

Chapter Four

THE STUDY: METHODS

4.1 Introduction

In this chapter, the methods used in the implementation of the research study that relate to the collection of two types of data, experimental and observational, will be discussed. The experimental data (presented in Chapter Eight) is that derived from testing the students through the test battery described in Chapter Three (see Table 3.1). The observational data (presented in Chapter Seven) consist of that obtained from the observation of classroom practices, daily program teacher-diaries, weekly teacher-interviews and lesson ratings, and from case studies. The analyses of the experimental data, by using a two-way analysis of variance, and analyses of the observational data, by using coding procedures, will be discussed later (see Chapter Nine).

The groups participating in the study, namely the four Junior Assessment Classes (JACs) in the Australian Capital Territory (ACT) and the special class in New South Wales (NSW), will be described in terms of the students, the schools, and the procedures adopted.

4.2 Students

A total of 43 students were involved in the study. These students, who attended JACs and a special class, generally were representative of students with learning difficulties in special education settings.

4.2.1 Characteristics of the JAC students

Thirty three students in four JACs attached to four ordinary primary schools in the ACT participated in the research study. The students in the JACs were aged from five to nine-years with an average age of 7.7 years. Of the 33 students in the research study, 21 were males and 12 were females. The male to female ratio reflects the finding that in Australia, more males of five to nine-year-olds (39,400) than females (28,500) were identified as having problems associated with a handicap; in the ACT 1,200 males as compared to 400 females of five to nine-year-olds were identified with problems associated with a handicap (see Appendix A, ABS Table 3). The higher proportion of males experiencing learning difficulties has been substantiated by a study in the 1970s conducted by the Australian Council for Educational Research (ACER) which showed that more males than females had reading problems (Bourke & Keeves, 1977). This characteristic also has been reported in students with learning disabilities in the USA (Lerner, 1985).

4.2.1.1 Background information

Information about the students was obtained from Confidential Forms completed by teachers, counsellors, and principals. The form used was adapted from one used for initial referrals by the Macquarie University Special Education Centre. The section of the Confidential Form to be completed by the four JAC teachers, sought information about the student's school attendance, academic achievements, ability to stay on-task during a lesson, and their social behaviour in the classroom. The teacher's perceptions as to the student's main learning difficulty also were requested.

The section to be completed by the school counsellor requested information regarding the administration of standardised tests such as IQ tests, and reading tests. Information related to remedial instruction, perceptual and physical tests, attendance at previous schools and the current school, home background, and language background such as ESL, also was requested. The school principal was asked to provide any additional information such as within-school arrangements for students with special needs. A copy of the sections of the Confidential Form is appended (see Appendix C).

The IQ scores of the 33 students ranged from 58 to 103 with a mean (average) between 75 and 87 (see Table 4.1). The tests used to obtain these scores included the McCarthy Scales of Children's Abilities (1972), the Stanford-Binet Intelligence Scale (1973), the Wechsler Intelligence Scale for Children-Revised (WISC-R) (1974), the Wechsler Preschool and Primary Scale of Intelligence (WPPSI) (1967) and the Griffiths Mental Development Scales (1970). Three of the students, had attended a special school prior to entry to the JAC; two of these students had been classified as having mild intellectual delay and the other had a physical handicap. Another student was currently attending a special behaviour-management class for four days of the school week.

All of the JAC students participated in some form of integration with the mainstream classes in their school; these ranged from Kindergarten to Grade Three. The participation mainly involved art, physical education, sport and social-science areas, although a few of the students were integrated for mathematics and language. Only one student was working at grade level. This student had communication problems in some curriculum areas associated with English as a Second Language (ESL) as well as perceptual-motor problems.

Table 4.1
Background Information About the JAC Students

Factors	School				Total (33)
	A (music)	B (story)	C (m/s) ^a	D (control)	
Number of students	10	6	10	7	33
Sex					
male	6	4	5	6	21
female	4	2	5	1	12
Average age-years	7.8	7.5	7.4	7.8	
age range-oldest	8.11	9.2	8.6	8.11	
-youngest	7.1	6.3	6.3	6.3	
IQ mean (average)	75	86	87	75	
range-high	93	101	103	103	
-low	63	71	65	58	
Academic problems					
literacy	10	5	10	7	32
numeracy	10	3	10	7	30
Cognitive difficulties	10	5	10	7	32
Attention to task					
on	9	3	6	4	22
off	1	0	1	1	3
occasional	0	3	3	2	8
Behaviour problems					
on	3	3	1	1	8
off	1	0	3	2	6
occasional	6	3	6	4	19
Communication difficulties					
auditory	8	3	6	4	21
ESL	1	1	1	1	4
Poor Motor Skills	7	5	5	5	22
Home Background					
2-parent	8	6	4	5	23
1-parent	2	0	5	1	8
foster	0	0	1	1	2
Social problems	6	4	7	7	24

Note. ^amusic/story group.

As shown in Table 4.1, almost all of the students had problems in literacy and numeracy, together with difficulties in cognitive processing, particularly comprehension. Other cognitive processing skill areas where the teachers reported that the students experienced difficulties included attention, memory, especially problems with short-term memory and sequencing, and listening. Many of the students also were reported by the speech pathologist to have auditory problems resulting in difficulties in phonology and pragmatics.

Two thirds of the students were reported to exhibit on-task behaviour in relation to class work. More than half (19), however, had occasional behaviour problems in class such as calling out, disturbing others, being aggressive and ignoring directions.

Many of the students had difficulties in gross-motor skills and fine-motor skills. Assessments by the teachers and the physiotherapist identified problems with skills such as hopping, balance, motor-planning, and hand-eye co-ordination. Five students wore spectacles and one student had had grommets removed.

The majority of the students came from two-parent families. In five of these families there were alleged problems associated with an unstable home environment, lack of parental stimulation, and poor parental health. Two students were in foster care; one because of sexual abuse and the other as a result of behaviour problems. Most of the students were the middle or youngest child in the family.

The teachers reported that many of the students lacked appropriate social skills for positive social interactions with their class peers and mainstream peers. Social problems resulting from low self-esteem and a lack of confidence, especially in relation to learning tasks, also were apparent. Some of the students displayed

erratic social behaviour attributed in part to emotional problems associated with the home environment.

4.2.2 Characteristics of the contrast group

Ten students in the contrast group participated in the study. They were aged from four to five years with an average age of 4.8 years. Of the ten students, six were males and four were females. The IQ scores of the students, obtained from similar tests used with the JAC students, ranged from 54-96. The students had been identified at an early age as being educationally "at risk" (Bochner, Salamon & Richardson, 1987, p. 51), and had been selected for this class because of difficulties encountered with language and behaviour which had delayed their entry into a ordinary primary school. The class served as a bridging class for students from less advantaged areas in Sydney such as the south and west of the city.

4.2.2.1 Background information

General information about the students, obtained through an interview with the class teacher, indicated that the students came from similar backgrounds to those of the students in the JACs. One child was reported by the teacher to have problems associated with ESL and one child was on the drug "Ritalin" for hyperactivity.

The teacher of the NSW contrast class was asked to complete a questionnaire related to listening activities involving the students in the class. A copy of the questionnaire is appended (see Appendix C).

4.3 Schools

For the purposes of confidentiality, the four JACs attached to the primary schools in the ACT have been termed School A, School B, School C and School D throughout the study. The contrast class attached to the special school in NSW has been termed School E.

The schools in the ACT were a mixture of older, more established schools (A & C) and more recently established schools (B & D). Two of the school principals were female and two were male. One of the older established schools had an Introductory English Unit servicing some 95 children who had arrived recently in the ACT and who spoke little or no English. The other older established school was located in what is termed a lower socio-economic area. The school was noted for being a "tough area" school, and because of declining school enrolments was on a three-year life extension.

The more recently established schools were located in the newer areas of the ACT. Both were designed to function as open-plan schools; in one school, complementary grades were located in the same area of the school, and in the other, similar grades were located in cluster models throughout the school.

The contrast class (E) in NSW was attached to the Special Education Centre at Macquarie University and functioned as a self-contained unit within the Centre.

4.3.1 The JAC schools

The JACs involved in the study were in ordinary schools located in four different areas of the ACT; to the north, south, central south, and central ACT. The population of a JAC is generally drawn from students attending the primary school to which the class is attached

and from the surrounding primary schools. The proportion of students from the home primary school attending the JAC influences the number of students who can attend from other schools. For instance, the children attending the JAC at Schools B, C, and D came from the home school and from one neighbouring suburb. The JAC population of School A came from the home school and from six other suburbs. The variation in school feeder areas is evident in the data included in Table 4.2, which are based on the postcode areas represented among the home addresses of the students who attended the four schools.

Data from the 1986 Australian Bureau of Statistics census (Population and Housing) provides some basic information about the four JAC school areas. These data, however, should be viewed with caution as:

1. The School A JAC population came from seven suburbs, only two of which were in the same Post-Office Code area. The six postcode areas associated with the School A area comprised a total of 32 suburbs from which data were gathered for the census (1986).

2. The School B JAC population came from two suburbs within the same postcode area. Data for the census (1986), included the four suburbs of that postcode area.

3. The School C JAC population came from two suburbs within the same postcode area. The census (1986) data for the School C area were compiled from these two suburbs.

4. The School D JAC population came from two suburbs within the same postcode area. Data for the census (1986) for the School D area included the six suburbs of that postcode area.

In compiling Table 4.2, the average was taken of the six postcode areas that were the feeder areas for the JAC at School A, for the total population, those people born in Australia, and those children aged from five to nine years. The average for the six areas

also was taken for couples with a dependent child/ren, an annual income of over \$50,000, those people with a higher education degree and those with no qualifications.

As indicated in Table 4.2, the areas associated with Schools B and D had the highest proportion of five to nine-year-olds of the four schools (12%). In School D, the five to nine-year-old group was the largest proportion of school-age children and in School B the second largest group. Both schools are located in recently established areas of the ACT. The high percentage of couples with dependent child/ren in these two school areas (67% & 62%) is further evidence that these schools served newly-settled areas that had a higher percentage of families with younger children than the areas served by Schools A and C. Both Schools A and C serviced established areas of the ACT where declining student numbers have led to school closures and school amalgamations. Only 32% of the couples in the School C area had children, while 46% in the School A area had children.

In all of the four JAC school areas, more than 70% of the population were Australian-born (75% average across the four areas). Approximately half the population in all four areas had no formal or academic qualifications while between 11% (School B) and 16% (School A) had a degree or higher qualification. The largest proportion of families with an income over \$50,000 was in the School A area (27%). This could be attributed to the number of suburbs, including some of the more affluent areas of the ACT, in the six postcode areas (Census, 1986). One of these areas was a school feeder area for two of the students.

Table 4.2

Demographic Factors Associated with the Geographic areas served by the Four JAC Schools

Factors	School			
	A (music)	B (story)	C (m/s) ^a	D (control)
Population				
total	99,201	7,145	6,518	23,242
Australian born	75%	79%	71%	76%
5- to 9-year-olds	7%	12%	6%	12%
Couple with child/ren	46%	67%	32%	62%
Qualifications				
degree or higher	16%	11%	13%	13%
no formal education	49%	52%	53%	52%
Family income				
over \$50,000	27%	18%	16%	19%

Source: Australian Bureau of Statistics, 1986.

Note. ^amusic/story.

It would appear from Table 4.2 that although the four JACs were in different locations throughout the ACT, and the JAC population represented only a minority from the four areas, there were similar characteristics across the four areas in relation to Australian birthplace, proportion of unqualified people and those with degrees or higher, and proportion of annual family income with the exception of the suburbs servicing the School A area. Differences between the four areas in factors such as the proportion of five to nine-year-olds attending school, and the proportion of couples with a child/ren in an area, could be associated with the fact

that the schools served areas in the ACT which were either well established, with an older and declining school-age population as in Schools A and C, or newly established with many young families, as in Schools B and D.

4.3.2 Other information about the JAC schools and contrast class

Other factors such as the class settings, and the role of music in the school and class curricula, provided further background information about the four schools in the ACT and the contrast class in NSW.

4.3.2.1 The class locations

In the older established schools in the ACT (A & C), both of the JACs were located in traditional classrooms at the end of a school corridor. While not intermingled with the ordinary classrooms, each of the JAC rooms in both schools was not isolated from the remainder of the school. The students in each of the JACs in these schools spent most of their school-work time in their classroom with some integration with mainstream classes.

The JAC in one of the more recently established schools (B) shared a room with older Learning Centre (LC) students, aged from 9 to 13 years, who experienced similar learning and social problems. The room was part of a cluster of open rooms housing 5th and 6th grade ordinary classes. All the JAC students began their school day in the JAC/LC room without the LC students and after the first hour spent the remainder of the school day, alternating between their mainstream classrooms and the JAC/LC room.

In the other recently established school (D), the JAC was isolated from the remainder of the open-plan school, in an area by the school hall. This isolation factor was of concern to both the school principal and the JAC teacher who were new appointments to the school. It appeared that it was not possible to change the location of the JAC during 1989 because of the unwillingness of teachers to move from their respective teaching areas. During Term Two, sporadic integration took place of the JAC students into the mainstream classes. This situation changed during Term Three when all of the students were being integrated, some on almost a full-time basis. A resource teacher had been appointed to the school during the school year and part of her teaching time was spent with individual JAC students and with the JAC class as a whole.

The class in the special school in NSW (E), was a traditionally-designed room located alongside three other classrooms at the school. The students came to the special school for a period of one year and spent three days of the school week in the class. The remainder of the school week was spent in their local preschool.

4.3.2.2 The class teachers

All four of the teachers in the JACs (one male, three female) had more than nine years of teaching experience, with at least six years in special education, and qualifications that included a BEd major, an MA major or a Graduate Diploma in Special Education. Among the four teachers, one had a background in deaf education, another in Reading Recovery, a third had been a special education consultant in a rural area, and the fourth had been involved in early intervention. None of the teachers had a musical background or possessed qualifications in teaching music. They all indicated

however, that they would be willing to implement the music program if they were asked to do so.

The female teacher of the contrast class in the special school in NSW also had no musical background or qualifications. Her teaching qualification was a BA with a special education major, and she had been teaching for approximately 20 years both in Australia and in the United Kingdom. Within that period she had taught special needs children in ordinary schools and for the past eight years had taught students in the special school in NSW.

4.3.2.3 School music

Some music took place in all of the schools participating in the study. In most of the schools this was at the discretion of the individual class teacher. In two of the schools (A & B), some of the ordinary class teachers used a music program currently popular with some teachers in ACT schools. In the other schools, two ordinary class teachers with a music specialisation taught music throughout the school (D), and the part-time Reading Recovery teacher taught some music in the school (C). At School A, some of the students in the ordinary classes played in a school brass band, and some learned the recorder.

In the special school in NSW (E), music activities took place at the discretion of individual class teachers.

4.3.2.4 Class music

None of the teachers participating in the study had a musical background, as noted earlier (4.3.2.2), or participated in musical activities on a regular basis. In one of the older established schools

in the ACT (A), the JAC students participated infrequently in a music program and in the other school (C), the students had music sessions of singing "fun" songs with the Reading Recovery teacher once or twice a week. In the more recently established schools (B & D), neither of the JAC teachers undertook musical activities with the students in their classes. In the school with the two music specialist teachers (D), one of the teachers had tried involving the JAC teacher and students in music activities in the past, but had been unsuccessful. Some of the JAC students (B & D), however, experienced music during their integration into the mainstream classes.

In the contrast class in the special school in NSW (E), the singing of songs was a musical activity. The teacher and the students sang songs to "encourage and develop listening skills" (stated by teacher in Questionnaire return, 1989).

4.4 Data collection: Instruments and procedures

In assessing the effects of two programs, namely a music program and a story-telling program, on the development of listening skills in students with learning difficulties, two types of data were collected. These were:

1. Experimental data - the assessment of the students by means of the test battery (see Table 3.1).

2. Observational data - the assessment of the students by means of such sources as the observation of classroom practices, program diaries of the teachers, weekly teacher-interviews and lesson ratings, and case studies.

At meetings with each of the four JAC teachers in February, to discuss the study prior to the intervention period, all had agreed to the instruments and procedures to be used for the collection of data for the study. Efforts were made throughout the intervention period to ensure that the teachers were fully informed regarding interview arrangements and dates of the testing periods, as the researcher was aware of the demands placed on the teachers in terms of the time involved in implementing the program and completing the components of the study associated with the data collection. The teachers were supplied with the teaching programs, as well as the daily program diary sheets, weekly teacher rating forms, confidential forms, and questionnaires, as appropriate.

4.4.1 Experimental data

As discussed in Chapter Three, seven tests (Test Battery, Table 3.1) were assembled (five were trialled in the pilot study), to measure the improvement of the listening skills of students with learning difficulties. The seven tests used in the research study were the:

1. Peabody Picture Vocabulary Test-Revised (PPVT-R).
2. Lindamood Auditory Conceptualisation Test-Revised (LAC-R).
3. Rhyme Test.
4. Token Test.
5. Basic Language Concepts Screening Test (BLCST).
6. Aural Receptive Sound Concept Test (ARSCT).
7. Kelvin Grove Numeration Diagnostic Profile (Maths Test).

The test battery was administered to the five classroom groups, four groups in the ACT and one in NSW, during three testing periods, the pretest, posttest and postposttest. The purpose of the postposttest was to investigate retained advantages, or effects that were slow to appear at the posttest of the intervention programs.

4.4.1.1 Administration of the test battery

The pretests, posttests and postposttests were all administered by two independent testors who were unaware of the intervention programs being implemented in the schools. The pretests were administered before the start of the intervention period and the posttests in the second-to-last week of the intervention period (22 weeks); postposttests were undertaken seven weeks later. The testing periods were of a week's duration in the JACs, with a day spent testing the students in each of the four JACs and an extra day allowed for testing absentees from any of the four classes. The testing of the contrast class took place over a two-day period. Rolling teachers' strikes in the ACT in the final three weeks of Term Three, had to be taken into account for the arrangement of suitable testing days in each of the four schools during Week 22. School principals and teachers participating in the study were notified by telephone and letter of the test dates and a letter of appreciation was sent to the principals and teachers after each testing period.

An audiologist and her assistant, employed by NAL in Sydney, administered all of the pretests. Due to restricted finances, this arrangement was not possible for the following two testing periods. The posttests and the postposttests were administered by graduate students from the University of Canberra (for the JACs) and Macquarie University (for the contrast class). The graduate students

all had training in the administration of the tests prior to the posttest period and were familiar with testing techniques.

Descriptions of each of the seven tests comprising the test battery (see Table 3.1) have been detailed in Chapter Three (3.2.2). Students were withdrawn from their classroom and tested individually under reasonably adequate test conditions such as in a quiet room with an appropriate setting. Testing of each student took more than one session. The students were monitored for signs of tiredness, disinterest, and distractability, and testing sessions were rotated amongst the students to allow for a reasonable expression of attention and interest by the students. The teachers were asked after the posttest period if the testing of the children had disrupted the routine of the JAC. All of the teachers replied that it had not.

The tests were collected by the testors and marked after the conclusion of the school day in another location away from the school. Teachers were not informed of the students' results in any of the seven tests prior to the postposttest period. After the postposttest period, the results from the pretests and the postposttests of the PPVT-R and the Maths Test (Kelvin Grove Numeration Diagnostic Profile) were provided to the teachers for their interest.

4.4.2 Observational data

In order to obtain information about the implementation of the music program and the story-telling program, observations were made of classroom practices. In addition, a daily program diary, weekly interview, and a weekly lesson rating form were designed for use with the four JAC teachers. As noted earlier

(4.2.2.1), a questionnaire was designed for use with the teacher of the contrast group.

4.4.2.1 Observation of classroom practice

Data collected from observations of the music and story-telling lessons and from lessons of the control group in the ACT, provided an important source of information for the study. This aspect of the data collection had been discussed with principals and JAC teachers in the meetings prior to the implementation of the study. No one had expressed any reservations regarding the observations of lessons. All of the JAC teachers and students were accustomed to interruptions, and frequent visitors to the JAC classrooms included the speech pathologist, the physiotherapist, resource teachers, and parents. In the teacher interviews following each observation, the teachers were asked if the presence of an observer/s had affected the lesson. The teachers' replies all indicated that the lessons had not been affected.

The observations of the lessons took place at the normally scheduled daily time for that lesson in each JAC as shown in Table 4.3. In some instances the observation times had to be altered because of timetable changes due, for example, to physiotherapy sessions, school excursions or special education panel interviews.

Table 4.3

Frequency of Observations and Video Sessions

Time	School				Total	
	A (music)	B (story)	C (music/story)			D (control)
Before recess 9:00-11:00	4 ^x	6 ^{x y}	0	0	6 ^{x y}	16
After recess 11:15-12:30	2 ^y	0	0	0	0	2
After lunch 1:30-3:00	0	0	6 ^{x y}	6 ^{x y}	0	12
Total	6	6	6	6	6	30

Note. The first video session (x) took place during the third observation. The second video session (y) took place during the sixth observation.

Lessons taught by the four teachers in their JAC settings were observed by the researcher every three-to-four weeks, a total of six observations, during the intervention period. The observations (average 15 minutes duration) took place during the second school term in Weeks 4, 7 and 10, and during the third school term in Weeks 14, 17 and 20. The lessons observed in Weeks 10 and 20, also were video-taped by a technician from the University of Canberra. Six observations were made of lessons in both the music and story-telling programs in the JAC implementing the two programs. The teacher in the control JAC was observed, and video-

taped, teaching a lesson within the same time span as the three teachers implementing the intervention programs.

4.4.2.1.1 Coding of classroom observational data

In planning the coding procedures to be used in the classroom observations, it was decided that some of the data collected would parallel that obtained from the daily program diary used by the teachers. A structured observational procedure was designed based on those used in a study of integration in NSW schools (Center, Fergusson & Ward, 1988) and in the Basic Learning in Primary Schools Program (BLIP) study (Outhred & Bochner, 1987). Information was sought about various aspects of the lesson such as time (in minutes) spent in the lesson location (whether the students were sitting on the floor, moving about the floor, or sitting at desks), the grouping of the students in the activity/ies (as a whole class, groups, with a partner, or individual work), resources used by the teacher (tape, cards, charts, books, musical instruments, chalkboard, for example), and the students (cards, musical instruments, worksheets, books), the instances of teacher-speech (task related and non-task related) and teacher-questions (low-level, query, and high-level). Data were recorded by the observer for each consecutive minute of the lesson observed. Copies of the observational protocol and coding procedures are appended (Appendix C).

4.4.2.2 Program diaries of the teachers

The teachers in the schools implementing the music or/and story-telling programs were asked to complete a daily program

diary for each lesson of the 23-week intervention period. The teacher in the control class did not participate in providing information through a program diary. Information was sought about various aspects of the daily lesson such as the schedule, the allocation of time to the program, the distribution of topics, resources, and time within the lesson activity, the classroom organisation and the responses of the students and of the teacher to the lesson. The program diaries were collected at the weekly teacher interview. A copy of the Program Diary is appended (Appendix C).

Reasons provided by the teachers for not taking a daily music or story-telling lesson were:

1. Teacher absence. The relief teacher replacing the absent class teacher often did not take a lesson from the intervention program.

2. Teacher strikes. During the last three weeks of Term Three in the ACT, a series of rolling stoppages took place in ACT government schools over teacher conditions such as pay claims. Schools were closed on certain days allocated to regions throughout the ACT. Although some of the JAC teachers did not participate in strike action, often the JAC students did not attend school. The school principals had informed the caregiver/s of the students that the schools would be closed on regional strike days.

3. School activities. Events such as a school assembly, school sports, class excursions, and special education panel meetings involving the JAC teacher, meant that sometimes the program/s could not be implemented daily. Interruptions to the implementation of the program/s became evident particularly in the final school week of Term Two and Term Three.

4.4.2.3 Weekly interviews

The four teachers involved in the study in the ACT were interviewed by the researcher each Friday of the 23-week intervention period. A final interview with each of the four teachers

took place seven weeks after the intervention period. The interviews were conducted in the teacher's school at a convenient time for the teacher such as before school, at recess, at lunchtime, or in the teacher's time-off from classroom teaching. All of the interviews were recorded on tape and later transcribed verbatim by the researcher. Questions asked by the researcher relating to the implementation of the program concerned numbers of students absent from the program, the daily lesson, the length, organisation and content of the lessons, the resources used, the successful/unsuccessful aspects of the lessons, intended changes to the lessons, and the student response to the lessons. Copies of the Interview Outlines are appended (see Appendix C).

4.4.2.4 Weekly lesson rating.

At the weekly interviews the teachers implementing the intervention programs were asked to rate the lessons of the program for the week on a seven-point rating scale. The teacher in the control class in the ACT was asked to rate the week in terms of general teaching. The scale consisted of seven points on a continuum rating of 'very poor' to 'excellent'. In Weeks 3 and 15 the four teachers were each asked to define their understanding of the terms of the seven points of the scale. Copies of the Weekly Lesson Rating Form and the teacher's definitions of the seven point rating scale are appended (see Appendix C).

4.4.2.5 Case studies

Eight students (two in each JAC) were identified for case studies by their class teacher in the first weeks of the intervention

period. Information gathered by the researcher about each of these eight students came from the following sources:

1. Confidential Forms. These were completed by the JAC teacher, the school counsellor, and the school principal.

2. Teacher interviews. Questions were asked of the teachers by the researcher at specific interviews, namely in Week 12 and Week 22 of the intervention period. Teachers also occasionally volunteered information at the weekly interviews which they considered relevant to the case study student.

3. Classroom observations. Each of the intervention programs in the four JACs was observed six times by the researcher, with two of the observation sessions video-taped, during the intervention period (see Table 4.3). Notes were taken during the observations of any specific contribution or behaviour made by a case study student.

4. Interviews. Each case study student was interviewed by the researcher in Week 14 and in Week 22 of the intervention period. At School C, two sets of interviews were conducted with each student; one in association with the music program and the other with the story-telling program. Copies of the interview questions asked of the eight students are appended (see Appendix C).

5. Test scores. Results from the test battery (see Table 3.1) of the pretests, posttests, and postposttests provided quantitative information about the development of the student's listening skills.

6. Reports. Class reports of the eight students indicated areas of personal and academic development.

4.4.3 Other information

Other sources of information that were used in the study included:

1. Speech pathologist. Discussions were held with the speech pathologist servicing the JAC students in regard to general auditory problems experienced by the students, and the provision of services for these students. Such services were under review at that time

because of the pressures resulting from the number of students that required assistance. The servicing mode based on one-to-one sessions with individual students was proving inadequate, due to the increasing numbers of students in need of help and insufficient time for providing an adequate service. The implementation of a consultation model involving the speech pathologist, teachers, and other related staff such as ESL teachers, was being advocated.

2. Research professionals. Advice was sought from university research methodologists and statisticians prior to the implementation of the research study regarding the experimental design and the instruments and procedures to be used in the collection of data. At the conclusion of the study, a statistical analysis of the test data was undertaken by a statistician at the Australian National University.

3. Documents. Relevant documents examined included government reports, National Health and Medical Research Council reports, Schools Commission surveys, Australian Bureau of Statistics surveys, and ACER studies. The Australian Bureau of Statistics Census of Population and Housing (1986) provided socio-economic data.

4.5 Procedures

The research study that is reported here took place in the ACT and in NSW, and involved four primary schools with an attached JAC in the ACT and one class in a special school in NSW. Principals of five primary schools with attached JACs in the ACT had been notified of the research study in March, 1988 (see Chapter Three,

3.4), and all had indicated an interest in participating in the study; one of the schools had hosted the pilot study. The teacher of the class of the special school in NSW also had indicated an interest in participating in the study in December, 1988.

Due to the transfer of school principals within the ACT school system at the end of 1988, and the transfer and appointment of new teachers to JAC settings, final arrangements regarding school and JAC participants could not take place until the beginning of the school year in February, 1989, when information relating to the study was conveyed to a newly appointed Executive Officer of the Special Education Section of the ACT Schools Authority.

Early in February, 1989, following discussions with the Executive Officer of the Special Education Section of the ACT Schools Authority, it was decided that schools that were new in the ACT system, had novice special education teachers, were uncertain about integration arrangements for the students in the JAC within the school, or were located too distant from other schools to allow adequate travel arrangements for weekly interviews, would not be approached to take part in the study. Nine school principals were eventually contacted by the researcher during the third week of the first school term in February, 1989, and were invited to participate in the study. A copy of the letter sent to the nine school principals is appended (see Appendix C).

Arrangements were made to visit each of the nine schools to discuss the study with the school principal and JAC teacher. Copies of the programs, test protocols, and instruments to be used in the collection of data, were taken to these meetings and details of the procedures of the study, including the random assignment of programs to the schools, testing of the students, implementation of the programs, weekly teacher-interviews, classroom observations

and videos, were discussed in detail. The issue of informed consent by the caregiver/s for their child to participate in the study also was discussed.

All school principals in the nine schools indicated that they were willing to participate in the study. One JAC teacher, however, did not wish to participate, and the students in another JAC already had regular music sessions. Other factors such as teacher-retirement during the year, impending teacher-maternity leave, and in one school, a perceived lack of teacher and principal commitment, influenced the decision to invite four schools and attached JACs to participate in the research study. All of the principals and JAC teachers contacted by the researcher were subsequently informed by letter as to whether they would or would not be participating in the study. A copy of the letter is appended (Appendix C).

The criteria for the involvement of a JAC in the study included:

1. Agreement by the school principal for the study to take place in the school, and access for the researcher to the school and JAC.

2. Agreement by the JAC teacher to participate in a year-long study. This would involve implementing a randomly-assigned specific program daily over two school terms, namely Term Two and Term Three, in 1989, weekly interviews, lesson observations, testing of the students, and interviews with the students identified for case studies.

3. That all of the JAC students in the study would have a reasonable period of time daily in the JAC centre to allow for participation as a group in a specific program.

4. Permission by the caregiver/s of the JAC students for them to participate in the study.

5. That if possible, four schools with a JAC from different areas in the ACT would participate in the study.

4.5.1 Assignment of intervention programs

The four JACs that were invited to participate in the study were randomly assigned to a music program, a story-telling program, a combination of a music program and a story-telling program, or to a control group. The random assignment was undertaken using systematic sampling (Linder & Gamer, 1976). Campbell and Stanley (1963) state that "students or classes must have been assigned at random; otherwise teacher idiosyncrasies and selection differences are confounded" (p. 200).

The intervention programs randomly assigned to the four schools with a JAC were:

1. School A - music program.
2. School B - story-telling program.
3. School C - music program and story-telling program.
4. School D - control.

As mentioned earlier (4.3), School E in NSW acted as a contrast group.

The intervention programs were implemented in the ACT over two school terms in 1989; Term Two and Term Three. The terms consisted of 12 teaching weeks in Term Two and 11 teaching weeks in Term Three. In total, the intervention period was for 23 weeks.

4.6 Summary

The critical features relating to the research methods discussed in this chapter include the following:

1. The study was conducted in four JACs attached to ordinary primary schools in the ACT with 33 students aged from five to nine years, and in a class at a special school in NSW with 10 students aged from four to five years. Each of the students had been identified as experiencing difficulties with learning.

2. None of the teachers involved in the study had a musical background or possessed qualifications in the teaching of music. The students in the four JACs had experienced infrequent or no class musical activities prior to their participation in the study.

3. Data were collected by experimental and observational methods. The experimental data were obtained through a test battery (Table 3.1) of seven measures administered to all (43) students during pretest, posttest and postposttest periods. The observational data were obtained by observations of lessons, daily program diaries of the teachers, weekly teacher-interviews, weekly lesson-ratings by the teachers, and case studies; these concerned only those students and teachers in the four JACs. A questionnaire was issued to and completed by the teacher in the contrast group in NSW.

4. Two intervention programs, namely a music program and a story-telling program, and a combination of these two programs were randomly assigned to three of the JACs. The fourth JAC acted as a control group and the special class in NSW as a contrast group.

The implementation of the music program, the story-telling program, and a combination of both programs by the JAC teachers with their students is to be reported in the following chapter.