

CHAPTER 4

ANALYSIS OF DATA

4.0 INTRODUCTION

The results of the data analysis are discussed according to three main categories. The first category is the individual analysis of the subjects' abilities, the second is the perception of teachers, parents and the observer of the subjects and the final category is the general development of the study sample in communication skills.

Under the first category, analytical results are presented of each child's ability before and after the Early Intervention Programme. An individual child's strengths and weaknesses in communication are noted here.

The second category deals with the interview data and observations. The teachers and parents were interviewed to identify their perceptions of the subjects. The observer's perceptions are also noted.

In the final category, the general progress of the subjects in communication skills is analyzed.

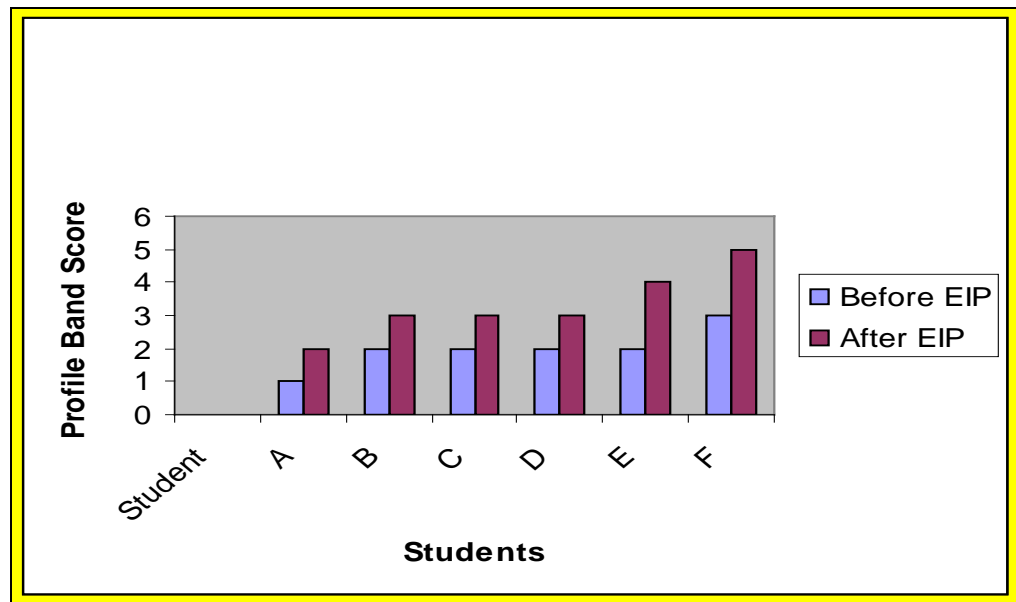
This analysis will reveal those skills which are generally difficult, and those which are easy to acquire for subjects.

4.1 ANALYSIS OF DATA

The tabulated data 4.1 until 4.6 indicate the profile achievement of the six children with Down Syndrome involved in the study. The tables show the study sample's ability in each of the sub-skills in communication before and after the intervention. All the children in the study (students A to F) show improvement in their communication ability although the degree of achievement varies. The highest profile band before intervention was profile band 3 which one study sample aged 18 achieved. The majority of the study sample ages between 14 and 16 years achieved profile band 2 before the Intervention. After the intervention, student A achieved profile band 2, students B, C, D and E achieved profile band 3 and student F achieved profile band 5 as shown in Table 4.1 and bar graph 4.1.

Table 4.1: Profile Achievement of Children With Down Syndrome

Student	Age	Profile Band Before intervention	Profile Band After Intervention
A	13	1	2
B	14	2	3
C	14	2	3
D	16	2	3
E	17	2	4
F	18	3	5



Bar graph 4.1: Distribution of profile scores of children with Down Syndrome before and after the EIP

The study sample's progress shows that children with Down Syndrome can be taught the various sub-skills involved in communication so that they can interact in a community. This study reveals that the study sample is generally good at skills such as motor imitation, greeting, gesture, adult and peer interaction. However the sample studied shows poor performance in skills such as vocal imitation, receptive by function, and class, vocal play and matching to sample.

However, to identify the strengths and weaknesses of the study sample in the various skills of communication, it is important to have a detailed study of their performance. To do this, it is necessary to scrutinize the skills in detail and to interpret the profile score. This can be seen through the profile score obtained in each of the sub-skills by the study sample in Expressive Language Skills, Receptive Language Skills and Social Development respectively. These data show a narrow spread of profile score.

In general, the children in the study sample have the ability to communicate if systematic training is given. The discussion of the finding is based on the tabulated data.

4.2 OBSERVATIONS

4.2.1 GENERAL OBSERVATIONS OF STUDENT A

Before Intervention

Profile Band	MI	MTS	R	LN	RFFC	L	RS	VP	VI	G	GS	CA	CS	AI	PI
5															
4															
3															
2	×							×	×						×
1		×	×	×	×	×	×			×	×	×	×	×	

After Intervention

Profile Band	MI	MTS	R	LN	RFFC	L	RS	VP	VI	G	GS	CA	CS	AI	PI
5															
4															✓
3	✓								✓	✓				✓	
2		✓	✓	✓	✓	✓	✓	✓			✓	✓	✓		
1															

Graph 4.1 Communication Ability of Student A

Student A is 13 years old. He was accepted early into the programme as his father helps with some of the activities carried out by the centre in school. He had training in self help skills such as putting on his shoes and bathing training but he needed help during meal times at the centre.

Initially, he had very few verbal skills. He was a difficult child to teach as he often threw tantrums. He took some time to familiarise himself with the new surrounding. This was his first exposure outside home. He was happy when left alone or when with some of his peers. He scored profile band 1 before the intervention and profile band 2 after the intervention.

Motor Imitation (MI)

Student A was able to imitate a few gross motor movements as he needed a lot of prompts and expected immediate reinforcement when he was admitted to the centre. However, after a year at the centre, he was able to carry out instructions on request.

He acquired the skill to initiate several gross movements such as jumping and skipping. He still had difficulties imitating fine motor movements as he had limited practice at home.

Matching – to – Sample (MTS)

Student A was not able to match objects or pictures to provided samples initially. He was engaged in self- stimulation such as kicking and object stimulation. He improved on his score but emitted behaviour tantrums to escape tasks. He tried to match objects or pictures which were identical but was not successful.

Receptive (R)

Student A did not react to words emitted by adults initially. He was unable to respond correctly to simple instructions because he frequently exhibited negative behaviour.

After much training, he was able to follow some routine instructions such as come here, time to eat. However, he followed instructions only when he felt it was necessary. He was able to follow instructions in context. For example, wash your hands after meal time.

Letters and Numbers (LN)

Student A was not exposed to any academic instruction before admission to the centre. He was unable to identify any letters or numbers.

He learnt to identify a few letters and numbers but was slow. He showed interest in learning.

Receptive by Function, Feature and Class (RFFC)

Student A was unable to identify items when the items were described before the intervention. For example, pick an item with a handle. He was able to respond correctly when the specific name of an item was mentioned after the intervention. For example when a picture of cat was shown with other pictures, he was able to pick the one that says 'meow'.

Labeling (L)

Student A was unable to identify any of the familiar items in her environment. Through exposure, he was able to label a few items such as ball, kite, knife and water. He was unable to label people, actions or colours.

Request (RS)

Student A was non verbal before the intervention. He did not ask for reinforcers for most of his times the reinforcers were given. At times, he threw tantrums to get what he wanted. After the intervention, he was able to get the attention of adults towards the reinforcers.

Vocal Play (VP)

Student A made a few speech sounds to himself but refused to repeat when asked. However, he babbled many speech sounds with varied intonations while at play. However, the sounds made could rarely be understood. He did not improve in this skill after the intervention as he was not very cooperative.

Vocal Imitation (VI)

Student A could repeat sound such as ‘mama’, ‘papa’ but not willingly before the intervention. He needed extensive prompts.

Student A often tried to imitate a sound or word with an approximation especially when he was highly motivated. He was able to request items using sign languages and verbal sounds after the intervention.

Greeting (G)

Student A was scared and only stared at unfamiliar people before the intervention but he overcame this attitude occasionally through smiles and waves. Most often he needed prompts to acknowledge people, but after the intervention he could not hold up his arms in greeting and even wave.

Gesture (GS)

Student A made some gestures occasionally depending on his needs but most often it was just pointing. Through training, he was able to make speech sounds and at same time point at the person or item. At times, his communication was hampered because of wrong gestures.

Cooperation with Adults (CA)

Student A did not comply with instructions or request when reinforcers were given. He was able to carry out simple instructions. Negative behaviour was prominent when he was required to give responses without any reinforcers.

Student A was attentive and responsive for short periods of work after much training.

Conversational Skills (CA)

Student A was able to respond to some words in a song before the intervention . for example, 'Are you sleeping'. He could associate sounds of animals with names such as 'meow' when the teacher said 'cat' after the intervention.

Adult Interaction (AI)

Student A did not show interest in others and thus, he was passive. He isolated himself from others. When the teacher forced an interaction, he threw tantrums. However, through much coaxing he overcame the initial problem and interacted with familiar adults, those who visited the centre regularly and staffs other than the teachers at the centre.

Peer Interaction (PI)

Before the intervention, student A approached familiar peers but did not interact with them. He only played with peers familiar to him during play sessions. The peers familiar to him were those who travelled with him in the same bus in the centre.

Through many sessions in the programme, he interacted with other peers when prompted by the teacher. Occasionally, he displayed attempts to interact with peers or watch peers at play. He showed keen interest to play with other children, after the intervention.

4.2.2 GENERAL OBSERVATIONS OF STUDENT B

Before Intervention

Profile Band	MI	MTS	R	LN	RFFC	L	RS	VP	VI	G	GS	CA	CS	AI	PI
5															
4															
3															
2	×	×					×	×	×	×	×	×	×	×	×
1			×	×	×	×									

After Intervention

Profile Band	MI	MTS	R	LN	RFFC	L	RS	VP	VI	G	GS	CA	CS	AI	PI
5															
4										✓					
3	✓						✓		✓		✓	✓	✓	✓	✓
2		✓	✓	✓	✓	✓		✓							
1															

Graph 4.2 : Communication Ability of Student B

Student B is 14 years old. He did not have any formal pre-school education. His parents trained him in self-help skills. He had some exposure to learning names of items and greeting others from his siblings. He was unable to follow most of the verbal instructions and also lacked language skills. He scored profile band 2 at the beginning of the intervention as he scored level 2 in most of the skills and level 1 for receptive, letters, and numbers, receptive by function, feature and class and labeling skills.

Motor Imitation (MI)

Student B was able to imitate a few gross motor movements but did not only when he felt like doing before the intervention. He adopted well to the environment and people at the centre and learnt skills such as kicking, twirling around fast after the intervention but he did not spontaneously imitate others.

Matching – to – sample (MTS)

Student B was able to match 1 or 2 objects or pictures together but required prompts and reinforcement before the intervention. He made frequent errors, displayed behaviour tantrums to avoid carrying out tasks. He did not improve in his score in this skill as he was slow in grasping ideas but his tantrums were reduced, after the intervention.

Receptive (R)

Student B did not respond to teacher's instruction as he did not understand any of the words used by the teacher before the programme. The teacher had difficulties to get him to follow simple instruction as most often everything was done for him at home.

Towards the end of the school year, he could follow some instructions related to daily routines if given in context.

Letters and Numbers (LN)

Although student B was given some exposure to this skill by his siblings, he was unable to identify any letters or numbers before the intervention. This was because he was not given regular exposure to the skill. With regular training and exposure, student B was able to label or identify a few letters and numbers. He acquired some letters quickly and enjoyed his tasks after the intervention.

Receptive by Function (RFFC)

Student B was not able to point to any stimuli when the teacher gave verbal information about the item; for example, 'you drink with it', but he could point to a cup if the item was named before the intervention. He was able to identify a few items that had common descriptions after the intervention.

Labelling (L)

Student B showed some familiarity with certain items but could not verbally name common items before the intervention. He showed interest in learning and was able to identify items which were of much interest to him such as food, pets, and toys after the intervention.

Request (RS)

Student B was quite friendly as he used to pull his teacher to the reinforces. For e.g. if he wanted to have a drink, he pulled the teacher towards the water container in the class before the intervention.

After much training, he was able to produce a few words together with sign after the intervention.

Vocal Play (VP)

Student B made a few speech sounds but not often and without much variation before the intervention. Most of the time, he made sounds when he was excited, for e.g. when he saw his bus. His ability increased by the end of the school year when he could emit speech sounds with varied intonation, volume and pitch although they were not clear to the listener.

Vocal Imitation (VI)

Student B was able to repeat a few sounds but needed a lot of prompting before the intervention. However, he improved and was able to repeat several different sounds and words on command after the intervention.

Greeting (G)

Being friendly by nature, student B was able to acknowledge people quite easily before the intervention. He held up his arms to visitors who came to the centre as well as to the observer. He was able to greet people on arrival or departure after the intervention.

Gesture (GS)

Student B pointed at the items he wanted before the intervention but improved by making gestures with a few speech sounds after the intervention.

Cooperation with Adult (CA)

Student B could cooperate with adults but he needed a lot of prompting and reinforces before the intervention. Through training, he was able to give a few responses without any disruptive behaviour. He was attentive and responsive when required.

Conversational Skill (CS)

Student B was able to verbally respond to words such as the sounds of animals before the intervention. After the intervention, he was able to fill in gaps while singing 'Negaraku' and he could answer simple WH questions.

Adult Interaction (AI)

Student B would only approach a particular teacher who had taught him to get what he wanted before intervention. However he withdrew himself when an interaction was requested. Student B readily approached all the familiar adults at the centre to ask for reinforces as he got familiar with them after the intervention.

Peer Interaction (PI)

Student B interacted with some familiar peers at the centre at the beginning of the programme. These children were familiar to him because they travelled in the same bus as him. Towards the end of the year, student B had more interactions with selected peers through play sessions.

4.2.3 GENERAL OBSERVATIONS OF STUDENT C

Before Intervention

Profile Band	MI	MTS	R	LN	RFFC	L	RS	VP	VI	G	GS	CA	CS	AI	PI
5															
4															
3										×		×			
2				×	×		×	×	×		×		×	×	×
1	×	×	×			×									

After Intervention

Profile Band	MI	MTS	R	LN	RFFC	L	RS	VP	VI	G	GS	CA	CS	AI	PI
5										✓					
4												✓		✓	✓
3	✓		✓	✓	✓	✓	✓		✓		✓		✓		
2		✓						✓							
1															

Graph 4.3 : Communication Ability of Student C

Student C is 14 years old. He was from a low income family. He had lived with grandparents since birth. Sometimes he interacted with peers in the neighbourhood. He spent most of his time with his grandmother and he showed some considerable progress in skills such as greeting, cooperation with adults and in adults peer interaction. Student C scored level 2 before the intervention and progressed to level 3 by the end of the school year.

Motor Imitation (MI)

Student C was never seen imitating the actions of others when she started the programme. When asked to imitate, he did not show any interest. Later into the programme, he acquired some gross motor movements and he was able to imitate on request.

Matching To – Sample (MTS)

Student C was unable to match any objects or pictures to a sample. He was not exposed to any academic learning prior to attending the class. Through various sessions carried out during the intervention, he was able to match 1 or 2 object to a given sample. He made mistakes while matching a stimulus and sometimes threw tantrums to escape the test.

Receptive (R)

Student C did not understand words said by the teacher. He was most often made to do things with guidance at home before the intervention. Speech interaction was limited. He was able to follow some simple instruction towards the end of the school year.

Letter and Numbers (LN)

Student C was able to say numbers 1, 2, 3 and the letter 'A' only before the intervention. However, he was able to identify numbers 1-10 and several letters after the intervention. He was also fairly good in his discrimination skills.

Receptive by Function, Feature and Class (RFFC)

Student C was able to identify common items but not describe them before intervention. As more exposure was given, he was able to identify a number of items by their features after the intervention. He made errors at times.

Labelling (L)

Student C was not able to verbalize common items but was able to ask for specific things that were in his interest before the intervention. After the intervention, he could identify common terms such as ball, car and books with errors. He was able to respond immediately and did not require prompts.

Request (RS)

Student C achieved his needs by getting the teacher to come to where the items required was placed before the intervention. When the teacher did not entertain him, he threw tantrums and began to use a few words and signs to get reinforces after the intervention.

Vocal Play (VP)

Student C made some recognizable sounds without much variation before the intervention. He sounds became louder when he was excited or even when he was prompted to talk after the intervention.

Vocal Imitation (VI)

Student C was able to repeat sounds such as ‘mama’ but not willingly before the intervention. He needed extensive prompting to vocalize. He was able to repeat some sounds and words towards the end of school year without much prompting.

Greeting (G)

Student C was able to hold up her arms in greeting and wave at people before the intervention. He did not show any fear in greeting people. He was able to greet people on arrival and on departure by end of school year.

Gesture (GS)

Student C made a few gestures occasionally depending on his needs before intervention. Most of his gestures was pointing. Later he progressed to using speech sounds and pointing at the items or persons after the intervention.

Cooperation With Adults (CA)

Student C was able to do work or tests for short periods before the intervention. He could work on a few tasks without disruptive behaviour but he became restless during long periods of work. He was an attentive child in class after the intervention.

Conversational Skills (CS)

Student C was able to respond to words related to favourite television shows and songs before the intervention. He was able to make a number of animal sounds and associate them with pictures. He was able to answer simple ‘ WH’ questions without difficulty after intervention.

Adult Interaction (AI)

Student C could approach her elders to imitate an interaction before the intervention. This skill was prominent in the child as she mostly interacted with her

grandmother. Slowly she adapted to the various adults in the centre with some prompts from the teacher after the intervention.

Peer Interaction (PI)

Student C was able to adopt to peers and imitate interaction. He did it only when he felt like interacting before interaction. He enjoyed interacting with his peers mostly during play sessions after the intervention.

4.2.4 GENERAL OBSERVATION OF STUDENT D

Before Intervention

Profile Band	MI	MTS	R	LN	RFFC	L	RS	VP	VI	G	GS	CA	CS	AI	PI
5															
4															
3							×			×	×				×
2		×	×		×	×		×	×			×	×	×	
1	×			×											

After Intervention

Profile Band	MI	MTS	R	LN	RFFC	L	RS	VP	VI	G	GS	CA	CS	AI	PI
5										✓					✓
4											✓				
3	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	
2															
1															

Graph 4.4 : Communication Ability of Student D

Student D is 15 years old. He was deprived of an early education as his family lived in the outskirts of Tangkak town. He was a passive boy in class and had a few simple forms of communication at the start of the programme. He progressed from profile band 2 to 3 as he had some advanced communication skills and was able to acquire words or signs at a quicker pace. He showed eagerness to interact in all the sessions although occasionally he threw tantrums.

Motor Imitation (MI)

Student D was slow at the start of the class. Initially he did not imitate any motor movements modeled by teacher. This was due to his background where there was only limited interaction as he lived in an isolated area. He also did not show interest in the actions produced by others in the beginning. However, he progressed to band 3 as he acquired some imitating responses such as kicking and twirling around.

Matching – To – sample (MTS)

Student D's favorite reinforcer was a teddy bear. When he was given a teddy bear and a display of two pictures, he was able to place the object with identical pictures before intervention. However he had to be prompted by his teacher. After intervention, he scored band 3 as he was able to match objects which were to his personal interest such as Disney characters. He emitted negative behaviours if he was not happy.

Receptive (R)

Student D could follow verbal instructions when prompted before intervention. These instructions were such as 'come here'. He was also able to follow instructions in context such as washing his hands after meals, after intervention. When asked to carry out

difficult tasks, such as pointing to a ruler among out other items, he frequently evoked negative behaviour.

Letters and Numbers (LN)

Student D was rather weak at the beginning as he was not able to identify any letters or numbers. However, he was able to identify most of the letters. Occasionally he made errors with 'men'. Most of the time, however, he was able to discriminate between letters and numbers.

Receptive by Function, Feature and Class (RFFC)

Student D was able to correctly respond to common descriptors of some items with little guidance before intervention. For example, point to a picture of a cat when he hears the word 'meow'. After intervention he was able to identify a number of items when given the features of the item for example, 'we use it to drink', and he pointed to a glass.

Labeling (R)

Before intervention, student D was able to name highly reinforcing objects such as pets and foods. He was able to label items that he was familiar with such as toothbrush and towel. After intervention, he could easily identify common items such as ball, chalk and shoe. He did not require any prompts and did not make any errors.

Request (RS)

Student D had some verbal interaction before the intervention. He could point to pictures to obtain reinforcements e.g a ball, a glass. Even after the intervention his condition was at the same level. He continued to have a few words to ask for reinforces.

Vocal Play (VP)

Student D made occasional sounds to himself but did not respond when asked to say specific sounds before intervention. He developed in this skill as he was later able to make a variety of speech sounds but most often these sounds could not be understood as specific words.

Vocal Imitation (VI)

Student D could repeat sound such as ‘mama’ ‘papa’, but not willingly before the intervention. He needed extensive prompts. He often tried to imitate a sound or word with an approximation especially when he was highly motivated. He was able to request items using sign languages and verbal sounds after the intervention.

Greeting (G)

Before the intervention student D could greet familiar people by holding up his arms or waving to them. These people were like his teacher, parents and friends. He also smiled readily at familiar faces. However, after the intervention, he made much improvement because he could easily say ‘good morning or’ bye bye’ with prompts. He could even say names, but could not differentiate the times of the day.

Gesture (GS)

Before the intervention student D frequently used gestures to communicate. He used some speech sounds such as ‘car’, ‘bag’. He could say ‘teacher’ pointing at a teacher. At the same time he also made some wrong gestures which hindered his communication. After

the intervention, he made frequent gestures together with speech sounds. Most often he used correct gestures. Some communication was established.

Cooperation With Adults (CA)

Student D did not comply with instructions or requests especially when he was required to give up reinforcers such as coming into the class from outside before intervention. He needed a lot of prompting and powerful reinforcers. After the intervention he was able to give responses without disruptive behavior. He could work for short periods only because longer periods made him show negative behaviour.

Conversational Skills (C)

Student D was able to verbally respond to some of the words or phrases related to favorite activities e.g. tv shows. He was able to associate common objects and sounds such as animal sounds before the intervention. After the intervention, he could answer common 'WH' questions such as 'What do you eat?' and 'What is your name?'.

Adult Interaction (AI)

Student D did not interact with unfamiliar people. He isolated himself from others. When the teacher forced on interaction, he threw tantrums. However, through much coaxing he overcame the initial problem and interacted with familiar adults, those who visited the center regularly and staffs other than the teachers at the center.

Peer Interaction. (PI)

Student D scored highest level in this skill. At the beginning he was not able to interact only when given prompts. After the intervention, he regularly initiated and sustained verbal interactions with peers, he also looked for peers to play and talk with.

4.2.5 GENERAL OBSERVATIONS OF STUDENT E

Before Intervention

Profile Band	MI	MTS	R	LN	RFFC	L	RS	VP	VI	G	GS	CA	CS	AI	PI
5															
4															
3	×									×		×			×
2		×	×	×	×	×	×	×	×		×		×	×	
1															

After Intervention

Profile Band	MI	MTS	R	LN	RFFC	L	RS	VP	VI	G	GS	CA	CS	AI	PI
5										✓					
4			✓	✓			✓	✓				✓	✓	✓	✓
3	✓	✓			✓	✓			✓		✓				
2															
1															

Graph 4.5: Communication Ability of Student E

Student E is 16 years old. This student was admitted late to the centre as his parents were ignorant of the existence of the centre. He lived on an estate and seldom came to town. Although a latecomer to the centre, his level of performance generally indicated a learner who had acquired the ability to request several reinforcing items and activities, who

could receptively understand several words and who can participate in language acquisition activities.

He had sufficient exposure to the various communication skills at home with his elder sibling. However he had not developed a strong ability to identify objects and pictures when the items were not specifically named. He scored a profile band 2 initially and progressed to profile band 4 after the intervention.

Motor Imitation (MI)

Student E was able to imitate several gross motor movements on request. Before the intervention he could perform skills such as kicking, twirling around fast and climbing stairs. After the intervention his level was still the same that is band 3. He had difficult time imitating some movements at times.

Matching – to – Sample (MTS)

Student E required prompting initially to match a few objects or pictures together. He made errors frequently. When attempting to avoid or escape certain tasks, he emitted negative behaviour. After intervention, he readily matched common objects and pictures to give samples. However he failed to match items that were not exactly identical e.g. different coloured cups. Negative behaviour was persistent.

Receptive (R)

Student E could follow instructions related to daily routines such as ‘wash your hands before eating’. He could follow instructions without contextual clues e.g. come here, raise your arms and clap hands. He also followed verbal instructions when prompted. After

the intervention, he improved greatly. He could follow many instructions and could discriminate between a wide variety of objects and pictures. Could comply with instructions without much prompting.

Letters and Numbers (LN)

Student E was able to label or identify a few letters and numbers initially. He acquired new letters quickly. After the intervention he could read at least five words and identify five numbers. He was also able to read when written words were shown to him. He enjoyed the task.

Receptive by Function, Feature and Class (RFFC)

At the start, student E was only able to identify objects when specific names were given. Eventually he could correctly point to a few items when the items were described by their function for example, 'touch the one that you drink with', but he could not identify any items when only the features of the items for example, 'touch the one that has handles' were mentioned.

Labelling (L)

Student E could name a few items such as book, biscuit, bag and glass before the intervention. However, he was unable to give a label to the actions, people or colours. He could name ten common objects and pictures by the end of the school year. Nevertheless he had poor articulation and the listener needed to know the word he was trying to say. He could not correctly identify any actions. When he was forced to do any tasks, he threw tantrums.

Request (RS)

Student E was passive when he first came to the centre. He hardly used words to ask for his needs and expected the teacher to follow him, for example, 'to where things are placed', to know his needs. However, he quickly outgrew this characteristic and could ask for a number of reinforcers but it was often hard to understand his speech.

Vocal Play (VP)

Being shy initially, student E made a few sounds occasionally to himself but refused to respond when asked to say specific sounds or words before intervention. He was engaged in a substantial amount of vocal behaviour. (especially when playing with toys). He emitted a variety of words and phrases some of which were words phrases used by his teacher after the intervention.

Vocal Imitation (VI)

Student E was able to repeat few sounds or words although he needed prompts and reinforcers before the intervention. He progressed and often attempted to imitate a word with an approximation when he was highly motivated for a clearly available reinforcer. For example, when requesting items using sign language, he echoed ' uhh' for 'bah', for ball. However he avoided task when he was not successful in imitating a word. He was quite friendly and proficient in this skill before the intervention. At times he showed some signs of fear. He was able to greet his teacher on arrival and on departure at the centre. He readily greeted any of the adults who arrived at the centre.

Gesture (GS)

Student E used gestures according to his needs. Most often he resorted to pointing at an item before intervention. He was able to use speech sounds together with gestures. (mainly pointing) after intervention.

Cooperation With Adults (CA)

Student E was able to work at a few tasks without disruptive behaviour before intervention. He was able to work for short periods initially. After the intervention programme, he was usually cooperative with adults and followed instructions. However he displayed disruptive behaviour when he did not want to be disturbed. He could sit at the table and do tasks for brief periods but when forced he often threw tantrums.

Adult Interaction (AI)

Student E was able to approach the teacher but did not attempt any interaction before intervention. He was slow with other adults at the beginning as they were unfamiliar to him. He interacted with adults at the centre when prompted by the teacher. Good interaction took place when the adults were friendly after the intervention.

Peer Interaction (PI)

Student E had some good rapport with the peers traveling with him at the beginning of the programme. He initiated and sustained verbal interactions with his peers and he did not require prompts after the interaction

4.2.6 GENERAL OBSERVATIONS OF STUDENT F

Before Intervention

Profile Band	MI	MTS	R	LN	RFFC	L	RS	VP	VI	G	GS	CA	CS	AI	PI
5															
4										×					
3	×		×				×				×	×	×		×
2		×		×	×	×		×	×					×	
1															

After Intervention

Profile Band	MI	MTS	R	LN	RFFC	L	RS	VP	VI	G	GS	CA	CS	AI	PI
5	✓	✓	✓				✓	✓		✓		✓	✓	✓	✓
4				✓	✓	✓			✓		✓				
3															
2															
1															

Graph 4.6: Communication Ability of Student F

Student F is 18 years old. Although he did not have much experience at home and was a late comer to the centre, he coped well in his ability to communicate. He had some articulation problems but he was able to successfully make his needs known. Student F was reinforced by a wide variety of items and activities such as dressing up, music and videos as he was the youngest in his family and the influence of his elder working sibling was strong. Student F scored a profile band 3 on arrival at the centre and progressed to profile band 5 by the end of the programme.

Motor Imitation (MI)

Student F had some ability to imitate several of the gross movements of others when he was admitted to the centre. However he developed a strong ability to imitate both fine and gross motor movements as he progressed. He imitated the behaviour of others spontaneously and frequently which was embarrassing at times.

Matching – To-Sample (MTS)

Student F was unable to match 1 or 2 objects or pictures to a sample before intervention. Later, he was able to match a wide variety of stimuli at all times. He was able to complete block designs. He could also match objects to pictures and sort specific items such as food versus animals.

Receptive (R)

Student F was able to follow instructions to engage in specific behaviour out of context, for example, 'jump and clap'. He was able to pick out a ball when asked to do so before intervention. He was also able to distinguish between a variety of items such as objects, pictures, people and colours. He was quick at acquiring new receptive skills although he needed prompts and did show negative behaviour after the intervention.

Letters And Numbers (LN)

Student F was able to identify letters and numbers but was slow in labeling then before intervention. He enjoyed doing tasks and thus quickly acquired this skill after the intervention. He was able to read some simple words when shown.

Receptive by Function, Feature and Class (RFFC)

Student F was generally like other students in the study where this skill was concerned. He was able to respond to descriptions of common items such as associating the sound “meow” with picture of a ‘cat’ before intervention, but was able to identify an item given the class to which the item belonged after the intervention. For example, he was able to touch a doll when asked to touch a toy.

Labeling (L)

Student F was able to label items such as book, cat and ball before the intervention. He was able to label many varieties of the same object. He was able to name a few types of cars such as ‘Proton, Suzuki, Wira and Kancil’, after the intervention. This could be because the teachers and adults at the centre came to work in such cars.

Request (RS)

Student F requested items by using sign language occasionally but most often resorted to attracting the adult attention towards the item she wanted before the intervention. She progressed in this skill as she was able to ask for a number of reinforcers. He often sounded the final sound in a word for example, ‘oll for ball,’ ‘ap for clap’. He went into tantrums when he was not understood by the teacher.

Vocal Play (VP)

Student f made a few sounds to himself in the beginning of the programme but he engaged in a substantial amount of vocal behaviour especially while watching videos and listening to music after the intervention.

Vocal Imitation (VI)

Student F was able to repeat a few specific sounds such as ‘mama’, ‘bye-bye’ before intervention. However he enjoyed imitating sounds heard on television or from peers after the intervention.

Greeting (G)

Student F was a friendly boy although he was quiet most of the time before intervention. He was able to repeat greetings easily with prompts. Gradually he readily approached visitors to the centre and greeted them on arrival as well as on departure. He was able to differentiate between morning and night after intervention,

Gesture (GS)

Most of the time. Student F made use of sounds and pointed to the item before intervention. He made wrong gestures along the way which hindered communication. With retraining, he was able to use correct gestures together with speech sounds to express himself.

Cooperation With Adult (CA)

Student F was usually cooperative and followed instruction. He showed moody tantrums when not interested in carrying out instructions, before intervention. Through training sessions, he could sing parts of the ‘Happy Birthday’ song. He could not verbally identify things he liked to eat but could identify items when shown the corresponding pictures. He responded fairly well to questions posed by the teacher and others at the centre. He liked expressing himself but could not maintain focus on a topic for too long.

Conversational Skills (CA)

Student F was able to respond to some fill in blank questions such as he was able to give his name and age when requested. However he was unable to answer WH questions before intervention. After intervention, he was able to respond to WH questions such as ‘how are you?’ He was able to answer with variations such as ‘good, fine.’

Adult Interaction (AI)

Although initially Student F was only close to teachers and had little interaction with others, he improved as he was able to interact with adults with few prompts. He tried to interact with other adults besides the usual ones at the centre.

Peer Interaction (PI)

Student F could readily approach his peers to fulfill his wants. Although initially he only wanted his peers at play, he developed an interest to interact with them. When he was bored, especially between lessons. He looked for peers to play and talk with them. He could do this without a prompt.

4.3 TEACHER’S PERCEPTION OF THE STUDY SAMPLE

The two teachers have been at the school since it started in 1990. They have undergone various training sessions in how to handle special children. They also have been given opportunities to attend in-service courses once a year to upgrade themselves in latest methodologies.

The teacher felt that all the children in the study sample had been given very little training in self help although students E and f had had exposure to learning and music through their siblings. The teachers were of the opinion that students C and D were most often left on their own and that the parents of student A and B took the easy way out by providing everything for them.

Although students E and F had exposure at home, the teachers had to start teaching from basis as these children needed time to get used to the new environment, just like the other children.

The teachers said that the progress of the younger children was generally slower than older children. This is because it was easier to manage older children and they understood situations better. For example, if their was a visitor at the centre, the older children knew that they should behave and not disturb the teachers by asking them to meet their needs.

The teachers saw progress in all of the children after three weeks of intervention. If before the intervention, students A, B, C, and E cried to show their protest and screamed when they wanted to express their interest. As they went through their training they began to use their facial expressions to greet others, although students A & B just started.

After a few months into the programme, students D, E and F used gestures to respond that is by nodding their heads, while students A,B and C could make eye contact to greet someone. Before the programme ,the teachers could only spend less than five minutes at any one time, teaching the children. However after the programme, students C and E could work for about five minutes without any behaviour tantrums, while student F was able to

work for about 10 minutes. Students A,B and D improved after the intervention but needed reinforcers. The children were also able to fulfill their needs by asking for what they wanted through gestures and some verbal communication without any behaviour tantrums after the intervention.

Generally, the teachers were of the opinion that these children could be trained to lead a normal life and even enter mainstream education if proper guidance were given to them. The teachers felt that the degree of development varied from child to child. This could be due to the severity of their respective disability, about which the teachers that they were ignorant.

The teachers frequently felt frustrated after the school holidays as the children had forgotten most of what they have learnt while they were at home.

4.4 PARENTS PERCEPTION OF THE STUDY SAMPLE

As stated by Shames G.H. et. al.. (1994: 185) and Miller Gibbs and Carswell (1991:308) the parents generally said that they had limited interactions with their special children initially.

Besides they did not teach their children at home except for the parents of students A B who said that they spent at least an hour a day to reinforce their children in the skills taught to them at the centre. However the parent of student B said that she only emphasized self help skills while her older children helped in teaching the child. All the parents agreed that the children had improved after the intervention programme. Besides

having improved in behaviour , these children also showed signs of greater interactions with others. For example, they felt that these children could gesture to request their needs more politely. If before the intervention the children had cried to protest, after attending class, they shook heads to show their protest or nodded to agree.

All the parents interviewed were delighted to see their children's progress and the parents of students B,D and E were surprised that their children could be taught communicative skills, besides self help training.

The parents of student D, E and F regretted not sending their children earlier. However, all the parents were of the opinion that they could not teach their own child as they usually threw tantrums. The parents of students A, B, C and D who frequently visited the centre said that their children behaved better at the centre than at home.

All the parents interviewed basically depend on the centre for their children's development and they do interact with the teachers at the centre to note the development of their children.

4.5 OBSERVER'S PERCEPTION OF THE STUDENTS

The first visit by the observer to the centre was a frightening experience because as the children threw all sorts of tantrums and bringing them under control was a tedious task which the teachers undertook with the help of the parents.

However this atmosphere changed for the better two weeks into the programme. The children were more systematic although there were still some behaviour tantrums. By the

third week, the children were familiar with the observer being at the centre. They were able to acknowledge the observer by calling out aloud “Teacher”. Students D, E and F were able to greet the observer on arrival and departure. Students A, B and C were quiet initially but cooperated when asked to interact towards the end of the programme.

Students A, B, C and D were not able to identify the time of day but they knew the time to go home based on their class routine. For example, student C knew that it was time to go home soon after their singing session on Friday. Students A and C turned quiet when their bus arrived a little later than normal. In such a situation, they did not respond to their teachers. Students E and F showed fast progress although student A was slow. This could be because Student A is only 13 years old and has limited exposure.

The observer enjoyed the sessions with the children especially when they interacted with the observer. The children were friendly although at times they were aloof, especially after their parents had sent them to the centre in the morning and when it is time to go home and their bus or their parents arrive later.

4.6 COMMUNICATION SKILLS ANALYSIS

4.6.1 MOTOR IMITATION

Before the intervention programme, students C and scored profile band 1 as they were unable to imitate any motor movements made by the teacher. Most of them did not show any interest in the actions emitted by others. Students A and B scored profile band 2 as they were able to imitate a few gross movements such as jumping, clapping, running and raising

hands. They were active boys in class and were able to imitate movements observed while watching a video. Student e and F achieved profile band 3 as they were able to imitate several gross motor movements when asked. These children could be taught skills such as kicking, rolling and climbing stairs.

After the intervention programme, students A, B, C, D and E scored a profile band 3 while student F scored profile band 5. Student E did not improve as he still scored a profile band 3 at the end of the programme. He was rather slow in his movements. This was because he had limited physical training at home.

This skill was an easy skill to learn because the children enjoyed the sessions which were mainly carried out during their physical education class. Student f who had achieved band 5 could easily imitate fine and gross movements. He had sufficient training at home and thus imitation was spontaneous.

4.6.2 MATCHING TO SAMPLE

Student A and C scored a profile band 1 before the intervention. They were able to match identical objects or pictures to a given sample. These children enjoyed in self stimulation that is matching objects of personal interest most of the time. However through training, they were able to go up to profile band 2 and were able to match a few objects and pictures. They also required prompts and they were prone to make errors. Sometimes they showed negative behaviour in an attempt to avoid the task.

Student B, d, E and f scored profile band 2 before the programme. Student C remained band 2 while Student D and E progressed satisfactorily to profile band 3 and student f to profile band 5. Before the programme, all these children were able to match a few objects and pictures to samples with prompts. After the programme, student B remained in the same profile band. She was able to match common objects and pictures to sample. She was able to readily match to stimuli that were of personal interest only, for example, ball and doll. She was unable to match different coloured cups and when forced displayed negative behaviour. Student F mastered the skill well as she was able to match a variety of stimuli at all times. The child was able to complete block designs and match objects and match objects to pictures. Student F showed a great improvement compared to other children and this could be due to the exposure given at home by her elder siblings.

4.6.3 RECEPTIVE

Students A, B and C in the study scored a profile band 1 before the programme. They did not react to any words emitted by adults. They were unable to react correctly to instructions such as 'come here'. Negative behaviour was common among these children. Student A and B improved to profile band 2 after the intervention programme when they could follow instructions such as come here and clap hands. They were able to follow verbal instructions when prompted. Student C progressed to profile band 3 and he was able to follow instructions to engage in specific behaviour out of context for example, jump, sit and clap. He was able to carry out these instructions although at times he needed extensive prompting. However he had difficulties in performing complicated tasks such as identifying an item in an array of items.

Before the intervention programme Student D and E scored profile band 2 while student F scored profile band 3. From profile band 2 students D and E progressed to profile band 3 and 4 respectively. Student D in profile band 3 carried out the instructions to engage himself in specific behaviour. Student E in profile band 4 was able to discriminate between a variety of items. She could react to instructions such 'touch the cat', 'look for teacher' and others. He did not require any prompts.

Student F who scored profile band 3 before the programme, and attained profile band 5 after the intervention was able to distinguish easily between a variety of items. He was quick at acquiring this skill. He was able to generalize different items and people with some prompts although he displayed some negative behaviour occasionally.

4.6.4 LETTERS AND NUMBERS

Students A, B and D scored profile band 1 while students C, E and F scored profile band 2 before the intervention. Students A, B, and D were not able to identify any letters and numbers. These children needed a lot of training in all the skills as they were trained at home. Students C, E and F were able to label or receptively identify a few letters or numbers. These children enjoyed doing the task and two of the children students E and F were quick to acquire new letters.

After the intervention, students A and B progressed to profile band 2, students C and D to profile band 3, while students E and F progressed to profile band 4. The two children in profile band three had fairly good discrimination skills and were able to label or receptively identify several letters or numbers. The two children who scored who scored

profile band 4 could read several words when shown although they had some pronunciation problems.

This skill was emphasized during the intervention when children were able to discipline themselves to learn. With sufficient exposure, the children were able to acquire this skill fairly well.

4.6.5 RECEPTIVE BY FUNCTION, FEATURE AND CLASS (RFFC)

Before the intervention students A and B who scored profile band 1 were not able to react to instruction based on information about the item. However, these children were able to respond to common descriptions of certain items. For example, when given pictures of animals, they were able to pick the one that ‘meows’ after the intervention. They scored profile band 2.

Students C, D, E and F who scored profile band 2 improved themselves too in this skill. While students C, D and E scored profile band 3, student F scored profile band 4. Students C, D and E were able to respond to the teacher when she mentioned the feature of the items. For example, the children were able to identify ‘a round ball’. Student F who scored profile band 4 was able to respond either to the function or features of the items. For example, he could pick up a ball when the function ‘we use it to play’, feature - ‘a red ball’, class – ‘toy’ were mentioned.

This is a necessary skill to master as children need to know the variations of verbal instructions related to some everyday objects and actions in their environment. A child becomes very mechanical if he can only react to a car and not something about a car.

4.6.6 LABELLING

Students A, B, and C scored profile band 1 before the intervention, as they were not able to name the objects when shown although they were able to repeat words and even distinguish between items at other times. Students D, E and f who scored profile band 2 were able to name items which were highly reinforcing items. Items such as pets, food, and toys have reinforcing value as they are constant features in the children's life. Thus labeling these items at the beginning was easy for these children. After the intervention, students A and B scored profile band 2, students C, D and E scored profile band 3 and student F scored profile band 4. All the children progressed in this skill. Student C developed from profile band 1 to profile band 3 while student F developed from profile 2 to profile band 4. This was good development as the children were able to identify items in their environment and even identify the variations within the same category like typical children .An ability to mention one or two types of cars shows that these children can be taught. With sufficient retraining, these children could acquire new words easily and quickly.

4.6.7 REQUEST

The children had some difficulty with this skill. Student A was unable to ask for reinforcers before the start of the intervention programme. Occasionally he pointed at items that he wanted. When the teacher encouraged him to make a request, he threw tantrums.

Students B, C, and E scored profile band 2 before the programme. They were aged between 14 and 16 years. These children knew their needs and they got the adults to fulfill them. For example, when they wanted to go to the toilet, they waited by the door of the toilet to indicate their needs. They did exhibit occasional negative behaviour when their needs were not fulfilled. Students D and F scored profile band 1. These children were able to use some words such as ball, cup, book and even used signs to get their needs met. They were able to point to similar pictures found in the classroom to obtain reinforcement. These children had been exposed to the names of objects and speech sounds such as 'mama' 'papa' before the intervention.

The children improved in this skill after being exposed to the programme for a year. Student A improved by one profile band, that is from profile band 1 to profile band 2 while student B and C improved from profile band 2 to profile band 3. Student D did not develop further but remained in profile band 3. The child often cried to get their needs met. He did not respond to the teacher's instructions well. He also avoided carrying out instructions given by the teacher.

Student E improved from profile band 2 to profile band 4 and student F from profile band 3 to profile band 5. These children had the ability to request and they did not require prompts. They adopted themselves to the situation before requesting their needs. The child who scored profile band 1 could use the phrase 'I want'.

Generally the children were able to get their needs known to others. Although negative behaviour existed in the children before they started the programme, the teachers were able to reduce the tantrum behaviour after much training.

4.6.8 VOCAL PLAY

All the children in the study scored profile band 2 before they started the programme although their degree of ability differed. The children made a number of speech sounds when at play and when they were excited. There were no variations in the sounds made.

This skill appears to be a difficult skill to master as students A, B and C remained in the same profile band even after the intervention programme. The sounds these children made were understood only by their peers at play. The sounds made were rarely understood as being specific words by others. The children had difficulty in this skill because they did not have follow-up speech training at home. The only exposure at the centre was insufficient.

Student D scored profile band 3 after the intervention. This child emitted a number of speech sounds with varied intonation, volume and pitch especially while playing with toys and while watching videos.

Student E progressed to profile band 4 after where he often babbled and engaged in vocal play. Most of the time there was a substantial variation in his vocal play especially while talking to his toys during playtime. The sounds made could not always be recognized as words.

Student F scored profile band 5 after the programme. Although initially the child made some sounds only, he had a strong vocal repertoire. He was able to mix sounds with

recognizable words when engaged in daily activities. He scored attempts communicate although not understood at times. He could be easily reinforced to get correct responses.

4.6.9 VOCAL IMITATION

Before the intervention programme all the children scored profile band 2. They were able to repeat a few sounds or words such as 'mama' and did some babbling. They threw tantrums when attempts were made to get them to repeat sounds. However after the programme, students A, B, C, D and E were able to repeat a number of different sounds. They were able to follow commands. They did not require much prompting or reinforcement to repeat sounds. They did not throw tantrums to avoid tasks. They developed their skills to profile band 3.

Student F improved to profile band 4 as he was able to repeat a wide variety of words without prompts, strong reinforcers or negative behaviour. They enjoyed copying sounds made by his peers or heard on television or videos. The scoring of band 4 showed that the child could repeat several words that are usually approximations to the presented model.

This progress indicated the children could be focused towards speech training. However the children had difficulties in imitating sounds such as 'r' and 'l' and blends such as 'sp'.

4.6.10 GREETING

The youngest child in the study student A scored profile band 1 at the beginning of the programme as the child displayed no reaction and ignored the existence of others. However the child adopted well into the programme and was able to smile readily and hold up his arm in greeting when prompted. At the end of the programme, he obtained profile band 3.

Student B scored profile band 2 on arrival at the centre as he only stared at unfamiliar people and occasionally smiled or waved in imitation. Most of the time, he required prompts to acknowledge people. He was able to repeat greetings when prompted although he could differentiate the time of the day.

4.6.11 GESTURE

There was an overall improvement in this skill among the children. Student A scored profile band 1 and profile band 2 before and after the intervention programme respectively. He was very passive initially as he was unable to use gestures and thus could not understand gestures made by others. He learnt a few gestures while in the programme and he could use gesture occasionally depending on his needs. He resorted to pointing at the items he wanted. At times he threw tantrums to avoid tasks.

Students B, C and E scored profile band 2 before the programme and attained profile band 3 after the programme. They were able to make gestures together with speech sounds. This action came spontaneously as they often said the word for example, 'cat' and at the

same time pointed to a car .Occasionally these children made wrong gestures which hampered communication.

4.6.12 COOPERATION WITH ADULTS

Before the intervention, student a scored profile band 1. Initially he was nonverbal and avoided eye contact if possible .Later he was able to give simple responses with a lot of prompting.

Students B and D progressed from profile band 2 to profile band 3. They were able to cooperate with the teacher to work on a few tasks without disruptive behaviour. These children could not be forced to work for long hours.

Students C and E developed from profile band 3 to profile band 4. These children had had some training at home before the intervention. Student c had interactions with adults while student E had interactions with his siblings. They were able to carry out tasks without behaviour tantrums for at least five minutes.

Student F developed from profile band 3 to profile band 5. He was able to sit on the table and work with the teacher for about ten minutes without any tantrums. Children who scored well in this skill developed a minimal of behaviour tantrums. Generally the study sample was able to cooperate with adults at the end of the intervention.

4.6.13 CONVERSATIONAL SKILL

Student A had profile band 1 before the intervention and profile band 2 after the intervention. He was not able to respond to verbal stimuli only but was able to identify a number of objects and ask for reinforcers. He was able to repeat words or phrases that were of interest to him. He could repeat some catchy words from advertisements.

Students B, C and D progressed from profile band 2 where they could respond to familiar words and phrases to profile band 5 where they could answer simple 'WH' questions.

Students E and F who scored profile band 3 went up to profile band 4 and 5 respectively. These children had had exposure to television programmes and thus were able to sing parts of the songs or nursery rhymes. Student F could easily answer a number of specific questions and attempt to use variation in his answers.

4.6.14 ADULT INTERACTION

The study sample showed varied progress in this skill. Student A did not initiate interactions at the beginning of the programme. Thus he scored a profile band 1 initially but he progressed to profile band 3 after the intervention. He could approach his teacher when he needed an interaction. However he was not friendly with other unfamiliar adults.

Students B, C, D, E and F scored profile band 2 at the start of the intervention. While students B and D scored profile band 3, Students C and E scored profile band 4 and student F scored profile band 5 after the intervention.

As the children grew older, they could be prompted to participate in an interaction provided sufficient behaviour management had been taught to them.

4.6.15 PEER INTERACTION

Student A, B and C scored profile band 2 and student D, E and F scored profile band 3 before the intervention. After the intervention, while student A, C and E progressed to profile band 4, student D and F went up to profile band 5 and student B to profile band 3.

Although all the children interacted with their peers, their degree of involvement varied. Students A, B and C interacted with children who were familiar to them that is those children who traveled with them in the same bus to the centre. Students d and f were very friendly and could imitate and sustain interactions regularly. Most of the time the teacher needed to keep them apart during lessons so that they pay attention.

Students C and E who scored profile band 4 were able to interact but they needed prompts of the teacher. Student B who had profile band 3 was generally a passive child who interacted only when he needed something from his peers. For example, a doll that the peer was holding.

Generally all of the study samples enjoyed peer interaction.

4.7 DISCUSSION

The initial language assessment was carried out to identify the level of the children in the study sample and to identify the starting point for the intervention programme. This was necessary because the teacher needed to know the individual ability of the child so that intervention could start at a particular period. By doing so, the children would not be bored doing something that they already knew.

The profile level of the students before the intervention and after the intervention is tabulated in table 4.2. (Appendix) The tabulated data in Table 4.2 indicated significant development in communication abilities in Down Syndrome children.

The children in the study sample generally showed improvements in receptive language skills after the intervention although student B did not improve in matching-to-sample skill. (Table 4.3) (Appendix) This good improvement was because receptive skills were easy to master. Student B did not progress in the particular skill because of lack of experience.

Table 4.4 indicated a generally low score in expressive skills before the intervention. This was because expressive skills which involve speech production was a difficult skill to master. It was noted that older children were able to express themselves better as they do not fear unfamiliar people besides regular training in the skill. As students A and B had had limited exposure, their development was slow. However the intervention proved effective as all the children progressed.

Table 4.5 showed the children's progress in social development skill. As the children became familiar with people and the environment, this skill progressed in the children. E study, there is a definite need for greater awareness among parents.

Based on the progress in the children involved in the study, there is a definite need for greater awareness among parents in the overall development of their special children. Teachers interviewed felt that parents should spend time teaching their child at home and this opinion should be taken into consideration by the parents. Parents interviewed did say that they did not take their special children's academic development seriously.

As some parents interviewed showed awareness in their children's development, there is a hope that necessary change can be brought about the children.

Table 4.2: Frequency Distribution of the subjects with Down Syndrome in the Sub-Skills of Communication

Skill	No of Responses									
	Before Intervention					After Intervention				
	1	2	3	4	5	1	2	3	4	5
Motor Imitation	2	2	2					5		1
Matching to Sample	2	4					3	2		1
Receptive	3	2	1				2	2	1	1
Letters and Numbers	3	3					2	2	2	
Receptive by Feature, Function and Class	2	4					2	2	2	
Labeling	3	3					2	3	1	
Request	1	3	2				1	3	1	1
Vocal play		6					3	1	1	1
Vocal Imitation		6					5	1		
Greetings	1	1	3	1				1	1	4
Gestures	1	3	2					1	3	2
Cooperation with Adults	1	2	3				1	2	2	1
Conversational Skills	1	4	1				1	3	1	1
Adult Interaction	1	5						3	2	1
Peer Interaction			3	3				1	3	2

Table 4.3: Performance of the subjects with Down Syndrome in Receptive Language Skills

Skills	Students	A		B		C		D		E		F	
	Profile												
Motor Imitation	1					X		X					
	2	X		X									
	3		√		√		√		√	X	√	X	
	4												
	5												√
Matching to Sample	1	X				X							
	2		√	X	√		√	X	√	X		X	
	3										√		
	4												
	5												√
Receptive	1	X		X		X							
	2		√		√			X		X			
	3						√		√			X	
	4										√		
	5												√
Letters and Numbers	1	X		X									
	2		√		√	X		X				X	
	3						√		√	X			
	4										√		√
	5												
Feature Function Class	1	X		X									
	2		√		√	X		X		X		X	
	3						√		√		√		
	4												√
	5												
Labeling	1	X	√	X	√	X							
	2							X		X		X	
	3						√		√		√		
	4												√
	5												

X Before Intervention

√ After Intervention

Table 4.4 : Performance of the subjects with Down Syndrome in Expressive Language Skills

Skills	Student Profile	A		B		C		D		E		F	
Request	1	X											
	2		√	X		X				X			
	3				√		√	X	√			X	
	4										√		
	5												√
Vocal Play	1												
	2	X	√	X	√	X	√	X		X		X	
	3								√				
	4										√		
	5												√
Vocal	1												
	2	X		X		X		X		X		X	
	3		√		√		√		√		√		
	4												√
	5												
Greeting	1	X											
	2			X									
	3		√			X		X		X			
	4				√							X	
	5						√		√		√		√
Gesture	1	X				X							
	2		√	X						X			
	3						√				√	X	√
	4				√				√				
	5							X					

X Before Intervention

√ After Intervention

Table 4.5 : Performance of the subjects with Down Syndrome in Social Development Skills

Skills	Cooperation with Adults					Conversational Skills					Adult Interaction					Peer Interaction				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Profile A	X					X					X						X			
		√					√						√						√	
Profile B		X					X					X					X			
			√					√					√					√		
Profile C			X				X					X					X			
				√				√						√					√	
Profile D		X					X					X						X		
			√					√					√							√
Profile E			X				X					X						X		
				√					√					√					√	
Profile F			X					X				X						X		
					√					√					√					√

X Before Intervention

√ After Intervention