the activities that ought to be modified in the future. It also highlighted the need to focus on time allocation and group size. The quantitative measures indicated an upward trend, endorsing the view that the activities presented were interesting enough to actively engage the clients. Since the overall results were positive, it was agreed that AC2 continues in a similar manner while taking into account the lessons learned.

Planning

The DAs decided to maintain the same objectives and continue with the thematic approach in AC2. However, repetition of lessons, allocating more time and careful selection of group size was given priority. The three individuals who offered to teach new skills to the students were invited to conduct sessions once a week – on Monday, Wednesday and Friday, for one hour. These lessons were linked to the thematic unit. The topic "Birds in the wild" was selected since the research location is rich in bird life including migratory birds, due to the protected marsh land that borders the village. The daily plan was written after finalising the programme design (Table 7).

Table 7: AC2 Programme

Topic	Birds in the wild	Key words
Objectives	Students will: Become more knowledgeable about birds. Observe and listen. Acquire new vocabulary. Use spoken language to communicate. Engage in activities based on science, language, numeracy, art, craft, music, dancing and sports.	Woodpeckers Kingfishers Humming birds Doves Herons Ducks and geese Hawks

Time frame	18 sessions		Pheasants Turkeys Cuckoos Perching birds
Session			
Lesson 1		Ascertain current knowledge	
	1	Gather data regarding familiarity with the names of birds, their sounds, colours and size	
Lesson 2	2	Introduction	
		The names of the birds and physical features	
Lesson 3		Getting to know	
	3-17	Observe birds in their natural settings Learn to record observations and build a personal portfolio	
Lesson 4		Wetlands	
	4	Overview	
	5	Endemic and migratory birds	
Lesson 5		Beaks and food	
	6	Recognise general types of bird beaks	
	7	Food birds eat	
	8	Method each beak is adapted to eat	
Lesson 6		Feet and locomotion	
	9	Shapes	
	10	Compare these shapes with shapes in the environment	
	11	Form of locomotion	
Lesson 7		Bird call	
	12	Identify birdcalls of common species	
	13	The role of birdcalls in communication	
Lesson 8		Birds' nests	
	14	Materials used	
	15	Shapes	
	16	Who builds the nest?	
Lesson 9		See and learn	
	17	Visit a wetland	
Lesson 10		What we know	
	18	Informal assessment	
	19	Formal assessment	

Implementing and Monitoring

This stage commenced in March and continued for19 sessions. The sessions were conducted from 9.00 a.m. to 1.00 p.m. on all weekdays except public holidays.

Existing knowledge was gathered while the students were engaged in cleaning the schoolyard, because many birds are visible in the morning. Informal discussions took place and students demonstrated interest and knowledge. However, lack of expressive vocabulary prevented them from elaborating on the information.

The theme was introduced through story and a variety of fun activities that took place indoors and outdoors. Progress continued to be monitored each day through video recordings and field diaries maintained by the DAs. Video-recorded data was subsequently transferred to the student grids.

Results

Entries in the field diaries and individual data collection grids were analysed as in AC1. Parents were interviewed as a group.The field diariesand parent interview datawere subjected to qualitative analysis and the student grids were subjected to quantitative analysis.

Field Diaries

The patterns that emerged when analysing field diaries are as follows:

- Activities: In-house
  - Story time: Alternative communication fostered by placing pictures on the mat for easy access encouraged participation.
  - Listening to bird sounds on an audio recorder: A marked increase in active listening was noted in most of the students except Namal and Mala.
  - Paper-based activities: These were challenging for all except Amal. The small size of the pictures may have contributed to the difficulty.
- Activities: Outdoor
  - Daily observation: The students were eager to update their records each day.
  - Portfolios: Students competed to have the best portfolio. Portfolios aided in memory recall.

- Field trip: The grouping of students into pairs, led by an adult assigned with specific duties, ensureda high focus on key aspects of learning.

- Spoken language:
  - The students' spoken language interactions became spontaneous. The length of phrases, sentences and questions also increased, as reflected in the following example.

    Student J: tuck tucktuck

    Student G: What are you doing? Stop!

    Student J: I am making a nest for my ... (looks at the DA)

    DA Latha: Babies?

    Student J: Yes, lots and lots of babies.

    Student G: You like babies? But they make a lot of ... (scratches head)

    DA Latha: Noise?

    Student G: Yes, noise. Hmm...

    DA Latha: Crying?

    Student G: (nods) Like little brother. I don't like.

- Social engagement: The students were eager to learn. The community became aware that volunteer opportunities were available and offered their services. This gave the students an opportunity to mingle with different people in the community and encouraged the community to gain a positive view of the students.

- Plan vs. Execution:
  - Both DAs incorporated almost 85% of the planned activities. Hence the time allocation for activities, which was given much consideration during the planning phase, was more realistic in AC2.

Student Observations

Individual student data was summarised and percentage change was then calculated for participation, focus time and spoken interactions, by following the identical process as in AC1 to enable ease of comparison (Table 8). Total of

interactions for each action cycle was compared when calculating the percentage change for spoken interactions.

Table 8: Summary Observations AC2

	Participation %		% change	Focus time – mpa		% change	Spoken interactions with				% change
							Classmates		DAs		
	AC1	AC2		AC1	AC2		AC1	AC2	AC1	AC2	
Saman	22.6	45.2	100	6.9	12.1	75.36	2	8	4	10	200
Madu	46	64.1	39.35	9.8	19.4	97.96	7	11	5	9	66.67
Namal	22	43.9	99.55	6.3	16.3	158.73	5	4	2	3	0
Sriyani	18.7	57.1	205.35	6.5	21.2	226.15	3	3	3	6	50
Chathura	50.2	69.6	38.65	13.7	23.9	74.45	4	8	7	10	63.64
Amal	65.3	79.8	22.21	18.9	22.7	20.11	8	17	9	15	88.24
Mala	18.7	39.9	11.34	7.1	14	97.18	4	3	1	3	20
Banu	71	86.3	21.55	13.8	21.3	54.35	9	17	11	20	85
Dinesh	11.2	33	19.46	5.7	11.9	108.77	1	4	4	4	60
Gayan	76.2	89.9	17.98	13.6	25.4	86.76	8	15	12	16	55
Harini	88	95.2	8.2	19	26.9	41.58	17	23	14	21	41.94

The percentage changes for the three components under review - participation, focus time, spoken interactions - for all students indicate an upward trend from AC1 to AC2. The only exception is Namal who showed a 0% increase for spoken interactions.

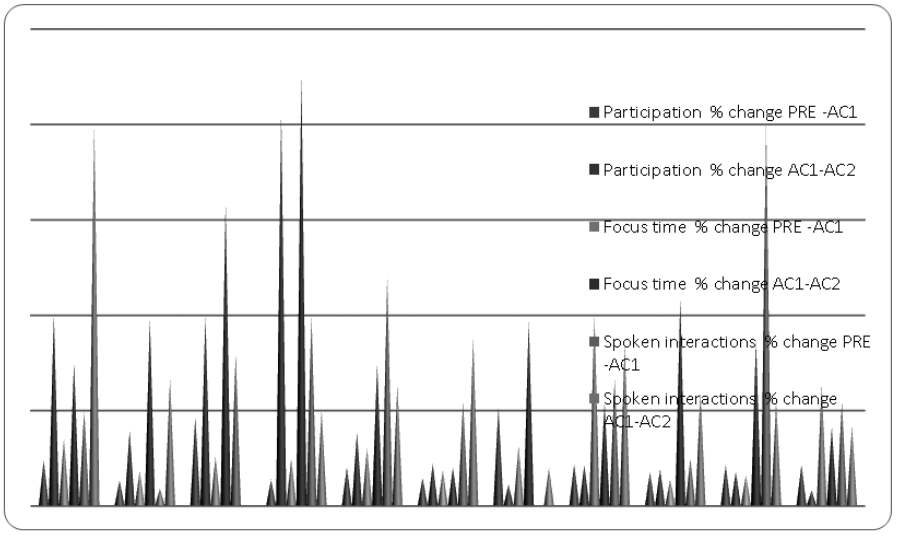
Parent Interviews

Although a programme specifically to influence parents' thinking was not in force, parents'thinking too changed as they witnessed changes in their children and the response of different people in the community. Their post-research views, articulated on different occasions, were two-fold.

- Their children can learn when taught in different ways, with differentiated expectations.
- They can involve their children in family and community events without feeling judged or ashamed.

A comparison of percentage changes from Pre-action to AC1, and from AC1 - AC2 reveals that all students displayed an upward trend, except for Banu and Harini. These two students recorded a lower percentage of improvement from AC1-AC2 when compared with the rate from Pre-action to AC1 for participation and focus time.

Figure 2: Comparison of Results from Pre-action to AC2



DISCUSSION and CONCLUSION

The research was about finding a suitable teaching approach for school-aged children with LD, who are serviced through CBR projects in hard-to-reach areas in Sri Lanka.The CBR project under scrutiny is sustained by the efforts of the community, an NGO, professionals and volunteers. The students are deemed to have LD, since they are unable to cope with the demands of the national school curriculum. Feedback from parents and observations also highlighted a deficiency in language, both expressive and receptive.

By considering theories of educational psychology, the context and resources, it was deemed necessary to merge select aspects of teaching practices from the behavioural approach with select aspects of the constructivist approach, to design a suitable programme. Hence, explicit direct instruction, modelling, scheduled

practice, reinforcement and feedback as advocated by the behavioural approach, were combined with independent work, group discussions and reflection as advocated by the constructivist approach. A programme that uses a theme-based curriculum that stimulates learning through varied ways, while considering a single topic over a prolonged period of time from multiple perspectives, was planned for this purpose.

An action research methodology was selected because it seeks to make changes and encourages co-participants to review, evaluate and improve practice even after the research ends. The spiral of the two cycles opted for, spanned the duration of approximately 6 months, from conceptualisation to completion. The DAs were the provocateurs who provided the students with many and varied opportunities to think about a theme over a predetermined period of time in different ways.

The action research process which involved prolonged engagement with a theme for each action cycle resulted in energetic, curious, interested and vocal students. As students began to enjoy and look forward to the sessions, their participation, focus time and spoken interactions improved.

Hence, the action research process demonstrated that a theme-based curriculum which reflects the students' world, when taught by combining some elements of the behavioural approach to teaching-learning: explicit direct instruction, modelling, scheduled practice, reinforcement and feedback, with certain components of the constructivist approach: independent work, group discussions and reflection, is an appropriate approach that staff members engaged in CBR projects can adopt, when teaching students with LD. Another aspect that was revealed is the role CBR projects can play in diminishing negative views on disability, thereby creating inclusive societies.

Although the literature search did not find similar studies on CBR projects, this study encourages individuals engaged in CBR projects that serve student populations to engage in action research. Such a move will benefit CBR projects at a global level.

Limitations

The study was conducted with a limited sample of students within a Sinhala-Buddhist cultural context in the North-Western coastal area of Sri Lanka. Hence, this sample is not wholly representative of the multicultural and multireligious student population with LD living in rural Sri Lanka.

Implications

When CBR projects opt to provide teaching programmes for students who have dropped out of school due to LD, certain conditions need to be met. Effective staff training programmes, access to a theme-based curriculum and relevant teachers' guide, when available, can enhance the performance of such ventures.

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