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# Development of Listening Skills in Students in Special Education Settings

Children in special education settings often lack appropriate listening skills. Two programs identified with developing listening skills, a music program and a story-telling program, were implemented by teachers with students in special education settings over a 30 week intervention period. A battery of tests measuring different aspects of listening such as receptive vocabulary, phonological processing, and listening comprehension, was administered to the students prior to the intervention period, at the end of the intervention period and again several weeks later. The results from the tests indicated that participation by the students in these programs had a positive effect on the development of their listening skills. The effects of the music and story-telling programs were not apparent until the postpost-pretest period suggesting that a longer time-period is required for a statistically significant music effect or story effect on the listening skills of students in special education settings to show.

**The proficient use** of listening skills by children is essential for their success in the school setting, not only for their learning in the classroom but also in their communication and social interactions with others. Studies have shown that children spend a large proportion of their time at school listening (Devine, 1978; Floyd, 1985; Wilt, 1950), but the teaching of listening skills as part of the school curriculum largely is ignored. Many educators assume listening skills just happen, and their acquisition often is taken for granted. Children in special education settings are particularly "at risk" from such an assumption. These children often are identified as having difficulties in listening and this can attenuate their language development as well as their social and intellectual growth (van Kraayenoord & Elkins, 1990). While the lack of appropriate listening skills has been found to contribute to poor school performance by children with a learning disability in special education programs (Robinson, 1983, 1989), research into the teaching of listening skills to children with a learning disability has been "relatively neglected" (Smith & Robinson, 1986, p. 240).

An acknowledged problem concerning research and listening is the many different ways by which authors view listening. Various definitions have been proposed. For example, listening has been recognised as an art (Barbara, 1957; McGregor & White, 1986), a behaviour (Barker, 1971), an act (Robinson & Smith, 1981), a skill (Burley-Allen, 1982; Nicols & Stevens, 1957), a reciprocal skill and process (Anderson & Lynch, 1988), and as a process (Floyd, 1985; Wolvin & Coakley, 1985). While as yet there appears to be no single definition of listening, its perception as a process allows for the identification and examination of skills such as those of attention, comprehension, and memory, in association with listening. These skills, either in isolation or in conjunction with one another, have been the subject of various studies with children experiencing learning disabilities (Bauer, 1977; Bryan, Donahue, & Pearl, 1981; Kotsonis & Patterson, 1980; Spekman, 1981; Tarver & Hallahan, 1974).

Listening skills can be taught to children in ordinary classroom settings (Cosgrove & Patterson, 1978; Devine, 1978; Ironsmith & Whitehurst, 1978), and to children termed "learning disabled." Studies have shown that instruction in using specific memory strategies (rehearsal and self-testing) with students enrolled in programs for learning disabilities in elementary schools, led to a modification and improvement in their listening ability (Robinson, 1983, 1989) and that a specific instructional activity designed to develop listening skills in adolescent students with a learning disability, improved their attention skills (Forster & Doyle, 1989). These studies, while demonstrating that listening skills can be taught, also illustrated the effectiveness of intervention strategies and activities in developing listening skills.

A recent study undertaken by this author (Bygrave, 1991a, 1991b) has focussed upon the development of listening skills in children with a learning difficulty in special education settings. It was hypothesised that the listening skills of these children would develop through their participation in a program designed to develop listening skills. Data supporting this hypothesis are presented in this paper. Two programs were used as investigative "tools"—a music program and a story-telling program. The trialling of a music program in a pilot study (Bygrave, 1991a, 1991b), led to the decision to introduce a more comparative aspect into the research study by implementing two different programs focussing on the development of listening skills into special education settings. The music program was seen as providing a variety of listening experiences associated with musical activities and the story-telling program as providing a more traditional curriculum listening activity. The empirical evidence from the research study (Bygrave, 1991b) presented in this paper, indicates that through the application of both these programs children in settings such as Junior Assessment Classes (JAC) can be taught, can learn and can develop active listening skills.

## Method

### *Subjects*

Twenty-nine children identified as having a learning difficulty took part in the study. These students were in JACs attached to four primary schools in the

Australian Capital Territory (ACT). There were 19 males and 10 females in the four classes with an average age of 7.7 years (range 6 years 3 months to 9 years 2 months). The most recent IQ score of each child was obtained from school records. The average IQ score was 80 (range 58 to 103). General information obtained from class teachers, school counsellors and school records indicated that the children came from similar backgrounds and were of white European descent.

All of the students participated in some form of integration with the mainstream classes in their school; these ranged from Kindergarten to Year 3. The participation mainly involved art, physical education, sport and social science, 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.

### *Procedures*

Following approval from education authorities, the music and story-telling programs were randomly assigned to three of the schools in the ACT, with one school undertaking the music program, another the story-telling program and the third a combination of the music and story-telling programs. The fourth school acted as a control with no program assigned to it. The classes participated in the study over a period of 30 weeks. Prior to the implementation of the programs, the children in the four classes were tested with a battery of tests. The same tests (posttests) were administered at the conclusion of the intervention period of 23 weeks (two school terms) and postposttests administered seven weeks later. The purpose of the postposttest was to investigate retained effects of the intervention programs and effects not apparent at the posttests.

### *Tests and procedures*

Seven tests were assembled to measure the effects before and after the implementation of the music program and the story-telling program. A prime consideration in the selection of the tests was the suitability of the tests for use with students identified as having a learning difficulty, and to what was being measured by the tests. Various language-related tests were examined and trialled prior to the study for their appropriateness to measure different aspects of listening such as word retrieval, word knowledge, phonological processing, and listening comprehension (Bygrave, 1991b). Table 1 indicates the tests used and the different aspects of listening measured by them. The mathematical test was included to measure an educational skill outside language to demonstrate possible connections between the listening skills training and other curriculum areas (Bryant & Bradley, 1985).

All tests were administered by two independent testers familiar with testing techniques but who were unaware of the intervention programs being implemented in each school. Students were withdrawn from their classroom and tested individually in a quiet setting. Testing of each student took more than one session and students were monitored for signs of tiredness, disinterest,

and distractability. The tests were marked by the testers and teachers were not informed of the student's results.

Table 1. The Test Battery

| Test | Function measured |
|---|---|
| Peabody Picture Vocabulary Test—Revised (PPVT–R) (Dunn & Dunn, 1981) | Receptive vocabulary |
| Lindamood Auditory Conceptualisation Test—Revised (LAC–R) (Lindamood & Lindamood, 1979) | Phonological processing |
| Rhyme Test (Dermody, Kehoe, & Bochner, 1989) | Phonological processing |
| Token Test (DeRenzi & Vignolo, 1962; Mackie & Dermody, 1981; Noll & Berry, 1969) | Listening comprehension |
| Basic Language Concepts Screening Test (BLCST) (Macquarie University Special Education Centre, 1980) | Receptive language concepts |
| Aural Receptive Sound Concept Test (ARSCT) (Bygrave, 1988) | Receptive sound concepts |
| Kelvin Grove Numeration Diagnostic Profile (Booker, Irons, Jones, & Reuille, 1979) | Mathematical concepts |

### *Programs*

A program of musical activities such as singing, listening, playing musical instruments, movement and creativity (Leask & Thomas, 1986) was adapted for use by the teachers. The program involved the teacher implementing the musical activities with children in the classroom on a daily basis and was aimed at providing experiences and opportunities for the children to acquire a knowledge of musical skills and concepts. For example, activities associated with beat in music could involve the children in listening, moving, and playing musical instruments to the beat of a piece of music.

The story-telling program (Field & Walsh, 1989) focussed on teaching two auditory receptive language skills (listening comprehension and vocabulary development) associated with children's reading difficulties. The program, which involved children listening to short stories read by the teacher and answering questions connected to the stories on a daily basis, was aimed at providing children with opportunities to acquire and improve listening, organisation, comprehension and memory skills through the structure of a story.

## Results

The pretest scores for the four groups were compared to ensure that they did not differ at the start to the intervention period. The students' raw scores were analysed using a one-way analysis of variance and the analysis showed no significant difference between the performance of the students at the baseline assessment for six of the seven tests (PPVT-R: $F(40, 85) = 0.3758$ [NS]; LAC-R: $F(1, 54) = 0.9693$ [NS]; Rhyme: $F(1, 15) = 0.8669$ [NS]; Token: $F(15, 58)$

= 1.0728 [NS]; ARSCT: $F(1, 8) = 2.0067$ [NS]; Maths: $F(2, 54) = 0.5822$ [NS]). One test indicated a significant difference (BLCST: $F(9, 16) = 3.8121$ [$p = .05$]). The statistical significance at the pretest for the BLCST would appear to be due to the large number of maximum possible scores at the pretest by the students (15 out of 29).

Data collected from the pretests, posttests and postposttests were analysed as a two-way factorial treatment (music yes or story no). This analysis of variance was designed to assess whether the treatment of the music program, the story-telling program or the combination of music and the story-telling led to an improvement of listening skills in the children. The variance ratios calculated from the two-way analysis of variance for each of the seven measures are shown in Table 2. Those values equal to or greater than 4.17 (critical value of the $F$ distribution $p = .05$) reflect an effect that is statistically significant.

Table 2. Variance Ratios Calculated from the Appropriate Analysis of Variance

| Measure | Music[a] | Story[b] | Music/Story[c] |
|---|---|---|---|
| *PPVT–R* | | | |
| Post-Pre | 1.55 | 0.01 | 2.69 |
| Postpost-Pre | 1.16 | 0.00 | 2.56 |
| Postpost-Post | 5.85 | 0.00 | 0.08 |
| *LAC–R* | | | |
| Post-Pre | 1.33 | 0.96 | 0.21 |
| Postpost-Pre | 0.08 | 0.16 | 0.91 |
| Postpost-Post | 1.85 | 0.16 | 0.52 |
| *Rhyme Test* | | | |
| Post-Pre | 2.21 | 0.31 | 1.95 |
| Postpost-Pre | 5.78 | 5.62 | 0.01 |
| Postpost-Post | 1.16 | 4.90 | 3.47 |
| *Token Test* | | | |
| Post-Pre | 0.49 | 0.15 | 4.23 |
| Postpost-Pre | 6.11 | 0.10 | 3.17 |
| Postpost-Post | 2.45 | 0.01 | 0.19 |
| *BLCST* | | | |
| Post-Pre | 1.18 | 0.91 | 1.61 |
| Postpost-Pre | 1.73 | 1.47 | 1.08 |
| Postpost-Post | 0.24 | 0.31 | 0.22 |
| *ARSCT* | | | |
| Post-Pre | 0.37 | 0.77 | 0.02 |
| Postpost-Pre | 2.56 | 3.06 | 0.15 |
| Postpost-Post | 1.04 | 0.81 | 0.28 |
| *Maths Test* | | | |
| Post-Pre | 0.43 | 1.43 | 0.05 |
| Postpost-Pre | 0.04 | 0.07 | 1.63 |
| Postpost-Post | 3.05 | 1.28 | 0.08 |

Note. The headings refer to the contrast being tested.

[a]A comparison of Music versus No Music means.

[b]A comparison of Story versus No Story means.

[c]The interaction effect between Music and Story; that is, the music effects in the presence of Story compared to No Story.

The Token Test, the Rhyme Test and the PPVT-R, measures assessing different aspects of students' listening (see Table 1), showed statistical significance ($p < .05$). As shown in Table 2, the significant periods for the music only group were the postpost-posttest difference for the PPVT-R, the postpost-pretest difference for the Rhyme Test, and the postpost-pretest difference for the Token Test; for the story only group, the postpost-pretest and postpost-posttest differences for the Rhyme Test; and for the music/story group, the post-pretest difference for the Token Test.

The analysis indicated that an interaction took place between the effects of music and of story as measured by the Token Test (see Figure 1).

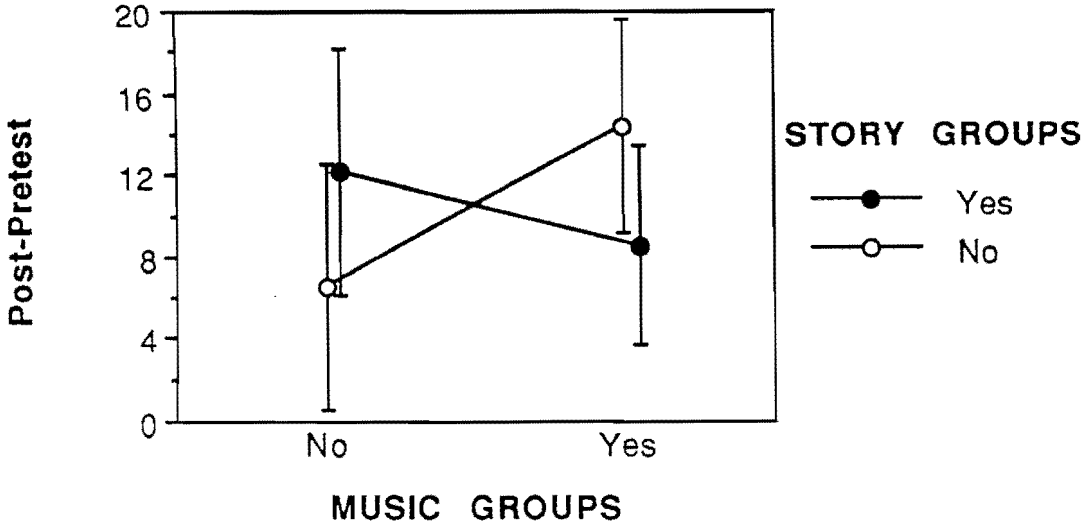


Figure 1
Interaction Between Groups (Music, Story, Music/Story and No Music/No Story at the Post-Pretest for the Token Test Scores (Mean and 95% Confidence Interval)

Several points relate to the development of listening comprehension skills. The first is that music alone has an enhancing effect; the second is that story alone likewise has an enhancing effect; and the third is that the combination of music and story does not have an enhancing effect but rather appears to have more of an attenuating effect. The nature of the interaction implies that each of music or of story alone is more effective in enhancing listening comprehension skills. Mean gains on the test for the groups are presented in Table 3.

## Discussion

This study has examined the development of listening skills in students in a Junior Assessment Class. It was hypothesised that through participation in a music program, a story-telling program, or a combination of both programs, listening skills of students would develop. This hypothesis appears to have been substantiated by data which indicate an improvement in the listening comprehension, phonological processing and receptive vocabulary skills of the students participating in the programs.

Table 3. Mean Gains (Post-Pretest) on Token Test for Music, Story, Music/Story, No Music/No Story Groups

| | NO STORY GROUP | STORY GROUP |
|---|---|---|
| NO MUSIC GROUP | 6.500 (6) | 12.157 (6) |
| MUSIC GROUP | 14.375 (8) | 8.556 (9) |

Note. Number of observations is in the bracket.

Some general comments can be made about the data. For example, the music and story effects for the Rhyme Test were statistically significant for the postpost-pretest period. A further story effect is noted for the postpost-posttest of the Rhyme Test and the effect of music is not apparent until the postpost-posttest of the PPVT-R. A music effect for the Token Test also was not apparent until the postpost-pretest. These findings suggest that a longer period of time is needed for a statistically significant music effect or story effect on listening skills associated with listening comprehension, phonological processing and receptive vocabulary—as measured by the Token Test, the Rhyme Test and the PPVT-R—to show. There appeared to be no evidence of an association between the listening skill measures and the measure of mathematical ability, suggesting that the music, story and listening activities had little impact on this area of the curriculum.

Four of the measures, the Token Test, the Rhyme Test, the PPVT-R and the Maths Test, appeared to be appropriate for the purposes of the study. The three other measures, the LAC-R, the BLCST, and the ARSCT were not useful. The high scores recorded by many of the children diminished the value of the tests in measuring improvement in these aspects of listening skills (see Table 1). As mentioned above, many of the children already at the pretest had reached the maximum possible score in the BLCST. The non-significant finding based on the measure of the ARSCT also could be attributed to the large number of maximum possible scores at the posttest and the postposttest for the ARSCT by the students (21 out of 29). Maximum possible scores reached by students in the postposttest of the LAC-R, and generally increased scores by most of the students, also diminished the value of this test to measure the phonological processing skills of the children involved in the study. The small numbers of students limited the usefulness of discussing the mean gains for the tests.

The finding that either music or story-telling and not a combination of both had an effect on the listening comprehension skills of the students (see Figure 1) is of interest. It was anticipated that there would be a greater improvement in the listening skills of the students participating in the music and the story-telling programs due to their involvement in two different

programs aimed at developing listening skills. But this did not occur. One possibility for the lack of an effect could have resulted from the intermittent presentation of the music and story-telling sessions. It had been decided, prior to the intervention period, that the teacher implementing both the music and story-telling programs would allocate alternate weeks to each program. A consequence of this practice, however, was that the children often had difficulties a week later in recalling components of the programs and not all components of the programs were presented in the 23 week intervention period. Another possibility is that the different aspects of the programs could have had an effect. For example, listening skills in the music program were taught through a variety of musical activities while the more structured teaching approach to the story-telling program centred around the students listening to stories read by the teacher and answering questions related to these.

In discussing the implications of this research, independent variables associated with implementing programs like these in an educational setting need to be considered. For example, the impact of the teachers with differences in teaching styles, confidence, ability to promote confidence and success in students could easily, in a study of this type and scale, affect the resulting data. Likewise, the impact of the researcher on the teachers. The variability between the students and the groups of students also must be considered as affecting significant differences on the outcome of data. The students in the story-telling program for instance, possibly could be subject to longer demands of attention while sitting still listening to a story than those students actively participating in music activities.

Few studies have considered the development of listening skills in children in special education settings. This study involved students in a Junior Assessment Class participating in music and story-telling programs to develop their listening skills. While children generally are acknowledged to be inattentive listeners, students with a learning difficulty, in particular, must be taught how to listen, to focus on what is relevant and what is appropriate or inappropriate in a learning task, and within the learning environment. The relevance of a study investigating the development of listening skills is highlighted by the current trend in education to integrate students with special needs into mainstream classes. With a past emphasis on the special educational setting for these students shifting to one of developing and implementing educational programs for integrated settings the selection of appropriate programs becomes important. The findings from this study would suggest that further studies investigating the use of specific programs to develop listening skills appear warranted as does an examination of different components of programs, such as those of a music program and a story-telling program, to provide more information concerning the listening process.

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