# THE ATTAINMENT OF BENTLEY'S "MEASURES OF MUSICAL ABILITIES" BY TEACHERS-IN-TRAINING USING SUGGESTOPAEDIA AS AN INSTRUCTIONAL STRATEGY

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2 Music

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This dissertation is submitted in partial fulfilment of the requirements for the degree of Master of Music at the University of Cape Town

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This work is dedicated to the memory of my son, Gregory Duncan

C O N T E N T S

# A B S T R A C T

This investigation was the result of evidence of a lack of musical knowledge and elementary practical skills in the majority of first year teachers-in-training at the Cape Town College of Education. This study sought solutions to that problem by assessing the effectiveness of an alternate teaching strategy, based on Suggestopaedia, to the one presently in use.

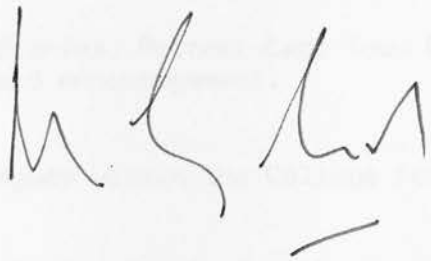
Improvements in particular aural and practical musical skills achieved by the students were measured by the Bentley 'Measures of Musical Abilities' and an Author-Constructed test. The data was analysed using t-tests and one-way analyses of variance tests.

The results showed that the method was significantly effective in certain areas of aural discrimination in music and in certain practical musical skills. In the light of these findings, and of factors affecting music education in schools, recommendations for future directions in music education have been made.

# DECLARATION

I declare that this dissertation is my own, unaided work. It is submitted for the degree of Master of Music at the University of Cape Town, South Africa.

It has not been submitted previously for a degree at any other university.



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CHAPTER ONE

## 1.1 ORIGIN AND STATEMENT OF THE PROBLEM

At the Cape Town College of Education, music educators are annually confronted by approximately forty first year Junior Primary teachers-in-training (average age 18 years), the majority of whom have few practical skills in music, a minimum amount of musical knowledge, little confidence in their potential musical ability and a seemingly indifferent attitude towards music. At the conclusion of the three-year course, these same students are expected to be sufficiently competent not only to use music in the classrooms but to have acquired the ability to educate children (ages 6-8) in the following areas of music - singing, listening, moving to music, creating music, instrumental skill development and notating music. As a result of these expectations, and coupled with minimal musical achievement as well as a perception that music is difficult, these students appear to develop a resistance to music and music education, and ultimately become unwilling to teach and use music in the classroom.

It is the writer's opinion, and those of his colleagues, that the situation as outlined above could, to some extent, be avoided through the development, in the non-specialised teacher-in-training, of skills of aural perception in music (1), the basis for musical cognition. Consequently, during February and March 1987, an experiment was conducted in the development of aural skills of first-year Junior Primary teachers-in-training using suggestive and accelerative

(1) Aural perception is a cognitive process involving both the recognition of, and discrimination between, musical stimuli.

learning and teaching techniques - Suggestopaedia (2) (Appendix A). Crude as this experiment was, the results seemed to indicate that a further, more refined investigation was appropriate, and accordingly a programme was designed which addressed this :

> The problem of developing skills of aural perception in music in first year non-specialised teachers-in-training.

## 1.2 IMPORTANCE OF THE PROBLEM

The identification and development of aural perception skills is important as part of the non-specialised teacher's-in-training education in music because it facilitates intelligent listening to music, the aural analysis of music, the composition and performance of music, and ultimately promotes the future teacher's ability to present music education lessons in the classroom with confidence.

## 1.3 QUESTIONS TO BE ANSWERED BY THIS INVESTIGATION

This study seeks answers to the following twelve specific questions :

(1) Will the use of Suggestopaedia, as an instructional strategy, improve appreciably the overall aural perception skills of first year non-specialised teachers-in-training, as measured by the Bentley 'Measures of Musical Abilities' tests?

(2) Suggestopaedia is a holistic accelerative learning and teaching system based on Suggestology, the science of suggestion, and developed by a Bulgarian psychiatrist, Dr Georgi Lozanov.

(2) Will the use of Suggestopaedia, as an instructional strategy, improve appreciably the overall perception and performance skills of first year non-specialised teachers-in-training as measured by the Author-Constructed Test Number 2?

(3) Will there be any significant relationship between scores attained in the 'Measures of Musical Abilities' and IQ scores?

(4) Will there be any significant relationship between scores attained in the 'Measures of Musical Abiliies' and the scores attained in the College-constructed test?

(5) Will students who score high marks on the Bentley pre-test increase their marks even more after 7 hours of Suggestopaedia as an instructional strategy?

(6) Will students who score low marks on the Bentley pre-test increase their marks significantly after 7 hours of Suggestopaedia as an instructional strategy?

(7) Will students who score high marks on the Bentley pre-test maintain their marks or will they deteriorate after 7 hours of the Traditional Method as as instructional strategy?

(8) Will students who score low marks on the Bentley pre-test maintain their marks or will they increase them minimally after 7 hours of the Traditional Method as an instructional strategy?

(9) Will students who score high marks on the Author-Constructed Test Number 2 pre-test increase their marks even more after 7 hours of Suggestopaedia as an instructional strategy?

(10) Will students who score low marks on the Author-Constructed Test Number 2 pre-test increase their marks significantly after 7 hours of Suggestopaedia as an instructional strategy?

(11) Will students who score high marks on the Author-Constructed Test Number 2 pre-test maintain their marks or will they increase them after 7 hours of the Traditional Method as an instructional strategy?

(12) Will students who score low marks on the Author-Constructed Test Number 2 pre-test maintain their marks or will they increase them after 7 hours of the Traditional Method as an instructional strategy?

## 1.4 STATEMENT OF THEORETICAL FRAMEWORK AND POINT OF DEPARTURE

This investigation

(1) pre-supposed that each student possessed potential music-skill ability;

(2) assumed that each student had been exposed previously to music of one kind or another;

(3) is linked to

(i) Measures of Musical Ability by Arnold Bentley (1966), and to

(ii) a method of instruction, Suggestopaedia.

(iii) music developmental aspects of children in their early years for the following reasons :

Young children are relatively inexperienced and untrained musically. The subjects of this investigation are relatively inexperienced and untrained musically.

A parallel is drawn between young children and the subjects of this investigation in that both are relatively inexperienced and untrained musically. Based on this, an assumption is drawn that the approach to the development of skills of aural perception in music of non-specialised teachers-in-training should be based on music developmental aspects of children in their early years which, according to Bentley (1966), are

(1) Awareness of the quality of musical sounds, followed by

(2) physical rhythmic responses, varying from indiscriminate bodily movement to a complete identification of movement with the pulse of the music, followed by

(3) the apprehension of melody which, with increasing experience, is apprehended and remembered with increasing clarity of detail.

The parallel drawn by the writer between the musical inexperience of young children and that of the subjects of this investigation appears to be supported by a study entitled 'Rhythm and Sight-Reading Competency of Standard Five Pupils in Transvaal Education Department Schools (Lewis, 1986).

In this study he concluded that the subjects tested (N=308), not only exhibited a lack of musical skills by Standard five, but that the overall standard of competence in the basic music reading skills and pitch was low, that the majority of pupils had not mastered the Standard One Music syllabus (page 89), and that, in addition, a large percentage of the children were unable to sing in tune after six years of formal music classes in primary schools. (page 91).

The subjects of Lewis' study were drawn from schools at which the Transvaal Education Department Syllabus is taught and thus comparable to pupils at schools at which the Cape Education Department Syllabus is taught and from which the subjects of this investigation were drawn.

The present study draws from two of Lewis' conclusions in particular, namely that the Standard five subjects tested exhibited a lack of musical skills and that the overall basic music reading skills were low. This is coupled with the Cape Education Department's requirements that general class music education should take place in the high schools in the Cape Province in Standard six and Standard seven based upon the level of musical skill development and music-reading competence achieved by Standard five pupils. Because of this, and noting that these classes rarely take place, it seems reasonable to assume that the general music competence level, as well as the pitch and sight-reading ability of the majority of first year College students can be equated to that of an eight-year-old child.

This investigation, in addition, used Bentley's 'Measures of Musical Ability' as the most suitable measurement device.

### 1.4.1 Measures of Musical Ability

Conflicting viewpoints exist on the subject of musical ability - Mursell (1931) and Wing (1948), for example, maintained, on the one hand, that musical ability is a single ability, and Seashore (1938), on the other, analyzed music into groups of separate abilities. Bentley adopted a standpoint between these theorists and considered musical ability to be an attribute of the 'musical', as opposed to the 'unmusical', insofar as the 'musical' actively participate in musical performances as composers, performers or attentive listeners.

His area of concern was the measurement of musical abilities of children who were musically relatively inexperienced and whose musical abilities may have been inherited or acquired incidentally. He concluded that investigation of the spontaneous musical development of children in their early years would reveal basic musical abilities.

This study based its approach to the development of aural perception skills of teachers-in-training on Bentley's theory of the 'musical' and musical ability in that all the students who followed the courses of instruction would actively participate in musical performances as composers, as performers and as attentive listeners.

### 1.4.2 Suggestopaedia

The theory of Suggestopaedia is grounded in Suggestology

> "... the comprehensive science of suggestion ...(which)... deals mainly with the possibilities of suggestion to tap man's reserve capacities in the spheres of both body and mind."
> (Lozanov, in Blair, 1982 : 146)

and combines desuggestive-suggestive communicative psychotherapy with the liberating and stimulating aspects of the Arts and some modifications of the old schools of concentrative relaxation.

According to Pollack (1976:97), it is a system of instruction aimed at improving man's memory as well as one which stimulates intellectual activity, raises the emotional tones, improves socio-psychological interaction and has a favourable effect on

the whole personality. It endeavours to change and control stimuli in the classroom, to free students from the influence of negative stimuli and uses positive suggestion to lead them to the realization of their reserve capacities.

The methodological approach of this investigation was based on the principles of Suggestopaedia and its means were adapted and used by the writer as part of the instructional process.

## 1.5 SETTING OF THE INVESTIGATION

Cape Town College of Education, situated in Mowbray, Cape Town.

The College offers courses in both Junior Primary and Senior Primary divisions of elementary education to approximately 275 students, all of European extraction. Most of these students will, on completion of their courses, attain positions as general class teachers in primary schools. The students are mainly from the Cape Province and selection is based on their achievements in the Matriculation examination. The age of first year students ranges from 18-21 years and the ratio of males to females is 16:84. The home language, with few exceptions, is English and the socio-economic background is so-called 'middle class'.

## 1.6 SELECTION OF RESEARCH STRATEGY

An overview of the research strategy selected is as follows :

A complete description appears in Figure 1, page 53.

| | | |
|---|---|---|
| (1) | 1 February 1988 | : Pre-testing of all first year Junior Primary College music students (N=35) |
| (2) | 2-7 February 1988 | : Students randomly allocated to<br>* Suggestopaedia teaching strategy group<br>* Traditional teaching strategy group |
| (3) | 8 February 1988 | : Additional pre-testing of the Suggestopaedia group as well as of the Traditional group |
| (4) | 11 February 1988 | : The first session/hour of 7 sessions/hours of the Suggestopaedia teaching strategy as well as of the Traditional teaching strategy |
| (5) | 24-28 February 1988 | : Common terminal post-testing |

## 1.7 SUMMARY OF CHAPTER

In this chapter, the origin, statement and importance of the problem have been outlined. Questions to be answered by this investigation, as well as definitions of key terms and concepts have been explained. The theoretical framework and point of departure has been stated, the setting of the investigation described, and the research strategy selected has been presented.

The next chapter presents a review of musical aptitude measures and outlines the theory underlying the 'Measures of Musical Abilities' (Bentley, 1966) as well as that of Suggestopaedia.

CHAPTER TWO

# LITERATURE SURVEY

This chapter presents a review of musical aptitude measures, an outline of Bentley's theory of musical aptitude and the theory of Suggestopaedia, and concludes with a summary.

## 2.1 REVIEW OF MUSICAL APTITUDE MEASURES

Musical Aptitude tests are designed to measure auditory perception and, indirectly, informal music learning as well as potential in music. In these, musical skills are analysed into identifiable components, and tests, which measure specific factors, are constructed in each area. The selection of areas to be measured reflects the particular author's perception of the basic constituents of music and musical ability.

The first musical aptitude test was published in 1919 and, since that time, the principal tests of musical aptitude include the

Seashore Measures of Musical Talent, 1919 (revised in 1939)

Kwalkasser-Dykema Music Tests, 1930

Drake Music Aptitude Tests, 1934 and 1954

Wing Standardised Tests of Musical Intelligence, 1939
(revisions in 1957, 1960 and 1961)

Gretsch-Tilson Musical Aptitude Test, 1940 (approx.)

(Gaston) Test of Musicality, 1942
(revised in 1950, 1956 and 1957)

Kwalkasser Music Talent Test, 1953

(Gordon) Musical Aptitude Profiles, 1965

A description of these tests with critical comment appears in Appendix B.

None of the above are suitable, however, for the purposes of this investigation for the following reasons :

* Seashore Measures of Musical Talents
  - too atomistic and unmusical (Mursell, 1937)
  - by contemporary standards for test construction the reliability coefficients are, for the most part, sub-standard and this therefore places suspicion on the validity of the tests (George, 1980)
  - the claim that the test scores cannot be improved by practice (Wyatt, 1939)

* Kwalkasser-Dykema Music Tests
  - the reliability coefficients are sufficiently low to question the value of the battery (George, 1980)

* Drake Musical Aptitude Tests
  - the battery consists of only two tests: musical memory and rhythm

* Wing Standardized Tests of Musical Intelligence
  - all seven tests are played on one instrument only - the piano
  - the latter four tests appear to be preference measures and not measures of musical ability

* Gretsch-Tilson Musical Aptitude Test
  - these crude and brief tests (Farnsworth, 1945) are satisfactory for children of the fifth and eighth grades but appear to be too crude and too brief for college students and therefore unsatisfactory.

* (Gaston) Test of Musicality
  - all the tests are played on the piano

* Kwalkwasser Music Talent Test
  - all the tones for the four tests are produced electronically
  - tests of loudness are unsuitable

* (Gordon) Musical Aptitude Profile
  - the length of time needed to administer
  - the high cost of purchase

In the light of the above, there is consequently a need for an even better test for this particular study. The 'Measures of Musical Abilities' (1966) by Arnold Bentley will be the optimal instrument for the following reasons :

* Bentley addressed his measures to the musical abilities of children.

* The writer drew a parallel between Bentley's focus, children, and the sample populations of this study - first year students.

* The instrumentation used for the tests.

* Certain musical abilities are measured and not musical abilities in toto.

* The tests are based on aspects of children's musical development in their early years.

* The test is relatively economical in cost.

* It is easily administered in 20 minutes.

## 2.2 OUTLINE OF BENTLEY'S THEORY OF MUSICAL APTITUDE MEASURES

Bentley (1966) theorized that an investigation of the musical development of children in their early years would indicate basic musical abilities. He noted

- that the appeal of music to the child is immediate and direct;
- that the main attraction in early infancy is the quality of sounds followed by the rhythmic element;
- that when a melody previously heard is subsequently recognized, memory for melody is established;
- that the ability to perceive and then to retain a given order of pitch intervals and note lengths in sufficient detail, is one which can be measured;
- that separate measurements should be made for pitch and rhythm because both these elements are distinct aspects of melody, and memory for melody. This conclusion was supported by the findings of a previous investigation (Bentley, 1963);
- that finer-than-semitone pitch discrimination is essential, especially in singing, to achieve the necessary good intonation;
- that a pitch discrimination test would reveal how finely children could discriminate, as well as measure different levels of this ability.

In addition, he considered chord analysis a highly desirable test because, in practical music-making, it is necessary for the singer or instrumentalist to be aware not only of his own pitch, but also that of the other singers and instruments.

Bentley developed the 'Measures of Musical Abilities' (Appendix C) through several versions, all of which were administered to large numbers of children. In view of new data obtained at each stage of development, modifications were made to the content of the tests, the instructions, the means of creating the recorded sounds and to the answer forms.

Four tests were eventually devised : pitch discrimination, tonal memory, rhythmic memory and chord analysis. All the tests, complete with instructions and examples, were recorded so that they are almost self-administering and require no further interpretation or explanation by the administrator. A description of each test follows.

Pitch Discrimination Test

Two oscillator-produced sources are presented successively and the students' task is to indicate whether the second tone stays the same as the first, or whether it moves up or down. The pitch difference of the second tone varies from one semitone to approximately 12/100 of a semitone. The test comprises twenty items.

Tonal Memory Test

Each test of the ten in this section consists of a five-note tune followed by a repetition but with one note changed. These are played on a pipe organ, and the task of the student is to indicate which note was changed.

Chord Analysis Test

The chords of this twenty-item test are also played on a pipe organ and the students' task is to indicate whether he has heard two, three or four notes after having heard the chord played for three seconds.

Rhythmic Memory Test

In this test, each item - played on a single pitch - consists of a four-beat rhythmic pattern followed by a second four-beat rhythmic pattern. The students have to decide whether the two patterns are the same by indicating the number of the pulse on which the difference occurs.

In order to determine the validity, the reliability and the relationships between the individual tests of the battery as well as the influence of sex and the influence of intelligence on the scores attained on the 'Measures', Bentley submitted them to various tests. He reported (Bentley, 1966) the following :

VALIDITY : Bentley based evidence of the validity of the tests on the following four external criteria :

(1) Class-teachers' estimates of musical ability

The test battery scores of 314 boys and girls from 35 different schools were compared with teachers' subjective assessments of musical ability on a four-point scale :

A = musical
B = fairly musical
C = not very musical
D = unmusical

47 class-teachers from the same 35 schools participated in this assessment.

The 'chi-squared' statistical procedure was used for comparison and a significant association was found between the test scores and the teachers' assessments.

(2) Progress in a branch of musical activity

A specialist string-class teacher assessed the progress of children in string playing on a four-point scale :

A = good progress
B = fair progress
C = slow progress
D = little or no progress

These assessments were then compared with the scores achieved by the children in the test battery. It was assumed that the string-teacher's population sample (N=116) contained a majority of children who were within a narrow range of 'musical' or 'fairly musical' ability.

The chi-squared statistical procedure was used and an association was indicated between the abilities measured by the tests and progress in string-playing.

The first progress reports had been given after a period of approximately three months instruction. At the end of fifteen months instruction, during which time there had been a change of string-teacher, further reports were obtained on the progress of 65 of the 116 children. A significant association was again indicated between the test scores and the new teacher's assessment of progress.

(3) The performances in the tests of highly skilled musicians

Bentley (1966) presented the argument that if the subjects, that is, those of whose outstanding ability in music there could be no doubt, scored badly on the tests, then both the construction of the tests as well as the fundamental hypotheses should be reconsidered. If, however, they scored well, this could be

regarded as evidence that the quality of the recording and reproduction was adequate, and that the content of the tests was such as to stimulate and maintain the interest of trained musical minds.

The tests were administered to three distinct groups :

(1) 120 graduates in music aged from 21 to 65 years;

(2) 22 professional string teachers aged from 20 to 66 years;

(3) 18 choral scholars of a university college chapel school with proven musical ability and whose ages ranged from 7 years 7 months to 13 years 0 months.

The highly skilled in music, both children and adults, achieved high scores in the test battery and this suggested that there was a strong positive association between what the tests measure and the functioning of acknowledged musical minds.

(4) Comparison with other established examination techniques

(i) On four successive occasions, the test battery was administered to all the candidates for choral scholarships of the university college school mentioned above. The scores attained in the Bentley test battery were not disclosed until the final selection had been made by the normal music selection methods. The results were then compared. On all occasions, the boys who were quickly eliminated from the competition were found to be those who had attained the lower scores in the tests. It was also found that a high degree of correspondence existed between the scores attained in the tests and the assessments of musical ability made by the responsible, experienced and highly qualified musician and teacher.

(ii) The test battery was administered to 70 boys whose mean age was 11 years 7 months before the commencement of a twelve-week course of instruction in music skills. After the course of instruction, an examination consisting of the music skills taught, was administered.

The distributions of the test battery scores and the marks of the music skills examination were almost identical, and both were nearly normally distributed. The correlation coefficient calculated was found to be $r = 0.94$ . So close was this correspondence that a further calculation referred to as 'rho' was made : rho was calculated at 0.90 and thus confirmed the $r = 0.94$ .

Again a high degree of correspondence was noted between the scores attained in the test battery and the marks attained in an examination of musical skills conducted by an experienced music specialist teacher.

In all the comparisons with the four external criteria, a positive association was revealed and it appears that the test battery accomplished that for which it was devised, namely the measurement of some aspects of musical ability.

RELIABILITY : The correlation coefficient ($r = 0.84$) was obtained on a test/re-test of the total battery administered to a group of 90 boys and girls whose mean age was 10 years 9 months. The time between the testings was 4 months.

Bentley concluded that r = 0.84 could be regarded as satisfactory if the age of the children, the fact that they were not a musically selected group and the additional fact that the test battery is limited to sixty items, were borne in mind.

RELATIONSHIPS BETWEEN THE INDIVIDUAL TESTS OF THE BATTERY

Two separate calculations were made to determine the degree of relationship between the individual tests. In the first, the population sample was the same as that used for measuring reliability on re-test, 90 boys and girls whose mean age was 10 years 9 months. In the second, the population sample was 149 boys and girls, aged 11 years, all of IQ=100 or above. Correlation coefficients were calculated for the first, and for the second the chi-squared statistical procedure was used. The first calculation indicated a low correlation and the second indicated a 'not significant' association. Bentley thus concluded that the relationships between the individual tests of the battery were low which means that there was little overlap between the tests.

INFLUENCE OF SEX ON SCORES ATTAINED ON THE BATTERY

The scores attained on the test battery by 590 boys and 566 girls between the ages of eight and twelve years were compared and yielded an insignificant difference of 1,25% in favour of the girls.

In a further calculation using a population sample of 118 boys and 152 girls, all aged 11 years, it was found that such differences as there were between the mean scores attained by the boys and girls were not significant, either for the full test battery or for any of the individual tests.

Bentley thus concluded that the influence of sex on scores attained on the test battery was not significant.

INFLUENCE OF INTELLIGENCE ON SCORES ATTAINED ON THE BATTERY

A group of 166 children were selected on the basis of an IQ distribution approximating to the normal curve. All the IQs had been measured by the Moray House Verbal Reasoning Test. The scores attained on the test battery were then correlated with their IQ scores and this revealed low correlation coefficients between IQ scores and the individual test scores as well as between IQ scores and the full test battery scores.

Table 1 presents the relationships between IQ and the individual tests, as well as the relationships between IQ and the full test battery :

TABLE 1

RELATIONSHIPS BETWEEN IQ AND THE BENTLEY SUB-TESTS : THE FULL TEST BATTERY

| | |
|---|---|
| IQ and pitch discrimination: | r = 0.30 |
| IQ and tonal memory: | r = 0.25 |
| IQ and chord analysis: | r = 0.24 |
| IQ and rhythmic memory: | r = 0.34 |
| IQ and full test battery: | r = 0.38 |

In an additional calculation, using the chi-squared statistical procedure on the scores attained by a population sample of 149 boys

and girls, all aged 11 years and all of IQ=100 or above, it was found that there was no significant association between IQ and tonal memory, IQ and rhythmic memory, and IQ and chord analysis; the only significant association discovered was between IQ and pitch discrimination.

Bentley concluded that the influence of intelligence upon performance in these tests is either not significant or, at the very most, very slight.

### 2.2.1 SUMMARY OF BENTLEY'S FINDINGS

VALIDITY : It appears that the test battery accomplished that for which it was devised, namely the measurement of some aspects of musical ability.

RELIABILITY: r = 0.84 on test/re-test for the total battery

SPECIFICITY OF SUBTESTS: low correlation indicating little overlap

CORRELATION WITH IQ: not significant

### 2.2.2 SUMMARY OF CRITICAL COMMENT PUBLISHED ON BENTLEY'S THEORY APPLIED TO PRACTISING STUDENTS : THEIR CONCLUSIONS

A search of articles pertaining to the Bentley 'Measures of Musical Abilities' as well as to 'Musical Ability in Children and its Measurement' reveals the following :

Conflicting opinions exist concerning Bentley's assertions regarding the development of musical responses in young children. Whybrew (1966), on the one hand, questioned whether

many of Bentley's assertions were empirically based, whereas R.R. Bentley (1967), on the other, considered the work to contain an important clarification and reinforcement of the developmental sequences in music learning of children. He concluded that 'Musical Ability in Children and its Measurement' is a significant work, but noted that insufficient evidence was presented to support the conclusion that musical ability is largely innate.

The 'Measures of Musical Abilities', it appears, have validity. Rowntree (1969 and 1971) confirmed Bentley's findings in the broadest of general terms with regard to them showing the Measures to be valid, and thereby seems to have satisfied, to a certain extent, the criticism that, although evidence of validity was presented, further research was needed to establish their value (Whybrew, 1966). Farnsworth (1969) noted that the battery has some validity as indicated in the score relationship to teachers' estimates of musicality, the testees' progress in musical activities, the far higher scores of skilled musicians and the close correspondence with ranks on school music examinations.

Farnsworth (1969), citing Bentley's reliability figure of r = 0.84 concludes that this is satisfactory. This figure is supported by McLeish (Buros, 1972, p.525 (in George, 1980)) who reported a test reliability of r = 0.83 . Farnsworth (1969) noted, however, that the measures taken individually have little reliability, and this finding is supported by Shuter (1968) who reported the following reliability coefficients for each section :

.74 for Pitch Discrimination
.53 for Tonal Memory
.71 for Chordal Analysis
.57 for Rhythmic Memory.

Lower reliability data than that reported by Bentley was reported by Rowntree (1969 and 1971) who performed research (1969) on 3 000 children between the ages of 7 and 11. Although the reliability for 10 year old students was closer to r = 0.66 , his study confirmed Bentley's findings with regard to them showing the Measures to be reasonably reliable.

Various criticisms have been levelled at certain aspects of the 'Measures'. George (1980;314) noted that, in the Pitch Discrimination test, only two of the twenty items have 'same' as the correct response and that 'up' and 'down' are equally divided among the remainder. He also drew attention to an inconsistency in terminology in that the second test is entitled 'Tonal Memory', while on the recording it is referred to as 'Tunes'. In addition, he considered that more detailed information needed to be presented on the standardization procedures or item analysis, and that the statistical information presented did not appear to be relevant to the youngest students for whom it was designed. Farnsworth (1969) indicated that the four tests needed to be more difficult to accommodate the very musical as well as older people.

The 'Measures' are both practicable in the classroom and answered with enjoyment and confidence. This is supported by Rowntree (1969 and 1971) who noted that they were the most effective battery available for use with young children, and would help the teacher to assess the musical abilities of his or her pupils. In further support of this, McLeish and Higgs (1967) indicated that the Bentley test, in an independent inquiry in which the Seashore and the Wing and Bentley batteries were used, was the only one in which all the children were

entirely confident of text material, of recording responses, and which were answered with evident ease and enjoyment in a single session. In addition, the testing time was found to be reasonable for use with young students (George, 1980), and the instructions included on the gramophone record, particularly clear, concise and comprehensive (McLeish and Higgs, 1967).

When using the 'Measures', the following findings (Rowntree, 1969 and 1971) should be considered : the scores obtained in the 'Measures' were shown to relate at a highly significant level to matters such as the musical experience of the child, the socio-economic level of the school and the stream, in a streamed situation. In addition, his results revealed that the 'Measures' were not resistant to the effects of practice and that the scores obtained in the tests were shown to relate at a highly significant level to IQ. This finding stands in complete opposition to the claim of Bentley in this respect.

In general, Rowntree (1969 and 1971) confirmed the findings of Bentley in general terms with regard to showing them to be soundly based, standardized and objective measures, and George (1980) acknowledged that Bentley had, throughout his writing, been knowledgeable about his work in developing the test battery. R.R. Bentley (1967) concluded that the Arnold Bentley 'Measures' is a significant work in the area of measuring musical ability or aptitude.

### 2.2.3 CONCLUSIONS AND IMPLICATIONS FOR THE PRESENT STUDY

A review of critical comment on Bentley's theory applied to practising students leads to the following conclusions :

The Bentley 'Measures of Musical Abilities'

* have been carefully constructed;
* are generally valid and reasonably reliable;
* are a standardized, objective measure for assessing musical abilities in a reasonable period of time;
* have elicited confident responses from students undertaking the tests;
* have been designed specifically for testing children;
* are practicable for use in the classroom.

In view of the above, and in the light of the parallel drawn between the population of Bentley's study, children, and the population of this study, first year college students, an assumption was made by the author that the approach to the development of aural perception skills should be based on Bentley's theory of music development of children in their early years. Consequently, the course of instruction in aural perception skills for first year college students was grounded in this theory, upon which Bentley constructed the 'Measures of Musical Abilities'. They therefore appear to be the most effective instrument available for the purposes of this investigation.

## 2.3 OUTLINE OF THE THEORY OF SUGGESTOPAEDIA

Suggestopaedia is a suggestive accelerative learning and teaching method based on the theory of Suggestology (Appendix D). It was developed by Georgi Lozanov and, under the title 'Suggestologiia', was published in 1971. A revised edition entitled 'Suggestology and Outlines of Suggestopedy' was published in 1978.

Suggestopaedia was based initially on the following six principles (Appendix E) :

* Authority
* Infantilization
* Dual Planeness
* Intonation
* Rhythm
* Pseudo-Passivity

After the publication of his doctoral thesis 'Suggestologiia' in 1971, Lozanov condensed these principles to the following three (Appendix F):

* Pseudopassivity
* Synthesis
* Suggestive inter-relation

These principles function in an integrated manner, pre-suppose joy with learning, and use the devices of mental relaxation as well as concentrative relaxation.

The principles of Suggestopaedia are realised through groups of means (Appendix G) which, if categorised, can be seen as the

- psychological group
- didactic group
- artistic group

These means "form an indivisible unity" (Lozanov, 1976:261), and are used in the instructural process through the use of the following techniques (Appendix H) :

* The Concert Sessions
* The Pygmalion Effect
* The Hawthorne Effect
* Rituals
* The Placebo Effect
* Fictitious Biographies
* Provision of a 'Big Picture'
* Defocused Learning
* Massive, Rich and Varied Input
* The Suggestopaedic Venue
* Poems, Songs and Stories
* Music
* Relaxation
* The Text
* Imagery

The techniques mentioned above are used in the Suggestopaedia cycle which consists of three phases (Appendix I) :

- Pre-Session phase
- Session phase
- Post-Session phase

### 2.3.1 SUMMARY OF ARTICLES PUBLISHED ON SUGGESTOPAEDIA APPLIED TO PRACTISING STUDENTS : THEIR FINDINGS

During the past fifteen years, various instructional strategies for accelerating students' rates of learning in comparison with traditional methods of instruction have been reported. These are known as

- Suggestive-Accelerative Learning and Teaching (SALT) (Schuster, Benitez-Bordon and Gritten, 1976; Caskey, 1980)
- Suggestopaedia or the Lozanov Technique (Bancroft, 1976; Lozanov, 1978)
- Superlearning (Ostrander and Schroeder, 1979)
- Caycedo's Sophrology (Bancroft, 1979; Ostrander and Schroeder, 1979)

These teaching methods have been investigated mainly with regard to foreign language instruction and acquisition. In addition, substantial research has been conducted on these methods with regard to special needs required by students. These studies (Landahl, 1982; Martin, 1983; Pritchard, 1976, 1979, 1980) have dealt with various categories which include learning disabilities, remedial mathematics and under-achievers. No documented research, to the best of the writer's knowledge, has been undertaken which addresses the development of students' aural perception skills in music using Suggestopaedia, besides the study (Garlick, 1987) noted in Chapter One (Appendix A).

The following section presents a summary, in chronological order, of articles published on Suggestopaedia applied to practising students, as well as the findings thereof.

1. Philipov (1975) compared the progress of six female students who were taught Bulgarian suggestopaedically, with ten male students who were taught Russian by conventional methods. She concluded that, on performance scores, the Bulgarian group had learned more Bulgarian than the control students had learned Russian in one-third

of the time. Botha (1986:30) noted that the weakness of the study was the comparison of results of instructions of two different languages, although they were both Slavic languages.

2. Held (1976) attempted to assess the effectiveness of the Lozanov method on fifth grade and sixth grade students in the acquisition of word-meanings. He isolated, as treatment variables, mind calming, the early pleasant learning experience, and the two combined. The results indicated that, under the circumstances of the study, no significant difference in word-meaning acquisition had been achieved for these students.

3. Borden and Schuster (1976) taught a Spanish course in which the independent, manipulated variables were : suggested positive atmosphere, background music and word presentation synchronized with music and breathing. The researchers found that all three independent variables significantly affected the acquisition and retention of Spanish words and that, when all there variables were present, learning as measured by performance scores was two and a half times greater than when the variables were absent.

4. Schuster (1976) conducted a study where beginner's Spanish was taught suggestopaedically to students at college level. The experimental group received two contact hours per week in contrast to the control group which received six contact hours per week. At the end of the course, there were no significant differences between the

performance scores of either group. He indicated, however, that the Suggestopaedia group required one-third of the time which the control group had required to acquire the same amount of Spanish.

5. Bushman (1976) administered three different instructional treatments to 41 undergraduates studying Finnish : a full Suggestopaedia treatment, a modified Suggestopaedia treatment and a conventional instructional treatment. Subjects were measured on vocabulary, grammar, pronunciation and communication. The Suggestopaedia groups generally performed better than the control groups, and far better on the communication measure. He concluded that the Suggestopaedia treatment had resulted in better Finnish language learning.

6. Kurkov (1977) used an adapted version of Suggestopaedia for the teaching of Russian at Cleveland State University. The experimental group consisted of 14 students and the control group consisted of 19 comparable students. Kurkov reported that the results favoured the Suggestopaedia method and that the Suggestopaedia group had covered twice as much content as the conventionally taught group in the same amount of time.

7. Robinett (1979) used an adaption of Suggestopaedia to teach second semester Spanish for six weeks to college students randomly assigned to one of three treatments. The first experimental group had two of their five weekly classes taught suggestopaedically, the second experimental group had four of their five classes taught suggestopaedically, and the control group had conventional

instruction five times per week. Both experimental groups had significantly higher scores than the control group. There was no significant difference between the two experimental groups.

8. Prichard et al adapted Suggestopaedia to teach German to high school students. Those who were taught suggestopaedically learned significantly more German than the control subjects who were taught conventionally. The subjects in this study were not randomly assigned.

9. Stein (1982) investigated the effect of an adaption of the Lozanov method on vocabulary definition retention; the independent variables used were music and imagery. The music variable did significantly better on immediate retention of vocabulary. The two variables combined, music and imagery, scored the highest on the delayed vocabulary test. The researcher concluded that the use of multiple channels of input may improve vocabulary retention.

10. Ramirez (1982) evaluated the effect of Suggestopaedia in a controlled classroom study where English vocabulary was taught to Spanish dominated Chicano Grade Three children. The children who were taught suggestopaedically learned significantly more words than the children taught conventionally.

11. Hales (1983) investigated the effect of Suggestopaedia on word identification skills of mildly and moderately retarded children. Its use did not improve the word recognition skills of the children significantly, although the experimental subjects' scores were slightly better than the control subjects' scores.

12. Gassner-Roberts and Brislan (1984) conducted a controlled, comparative and evaluative study of a Suggestopaedia German course for first year university students at the University of Adelaide, Australia. The researchers used two control groups and one experimental group. The researchers concluded that the written and oral results of the experimental group showed clarly that Suggestopaedia teaching was superior to conventional instruction in terms of German language achievement, student attitudes and time invested to achieve set goals.

13. Dhority (1984) taught German to the Special Forces of the United States Defence Force at Fort Devons, MA. He used an instructional strategy, 'Acquisition through Creative Teaching (the ACT approach)', which he had developed and which was based on Suggestopaedia. This approach was compared with a variation of the standard audio-lingual programme designed by the Defence Language Institute in Monterey, California. The aim of the study was to scored a rating of number one or better on the Defence Language Institute/Foreign Service Institute (DLI/FSI) scale for listening, reading and speaking skills.

    The experimental group consisted of thirteen students. The ACT approach showed significant gains in post-tests over pre-tests. Most noteworthy was the rapid achievement of speaking proficiency measurable with a standardized instrument. All the results of this study, according to the researcher, pointed to the superiority of the ACT approach over previous classes in achieving a level one or better in listening, reading and speaking as

measures on the Defence Language Institute (DLI) rating scale. The most important result of this study is that Dhority's students achieved these results in slightly less than one-third of the time spent in the regular programme of the DLI (Dhority, 1984:14-29).

14. Botha (1986) taught remedial Afrikaans (second language) suggestopaedically to a group of fourteen first year college students and compared their results with five control groups who were taught the same second language according to a modern communicative approach. The experimental group showed a higher percentage increase in the tests than all the control groups. In eight cases, the experimental group showed a significant improvement over the control group.The researcher concluded that the use of Suggestopaedia as a teaching strategy was responsible for a higher average percentage increase in the experimental group's second language proficiency. In addition, he noted that the experimental group's attitude towards the target language and its accompanying culture showed a higher percentage increase than that of the control group.

15. Brown (1986) compared the effectiveness of three different teaching strategies with fifteen verbal, moderately retarded subjects. The content studied was Aesop's Fables. Group One was taught using traditional Suggestopaedia techniques, Group Two was taught using Suggestopaedia techniques minus the passive review, and Group Three was taught using rote-learning techniques. The experimental period encompassed seven sessions, each

forty-five minutes in duration. Students were tested for recall of plot sequence, significant characters and the fable's moral. The results indicated that both Suggestopaedia groups performed better than the rote-learning group on daily scores and on a final comprehensive examination, and that no significant difference existed between the two Suggestopaedia groups for daily scores or for the examination. A repeat of the comprehensive examination after a three-month summer vacation showed that the two Suggestopaedia groups again exhibited significantly better scores than the rote-learning group.

16. Bass (1986) investigated the Suggestopaedia method, the structural analysis method, and a combination of the two methods to determine their effects on vocabulary learning and attitudes toward the treatments. 58 college freshmen were taught 390 words and definitions in thirteen lessons. The Suggestopaedia group was taught words and definitions using the components of suggestion, music and imagery. The structural analysis group was taught words, definitions and 226 word parts without using any Suggestopaedia components. The combination group was taught words, definitions and word-parts using all Suggestopaedia components. Each group made significant gains from pre-test to post-test on vocabulary taught in the study. On comparisons among groups, the Suggestopaedia group had significantly higher post-test and gain scores than the structural analysis group. No significant differences were found among the groups on vocabulary not taught in the study and in attitudes toward the treatment.

17. Schuster (1986) investigated the applicability of Suggestopaedia to large classes by teaching beginners' computer programming in one of four sections. Subjects were university students required to take a computer course. The researcher concluded that students taught suggestopaedically learned slightly more than students conventionally taught as there was a trivial significant difference favouring the experimental group. The practical significance, however, lay in the fact that the suggestopaedically-taught group learned the same amount of Pascal programming in half the class time taken by the other groups.

18. Prichard (1986) isolated several Suggestopaedia variables for study in an experimental studies college mathematics class. The variables were mind calming, relaxation review, teacher verbal suggestions and unusually challenging assignments.
The experimental class consisted of 28 students and the control class, 21 students. At the end-of-term examination, the Suggestopaedia group scored significantly higher than the control group.

19. Schuster (1986), in another study, evaluated the Suggestopaedia method in teaching a short course of ten hours about paper characteristics to industrial paper users. The two groups of the course were taught differently, one suggestopaedically, the other conventionally. From pre-test to post-test, the suggestopaedic-taught students learnt 80% more than those

taught conventionally. The researcher concluded that Suggestopaedia is effective in an industrial area and needs to be more widely applied and evaluated.

### 2.3.2 REVIEWS OF SUGGESTOPAEDIA-RELATED STUDIES

1. Schuster (1983) reviewed critically American foreign language studies and concluded the review with the following :

> "... all of these studies taken collectively consistently show that when the investigator had followed the intent, theory and practice of Lozanov's Suggestopaedia, that students can be taught a foreign language with approximately two to three times greater speed than controls for a similar amount of language acquisition and achievement."

2. Palmer (1985) examined all books and articles for the years 1976-1984 which dealt with experimental/control group results or programme progress results from the use of Suggestopaedia with students requiring special services. 45 data sources were reviewed for analysis of population, study design, findings and conclusions. These studies dealt with special students in the categories of learning disabilities, educable mental retardation, remedial reading, behavioural/emotional disturbance, low economic status, remedial mathematics (including mathematics phobia), low/poor/under-achievers, normal, gifted and talented.

   In her examination, she was critical of the quality of reporting and noted that, while those studies contained

valuable data, important documentation was often lacking. Nevertheless she concluded that the studies of Suggestopaedia dealing with students' special needs demonstrated learning and teaching effectiveness of both statistical and practical significance. She noted, in addition, that the method demands broader implementation as well as continual study and reporting.

### 2.3.3 CONCLUSIONS AND IMPLICATION FOR THE PRESENT STUDY

The review of articles published on Suggestopaedia, also variously known as Suggestive-Accelerative Learning and Teaching (SALT), the Lozanov Method, Superlearning and Sophrology, applied to practising students as well as their findings, leads to the following conclusions:

* The use of Suggestopaedia, compared with traditional methods of instruction has produced
  - greater acquisition and retention of content in less time
  - significantly higher performance scores
  - effective learning and teaching, both statistically and practically.
* Suggestopaedia can be adapted for use with large classes.
* Suggestopaedia can be effectively applied in industrial training areas.
* Although language acquisition results have been significant, it can be adapted to the circumstance and to special needs and services required by students.

The implications for this study are that Suggestopaedia applied to aural skill development, can produce effective learning and teaching, both statistically and practically, as well as high performance scores.

## 2.4 SUMMARY OF CHAPTER

In this chapter, a review of musical aptitude measures was presented, Bentley's theory of musical aptitude outlined and his findings summarised. A summary of critical comment as well as articles published on Bentley's theory applied to practising students and their conclusions, as well as implications for the present study were presented.

The theory of Suggestopaedia was also outlined and a summary of articles published on Suggestopaedia applied to practising students, and their findings, as well as implications for the present study were described.

The following chapter presents the experimental procedure, programme and methods of this investigation.

CHAPTER THREE

# EXPERIMENTAL PROCEDURE, PROGRAMME AND METHODS

In this chapter, the setting for the investigation, and the characteristics of the population chosen for the study are described. The research methods selected and procedure followed is identified and the design development and properties of the various tests are outlined.

The hypotheses are presented as well as the selection of criterion scores and predictors, the characteristics of the measures, the rationale and procedures for execution of the programme, and the collection of data.

The chapter concludes with a summary.

## 3.1 THE SETTING AND SAMPLE

The study was conducted at the Cape Town College of Education, an institution provided and funded by the Department of Education and Culture and situated in Mowbray, a suburb of Cape Town, South Africa. The College provides initial teacher education and offers a four-year concurrent Higher Diploma in Education for either the Junior or Senior Primary phases of white primary schools. The minimum entrance qualification is the Cape Senior Certificate or equivalent.

Of the 275 students registered at the College in 1988, 44 were male and 231 female. All were of European extraction and their socio-economic status was comparable with that of students in the United Kingdom, Canada and United States of America. They were drawn mainly from cities and towns in the Cape Province and, with few exceptions, their home language was English.

The sample for this investigation consisted of 35 first year students, all female, who were following the Junior Primary Course of which music is a compulsory subject. Their ages ranged from 17 years 3 months to 23 years 1 month and the average age was 18 years 4 months.

Music is not a pre-requisite for entry into the teacher education programme and thus a minimum level of competency or knowledge in that discipline could be assumed.

## 3.2 SELECTION OF RESEARCH METHODS

For this investigation, the classical design (pre-test post-test control group design) has been employed.

## 3.3 PROCEDURE/PROTOCOL

On entry to the Music course, each student undertook a battery of four pre-assessment tests comprising

1. Measures of Musical Abilities (Arnold Bentley)
2. College-constructed Theory Test (CCT)
3. Author-constructed Aural-Visual Test (ACT No.1)
4. Author-Constructed Questionnaire (ACQ)

The period of testing lasted 75 minutes.

They were subsequently ranked in such a way as to form seventeen matched pairs which were then split into a group of eighteen students (the Suggestopaedia Group) and a group of seventeen students (the Traditional Group).

At this juncture, each student undertook a further pre-assessment test, Author-Constructed Test Number 2 (ACT No.2).

The Suggestopaedia Group received seven weeks of Suggestopaedia teaching strategy under the instruction of the writer. The Traditional Group received seven weeks of traditional tuition (Appendix P) concurrently under the instruction of a colleague. The purpose of the investigation was not to compare the Suggestopaedia Group and Traditional Group on final performance, but was to monitor the performance changes occurring in the bottom nine students relative to the top nine students within the Suggestopaedia Group, and the bottom eight students relative to the top nine students within the Traditional Group, in their Bentley skills performances.

Assuming normal distributions of the different groups on the Bentley scores, the t-tests were used to measure statistically significant differences between the performance scores of the top nine students on the pre-test and post-test Bentley examinations, and the bottom nine students on the pre-test and post-test Bentley examinations, within the Suggestopaedia Group itself, and then within the Traditional Group itself, as separate samples.

One-way Analysis of Variance statistical tests were used to measure any statistically significant interactive effect of the Suggestopaedia method on the two levels of skill on the pre-test and post-test Bentley examinations within the Suggestopaedia Group itself, and then within the Traditional Group itself, as separate samples.

## 3.4 THE DESIGN, DEVELOPMENT AND PROPERTIES OF THE COLLEGE- AND AUTHOR-CONSTRUCTED TESTS AS WELL AS THOSE OF THE QUESTIONNAIRE

### 3.4.1 The College-Constructed Test (CCT)

The College-constructed test (Appendix J) is administered annually to all first-year students registered for the music course. It was designed and developed over a period of ten years by the Music staff and tests the following areas of elementary music knowledge :

- Rhythm
- Pitch
- Notation
- Harmony

Table 2 records the statistical properties of this test.

Because this test measures theoretical knowledge only, a need was indicated for additional tests.

TABLE 2

STATISTICAL PROPERTIES OF THE COLLEGE-CONSTRUCTED TEST (CCT)

| | |
|---|---|
| N | 35 |
| Maximum score | 50 |
| Range of scores | 4-50 |
| Mean average | 19.3 |
| Standard deviation | 13.3 |
| Reliability co-efficient (test/re-test) | r=0.97 |
| Standard error of measurement | 2.3 |

### 3.4.2 The Author-Constructed Test Number 1 (ACT No.1)

This test (Appendix K) was constructed by the present author and its design and composition was influenced by the following considerations :

- the need for physical sound
- the need to utilize certain aspects of the students' general exposure to music
- the need to test certain aspects of the students' innate aural-perceptive ability as applied to a graphic representation of physical sound.

As a result of these considerations, the tests thus required the students, after having heard a sound, combination of sounds and/or rhythmic patterns, to choose the correct graphic representation of that sound, combination of sounds and/or rhythmic patterns.

The tests required the identification of
- melodic direction
- melodic pattern
- rhythmic pattern.

The musical examples were delivered via the following sound sources :

- piano
- alto glockenspiel
- soprano metallophone
- alto xylophone
- woodblock
- tambour
- female soprano voice

Table 3 records the statistical properties of this test.

TABLE 3

STATISTICAL PROPERTIES OF THE AUTHOR-CONSTRUCTED TEST NUMBER 1 (ACT No.1)

| | |
|---|---|
| N | 35 |
| Maximum score | 36 |
| Range of scores | 18-36 |
| Mean average | 31.5 |
| Standard deviation | 4.6 |
| Reliability co-efficient (test/re-test) | r=0.09 |
| Standard error of measurement | 4.8 |

3.4.3 The Author-Constructed Questionnaire (ACQ)

This questionnaire (Appendix L) was constructed by the present author, and its design and composition was influenced by the need to attempt to discover the students' biographical details as well as their attitudes to

- music in general
- particular types of music
- their previous involvement in music listening
- their perceptions of their music-skill ability
- their perceptions of their ability to develop their potential music-skills
- their motivation to realize their music-skill potential.

The information received was used by the author and the Traditional Group lecturer as a general guide to the students' motivation and level of confidence in music skills, particularly within the initial aural skill development sessions.

### 3.4.4 The Author-Constructed Test Number 2 (ACT No.2)

The scores of this test (Appendix M) were needed for College examination purposes and it was administered to each student individually by the author for the Suggestopaedia Group and by the Traditional Group lecturer for the Traditional Group. This took place one week after the administering of the four pre-assessment tests and three days before the commencement of the seven sessions of instruction.

The test concerned two areas : aural perception (Aural) and the interpretation of notation (Sight-Singing). Its design and composition were influenced by the need to assess the students' individual ability to perform the following :

- a repetition, through clapping and singing, of various sounded rhythmic patterns and melodic phrases
- an improvisation, through clapping, of an answering rhythmic pattern after having heard a questioning rhythmic pattern
- a short rhyme rhythmically after having read it
- a short rhythmic pattern, through clapping, and a short melodic phrase, through singing, after having read the musical notation.

Table 4 records the statistical properties of this test.

TABLE 4

STATISTICAL PROPERTIES OF THE AUTHOR-CONSTRUCTED TEST NUMBER 2 (ACT No.2)

| | |
|---|---|
| N | 35 |
| Maximum score | 80 |
| Range of scores | 28-79 |
| Mean average | 58.8 |
| Standard deviation | 14.2 |
| Reliability co-efficient (test/re-test) | r=0.92 |
| Standard error of measurement | 5.1 |

## 3.5 HYPOTHESES

Hypothesis No. 1

A statistically significant increase in the mean scores on the Bentley Test will be obtained by the eighteen students in the Suggestopaedia Group (the author's group) between January 1988 and March 1988.

Hypothesis No. 2

A statistically significant increase in the mean scores on the Bentley Test will be obtained by the seventeen students in the Traditional Group (the Traditional lecturer's group) between January 1988 and March 1988.

Hypothesis No. 3

There will be a statistically significant correlation between the scores obtained by 32 of the 35 first year Junior Primary College students on the Bentley Test on entry to the College in January 1988 and their scores obtained on the New South African Group (NSAG) IQ Test.

Hypothesis No. 4

There will be a statistically significant correlation between the scores obtained by the 35 College students on the Bentley Test on entry to the College in January 1988 and the scores obtained on the College-constructed test.

Hypothesis No. 5

Students who score high total marks on the Bentley skills examination on entering College, will make statistically significant gains on the same Bentley test after seven hours of Suggestopaedia as an instructional strategy.

Hypothesis No. 6

Students who score low total marks on the Bentley skills examination on entering College, will make statistically significant gains on the same Bentley test after seven hours of Suggestopaedia as an instructional strategy.

Hypothesis No. 7

Students who score high total marks on the Bentley skills examination on entering College, will make statistically significant gains on the same Bentley test after seven hours of the Traditional method as an instructional strategy.

Hypothesis No. 8

Students who score low total marks on the Bentley skills examination on entering College, will make statistically significant gains on the same Bentley test after seven hours of the Traditional method as an instructional strategy.

Hypothesis No. 9

There will be no statistically significant changes in the students' mean scores on any of the Bentley subtests after seven hours of instruction under either the Suggestopaedic or the Traditional method and neither for high scorers nor for low scorers on the initial Bentley test given in January 1988.

Hypothesis No. 10

Given two levels of skill on the Bentley test (high and low) within the Suggestopaedia Group, there will be a statistically significant reduction of the extent of under-achievement of the low skilled students relative to the highly skilled students on the Bentley test after seven hours of Suggestopaedia as an instructional strategy.

Hypothesis No. 11

Given two levels of skill on the Bentley test (high and low) within the Traditional Group, there will be a statistically significant reduction of the extent of under-achievement of the low skilled students relative to the highly skilled students on the Bentley test after seven hours of the Traditional method as an instructional strategy.

Hypothesis No. 12

Given two levels of skill on all the Bentley subtests (high and low) within the Suggestopaedia Group, there will be a statistically

significant reduction of the extent of under-achievement of the low skilled students relative to the highly skilled students on all the Bentley subtests after seven hours of Suggestopaedia as an instructional strategy.

Hypothesis No. 13

Given two levels of skill on all the Bentley subtests (high and low) within the Traditional Group, there will be a statistically significant reduction of the extent of under-achievement of the low skilled students relative to the highly skilled students on all the Bentley subtests after seven hours of the Traditional method as an instructional strategy.

## 3.6 FORMAT OF THE STATISTICAL ANALYSIS

In the experimental group (Suggestopaedia Group), the Bentley test was administered immediately prior to and subsequent to the implementation of the experimental method (Suggestopaedia). The mean Bentley scores for the group as a whole (N=18) increased, and a t-test was used to determine the statistical significance of the mean increase in performance for the class as a whole. The 18 students in the class were divided on the basis of the Bentley pre-test scores into nine high scorers and nine low scorers. A one-way analysis of variance test was used to determine the interactive effect of the experimental method (Suggestopaedia) on the two levels of skill within the Suggestopaedia Group. After the experimental treatment (Suggestopaedia method), the Bentley test was re-administered as above. As a result of the experimental programme, both the high scorers' and the low scorers' performances on the Bentley test changed. t-tests were used to show that the mean scores on the

Bentley test of the weaker group (N=9) significantly changed to a greater extent than the mean scores on the Bentley test of the superior group (N=9). A one-way analysis of variance test was used to show the interactive effect of the experimental method (Suggestopaedia) on the two levels of skill on the Bentley test.

Similar calculations occurred for the Traditional Group.

Similar calculations occurred for the pre- and post-test results of Author-Constructed Test Number 2 (ACT No.2).

The assumptions underlying the use of t-tests for this investigation are :

(1) that the Bentley test is an equal interval scale test;

(2) that among the top nine and bottom nine students, their Bentley scores are approximately normally distributed.

## 3.7 SELECTION OF THE CRITERION SCORES AND PREDICTIONS

For the two groups of music students, the Bentley final test scores of March 1988 were chosen as dependent variables.

The independent variables were :

(1) the Bentley test scores of February 1988;

(2) the College-Constructed Test scores of February 1988;

(3) the Author-Constructed Test Number 1 test scores of February 1988;

(4) the Author-Constructed Test Number 2 test scores of February and March 1988;

(5) the New South African Group (NSAG) IQ test scores (obtained in January 1988).

## 3.8 PROGRAMME RATIONALE, EXECUTION AND DATA COLLECTION

The sample consisted of 35 first year female teachers-in-training.

Phases I, II and III are presented in graphic form in Figure 1 (page 53).

PHASE I

On 1 February 1988 the entire group of 35 students attempted the battery of pre-assessment tests. For the purpose of this investigation, they were divided into two approximately equal groups: a Suggestopaedia Group (N=18) and a Traditional Group (N=17). The Suggestopaedia Group was to be taught using the experimental method (Suggestopaedia) and the Traditional Group was to be taught using the Traditional method. (Appendix P).

PHASE II

On 8 February 1988, for College examination purposes, they attempted Author-Constructed Test Number 2, and three days later they started their courses of instruction which consisted of seven one-hour sessions held once per week for a period of seven weeks.
The sessions for both groups were held concurrently on Monday mornings from 09h30 to 10h30, except for the first session which was held on a Thursday from 09h00 to 10h00. The venues used were the so-called Suggestopaedia room for the Suggestopaedia Group and a regular classroom for the Traditional Group.

PHASE III

Three days after the conclusion of the courses of instruction, on 24 March 1988, Author-Constructed Test Number 2 was again administered for College examination purposes, and four days after that, on 28 March, the Bentley test was again administered.

Details of the Suggestopaedia-designed lessons are in Appendix N, and details of the Traditional-designed lessons are in Appendix O.

This investigation was undertaken for several reasons.

Firstly, it sought to determine whether the initial experiment (Appendix A) using Suggestopaedia as an instructional strategy could, after certain refinements and changes, be successfully repeated.

Secondly, it sought to establish whether the adapted use of Suggestopaedia as an instructional strategy would be associated with an appreciable improvement in the overall aural perception skills of first year students-in-training as measured by the Bentley 'Measures of Musical Abilities'.

Thirdly, it sought to monitor score performance changes occurring within the Suggestopaedia Group as well as within the Traditional Group.

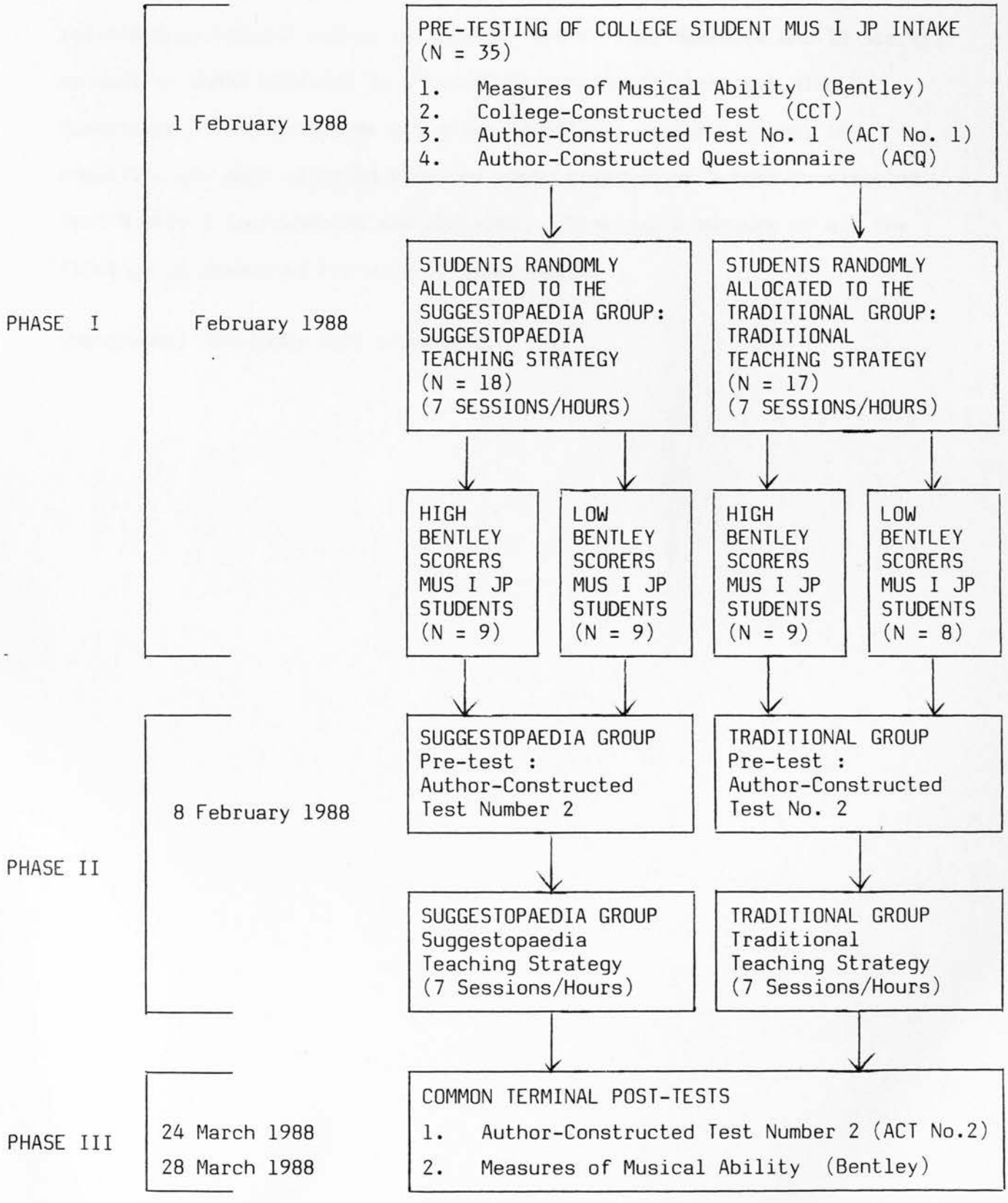
## 3.9 SUMMARY OF CHAPTER

In this chapter, the setting and characteristics of the population of College students have been described. The research methods employed in the study have been outlined and the procedure has been explained. The design, development and properties of the College- and Author-Constructed tests, as well as those of the questionnaire, have been described, and the dependent and independent variables used in this investigation have been established. Thirteen different hypotheses have been formulated, the format of the statistical analysis has been outlined and the rationale and procedures for collection of the data and execution of the programme has been explained.

The following chapter presents the results, analysis and findings of this investigation.

FIGURE 1

PHASES I, II AND III OF THE PRESENT INVESTIGATION



# CHAPTER FOUR

In this chapter, the diagnostic and predictive validities of the Bentley Measures, as well as those of the individual sub-tests are presented. The relationship between scores obtained in the Bentley Measures and IQ scores, as well as those attained in the College-Constructed test are also described. The hypotheses are either confirmed or refuted and, in addition, the data gathered from the administration of Author-Constructed Test Number 2 is presented and analysed. Finally, a summary of all the findings is presented for ease of examination.

The chapter concludes with a summary.

## 4.1 THE DIAGNOSTIC AND PREDICTIVE VALIDITIES OF THE BENTLEY MEASURES

### THE SUGGESTOPAEDIA GROUP

The Suggestopaedia class consisted of 18 students out of 35.

(a) The Diagnostic and Predictive Validities of the Bentley Skills Examination with the Suggestopaedia Group

The mean scores of the Suggestopaedia Group on the Bentley Skills Examination in March 1988 was 81,2%. This is statistically significantly
($p < 0.05$) higher than the mean score of 74,7% which this group obtained in February 1988.

The mean score of the high scorers (N=9) on the Bentley Skills Examination administered in March 1988 was 85,7%. The mean score of the high scorers obtained in February 1988 was 81,6%. No significant difference was indicated ($p > 0.10$).

The mean score of the low scorers (N=9) on the Bentley Skills Examination administered in March 1988 was 76,66%. This is marginally statistically significantly ($p=0.05$) higher than the mean score of 67,76% which they obtained in February 1988.

Table 5(a) records the results of the t-tests used to investigate the differences in performance on the Bentley Skills Examination of February 1988 and March 1988 of the Sugggestopaedia Group (N=18) as well as the high scorers (N=9) and the low scorers (N=9) of the Suggestopaedia Group.

TABLE 5 (a)

t-test results for the differences in performances on the Bentley Skills Examinations of February 1988 and of March 1988 of the SUGGESTOPAEDIA GROUP

| | SUGGESTOPAEDIA GROUP | |
|---|---|---|
| | Bentley Skills Examination | |
| | Performance Scores % | |
| | February | March |
| N = total group | 18 | 18 |
| Means | 74,7% | 81,2% |
| Mean Difference | + 6,5% | |
| t | 2,17 | |
| Significance | $p < 0,05$ | |

| | | |
|---|---|---|
| N = high scorers | 9 | 9 |
| Means | 81,6% | 85,7% |
| Mean Difference | + 4,1% | |
| t | 1,57 | |
| Significance | p = 0,15 | |

| | | |
|---|---|---|
| N = low scorers | 9 | 9 |
| Means | 67,76% | 76,66% |
| Mean Difference | + 8,9% | |
| t | 2,38 | |
| Significance | p = 0,05 | |

(1) As expected, the mean scores of the Suggestopaedia Group (N=18) increased from the February 1988 to the March 1988 administration of the tests over seven sessions - that is, an average of 6,5% (Table 5(a)) which is statistically significant ($p<0.05$).

(2) The mean score of the high scorers (N=9) increased from the February 1988 to the March 1988 administration of the tests over seven sessions by an average of 4.1% (Table 5(a)).

(3) The mean score of the low scorers (N=9) increased from the February 1988 to the March 1988 administration of the tests over seven sessions by an average of 8,9% (Table5(a)). It was expected that the low scorers would increase their marks significantly, but a marginally statistically significant increase ($0.05<p<0.10$) was indicated (Figure 2).

Figure 2 records graphically the following :

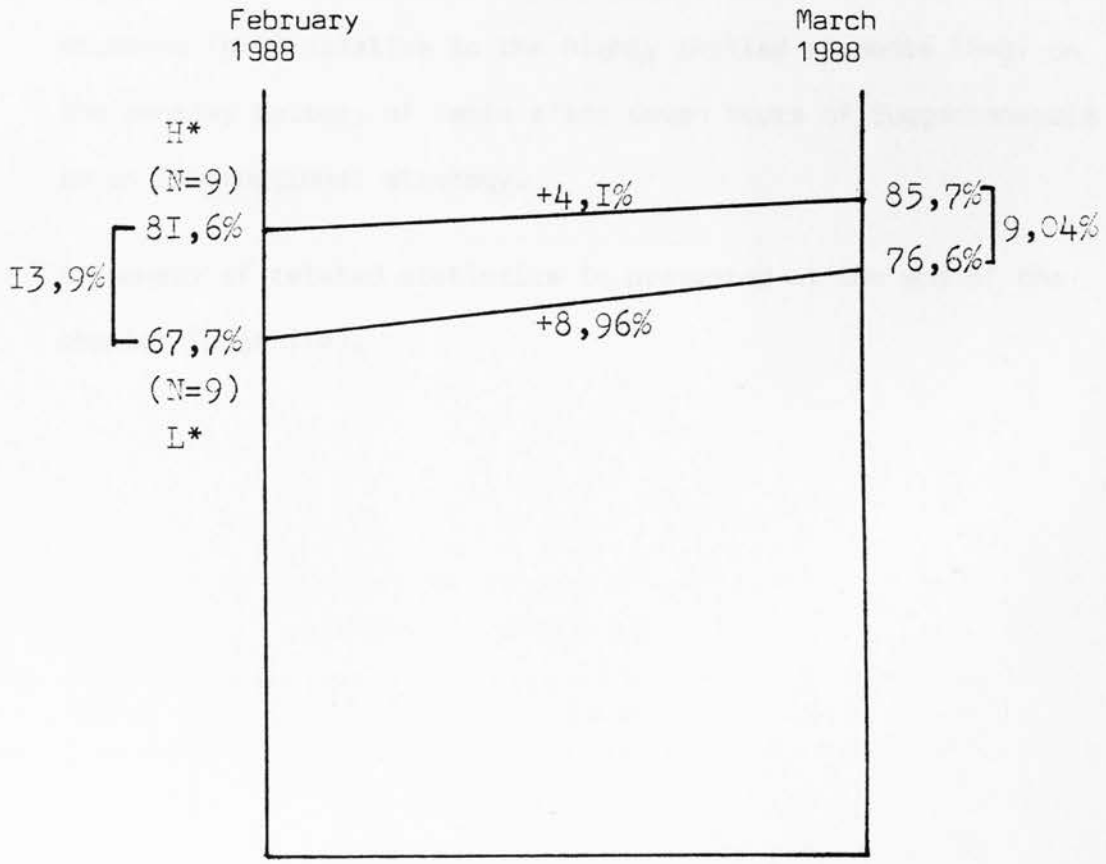
* mean scores of the high scorers and low scorers
* mean difference between the high scorers and the low scorers
* mean increase or decrease of the high scorers and the low scorers

as a result of the February and March 1988 administrations of the Bentley battery of tests for the Suggestopaedia Group.

FIGURE 2

GRAPH INDICATING THE FOLLOWING RESULTS OBTAINED IN THE FEBRUARY 1988 AND MARCH 1988 ADMINISTRATIONS OF THE BENTLEY BATTERY OF TESTS FOR THE SUGGESTOPAEDIA GROUP

1. Mean scores of high scorers and low scorers
2. Mean differences between the high scorers and the low scorers
3. Mean increase or decrease of the high scorers and the low scorers




Suggestopaedia Group
Bentley Battery of Tests

H* = high scorers
L* = low scorers

The analysis of variance indicates that there is a statistically highly significant interactive effect between the method of teaching (Suggestopaedia) and the Bentley level of achievement ($F = 11.6$ ; $p < 0.0001$ ).

Table 5(b) records the results of the one-way analysis of variance test used to investigate the interactive effect of the Suggestopaedia method on the two levels of skill (the high scorers and low scorers) on the Bentley battery of tests within the Suggestopaedia Group between February and March 1988.

As expected, there was a statistically highly significant reduction of the extent of under-achievement of the low skilled students (N=9) relative to the highly skilled students (N=9) on the Bentley battery of tests after seven hours of Suggestopaedia as an instructional strategy.

A summary of related statistics is presented at the end of the chapter (page 114).

TABLE 5 (b)

Analysis of variance for the interactive effect of the Suggestopaedia method with the two levels of skill on the Bentley test within the SUGGESTOPAEDIA GROUP between February and March 1988

| ONE-WAY ANALYSIS OF VARIANCE | | | |
|---|---|---|---|
| Source of Variation | Sum of Squares | Degrees of freedom | Mean Square |
| Grand Average | 78773.77800 | 1 | 78773.778000 |
| Between Columns | 582.00000 | 3 | 194.000000 |
| Within Columns | 534.22222 | 32 | 16.694444 |
| TOTAL | 79890.00000 | 36 | |
| F = 11.620632 | | | |
| One tailed p = .0000259 | | | |

| DESCRIPTIVE STATISTICS | | | | | |
|---|---|---|---|---|---|
| Sample/Variable | Number | Mean | Median | Variance | Std Dev. |
| Pre-test Ah | 9 | 49.000000 | 48.000000 | 6.2500000 | 2.5000000 |
| Post-Test Ah | 9 | 51.444444 | 51.000000 | 15.277778 | 3.9086798 |
| Pre-test Al | 9 | 40.666667 | 41.000000 | 7.5000000 | 2.7386128 |
| Post-test Al | 9 | 46.000000 | 48.000000 | 37.750000 | 6.1441029 |

THE TRADITIONAL GROUP

The Traditional class consisted of 17 students out of 35.

(b) The Diagnostic and Predictive Validities of the Bentley Skills Examination with the Traditional Group.

The mean score of this group on the Bentley Skills Examination in March 1988 was 77,6%. The mean score of the group obtained in February 1988 was 76,8%. No significant difference was indicated.

The mean score of the high scorers (N=9) on the Bentley Skills Examination administered in March 1988 was 82,58%. This is lower than the mean score of 84,06% which the same high scorers obtained in February 1988. No significant difference was indicated.

The mean score of the low scorers (N=8) on the Bentley Skills Examination administered in March 1988 was 72,08%. The mean score of this group obtained in February 1988 was 68,75%. No significant difference was indicated.

Table 6(a) records the results of the t-tests used to investigate the differences in performances on the Bentley Skills Examination of February 1988 and March 1988 of the Traditional Group (N=17) as well as the high scorers (N=9) and the low scorers (N=8) of the Traditional Group.

TABLE 6 (a)

t-test results for the differences in performances on the Bentley Skills Examination of February 1988 and March 1988 of the TRADITIONAL GROUP

| | TRADITIONAL GROUP | |
|---|---|---|
| | Bentley Skills Examination | |
| | Performance Scores % | |
| | February | March |
| N = total group | 17 | 17 |
| Means | 76,8% | 77,6% |
| Mean Difference | + 0,8% | |
| t | 0.24 | |
| Significance | p = 0.80 | |

| | | |
|---|---|---|
| N = high scorers | 9 | 9 |
| Means | 84,06% | 82,58% |
| Mean Difference | - 1,48% | |
| t | - 0.52 | |
| Significance | p = 0.61 | |

| | | |
|---|---|---|
| N = low scorers | 8 | 8 |
| Means | 68,75% | 72,08% |
| Mean Difference | + 3,33% | |
| t | 0.362 | |
| Significance | p = 0.72 | |

The mean score of the Traditional Group (N=17) increased from the February 1988 to the March 1988 administration of the tests over seven sessions by a minimal average of 0,8%. As expected, the high scorers (N=9) did not maintain their marks after seven sessions and a deterioration of an average of -1,48% was indicated. Again, as expected, the low scorers (N=8) did not maintain their marks, but increased them minimally by an average of 3,33% (Figure 3).

Figure 3 records graphically the following :

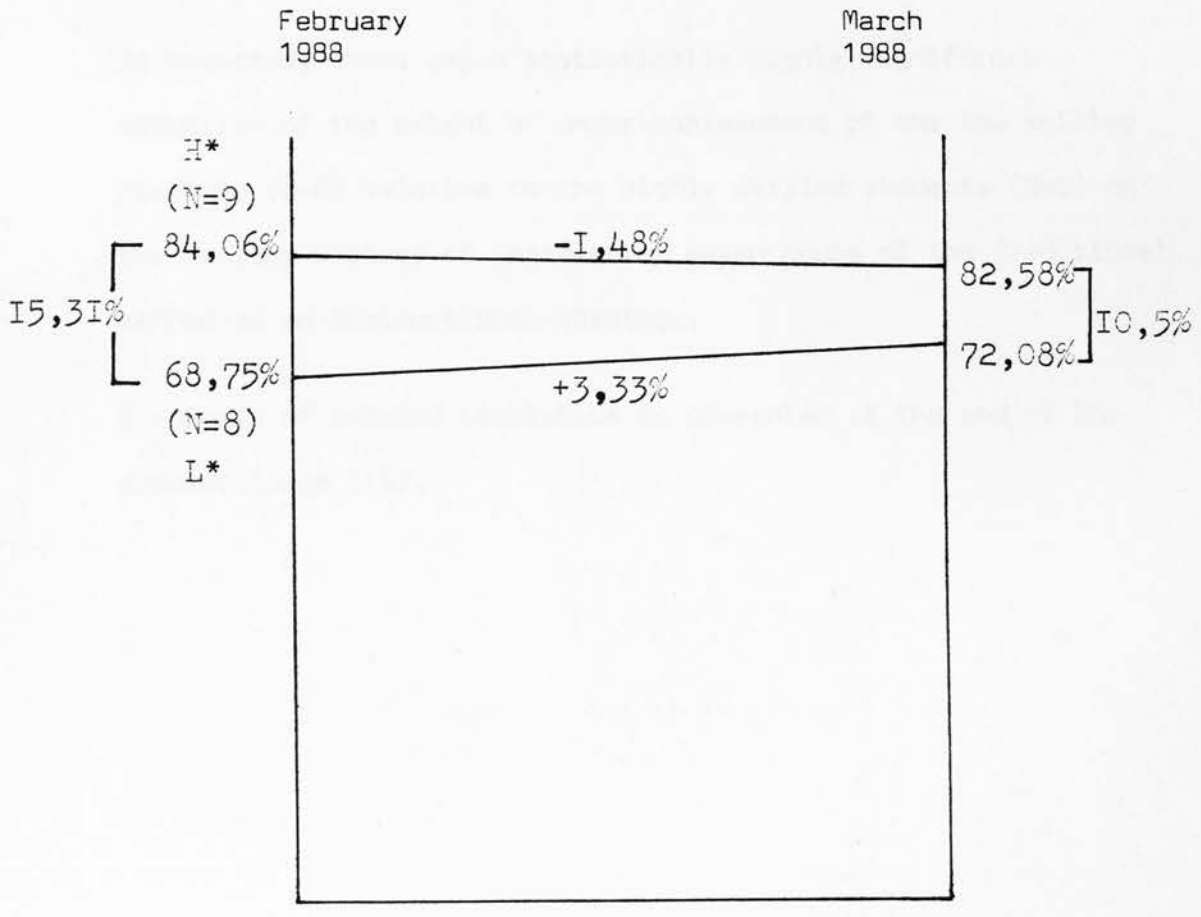
* mean scores of the high scorers and low scorers
* mean differences between the high scorers and the low scorers
* mean increase or decrease of the high scorers and the low scorers

as a result of the February and March 1988 administrations of the Bentley battery of tests for the Traditional Group.

FIGURE 3

GRAPH INDICATING THE FOLLOWING RESULTS OBTAINED IN THE FEBRUARY 1988 AND MARCH 1988 ADMINISTRATIONS OF THE BENTLEY BATTERY OF TESTS FOR THE TRADITIONAL GROUP

1. Mean scores of high scorers and low scorers
2. Mean differences between the high scorers and the low scorers
3. Mean increase or decrease of the high scorers and the low scorers




Traditional Group
Bentley Battery of Tests

H* = high scorers
L* = low scorers

The analysis of variance indicates that there is a statistically highly significant interactive effect between the method of teaching (Traditional) and the Bentley level of achievement ($F = 11.4$ ; $p < 0.0001$ ).

Table 6(b) records the results of the one-way analysis of variance test used to investigate the interactive effect of the Traditional method on the two levels of skill (the high scorers and the low scorers) on the Bentley battery of tests within the Traditional Group between February 1988 and March 1988.

As expected, there was a statistically highly significant reduction of the extent of under-achievement of the low skilled students (N=8) relative to the highly skilled students (N=8) on the Bentley battery of tests after seven hours of the Traditional method as an instructional strategy.

A summary of related statistics is presented at the end of the chapter (page 114).

TABLE 6 (b)

Analysis of variance for the interactive effect of the Traditional method with the two levels of skill on the Bentley Test within the TRADITIONAL GROUP between February and March 1988

| ONE-WAY ANALYSIS OF VARIANCE | | | |
|---|---|---|---|
| Source of Variation | Sum of Squares | Degrees of freedom | Mean Square |
| Grand Average | 68913.28100 | 1 | 68913.281000 |
| Between Columns | 571.84375 | 3 | 190.614580 |
| Within Columns | 467.87500 | 28 | 16.709821 |
| TOTAL | 69953.87500 | 32 | |
| F = 11.407338 | | | |
| One tailed p = .0000461 | | | |

| DESCRIPTIVE STATISTICS | | | | | |
|---|---|---|---|---|---|
| Sample/Variable | Number | Mean | Median | Variance | Std Dev. |
| Pre-test Bh | 8 | 51.000000 | 51.500000 | 12.285714 | 3.505098 |
| Post-Test Bh | 8 | 50.125000 | 51.000000 | 10.410714 | 3.2265639 |
| Pre-test Bl | 8 | 41.250000 | 41.500000 | 9.3571429 | 3.0589447 |
| Post-test Bl | 8 | 43.250000 | 45.000000 | 34.785714 | 5.897941 |

(c) The diagnostic and predictive validity of the individual sub-tests within the Bentley battery of tests

It was hypothesized that there would be no statistically significant changes in the students' mean scores on any of the Bentley sub-tests after seven hours of instruction under either the Suggestopaedia or the Traditional method and neither for high scorers nor for low scorers on the initial Bentley test given in February 1988.

The hypothesis is refuted for the Suggestopaedia Group.

The mean score of the Suggestopaedia Group (N=18) on the Bentley Skills PITCH SUB-TEST Examination in March 1988 was 86,1%. This is marginally statistically significantly ($p=0.07$) higher than the mean score of 78,6% which the Suggestopaedia Group obtained in February 1988 (Table 7(a)). The mean score thus increased by an average
of 7,5%.

The mean score of the HIGH SCORERS (N=9) of the Suggestopaedia Group on the Bentley Skills PITCH SUB-TEST Examination in March 1988 was 93,8%. This is statistically significantly ($p = 0.03$) higher than the mean score of 87,2% which the high scorers obtained in February 1988 (Table 7(a)). The mean score thus increased by an average of 6,6% (Figure 4).

The mean score of the LOW SCORERS (N=9) of the Suggestopaedia Group on the Bentley Skills TUNE SUB-TEST Examination in March 1988 was 80%. This is highly statistically significantly ($p < 0.01$) higher than the mean score of 72,2% which the low scorers obtained in February 1988 (Table 8(a)). The mean score thus increased by an average of 7,8% (Figure 6).

Tables 7(a), 8(a), 9(a) and 10(a) record the results of the t-tests used to investigate the differences in performances on the various Bentley Skills Examination Sub-tests of February 1988 and March 1988 of the Suggestopaedia Group, as well as the high scorers (N=9) and the low scorers (N=9) of the Suggestopaedia Group.

Figures 4, 6, 8 and 10 record graphically the following :

* mean scores of the high scorers and the low scorers
* mean difference between the high scorers and the low scorers
* mean increase or decrease of the high scorers and the low scorers

as a result of the February and March 1988 administration of the Bentley SUB-TESTS for the SUGGESTOPAEDIA GROUP

The hypothesis is also refuted for the TRADITIONAL GROUP.

The mean score of LOW SCORERS (N=8) of the Traditional Group on the Bentley Skills PITCH SUB-TEST Examination in March 1988 was 85,6%. This is highly statistically significantly ($p < 0.01$) higher than the mean score of 65,6% which the low scorers obtained in February 1988 (Table 11(a)). The mean score thus increased by an average of 20% (Figure 5).

Tables 11(a), 12(a), 13(a) and 14(a) record the results of the t-tests used to investigate the differences in performance on the various Bentley Skills Examination Sub-tests of February 1988 and March 1988 of the Traditional Group (N=17), as well as the high scorers (N=9) and the low scorers (N=8) of the Traditional Group.

Figures 5, 7, 9 and 11 record graphically the following :

* mean scores of the high scorers and the low scorers
* mean differences between the high scorers and the low scorers
* mean increase of the February and March 1988 administrations of the Bentley SUB-TESTS for the Traditional Group.

A summary of related statistics is presented at the end of the chapter (page 114).

It was hypothesized that, given two levels of skill on all the Bentley sub-tests (high and low) within the Suggestopaedia Group, there would be a statistically significant reduction of the extent of under-achievement of the low skilled students relative to the highly skilled students on <u>all</u> the Bentley sub-tests after seven hours of Suggestopaedia as an instructional strategy.

The hypothesis is confirmed for the SUGGESTOPAEDIA GROUP.

The analysis of variance indicates that there is a statistically highly significant interactive effect between the method of teaching (Suggestopaedia) and levels of achievement on <u>all</u> the Bentley sub-tests :

Pitch Sub-test $F = 13.6$ ; $p < 0.00001$

Tune Sub-test $F = 13.7$ ; $p < 0.00001$

Chord Sub-test $F = 6.0$ ; $p < 0.01$

Rhythm Sub-test $F = 4.6$ ; $p < 0.01$

Tables 7(b), 8(b), 9(b) and 10(b) record the results of the one-way analysis of variance tests used to investigate the interactive effect of the Suggestopaedia method with the two levels of skill on all the Bentley sub-tests with the Suggestopaedia Group between February and March 1988.

As expected, there was a statistically highly significant reduction of the extent of under-achievement of the low skilled students (N=9) relative to the highly skilled students (N=9) on all the Bentley sub-tests after seven hours of Suggestopaedia as an instructional method.

It was hypothesized that, given two levels of skill on all the Bentley sub-tests (high and low) within the Traditional Group, there would be a statistically significant reduction of the extent of under-achievement of the low skilled students relative to the highly skilled students on <u>all</u> the Bentley sub-tests after seven hours of the Traditional method as an instructional strategy.

The hypothesis is confirmed for the TRADITIONAL GROUP.

The analysis of variance indicates that there is a statistically highly significant interactive effect between the Traditional method of teaching and <u>all</u> the Bentley sub-tests levels of achievement :

Pitch Sub-test $F = 11.8$ ; $p < 0.0001$

Tune Sub-test $F = 10.0$ ; $p = 0.0001$

Chord Sub-test $F = 7.1$ ; $p = 0.01$

Rhythm Sub-test $F = 5.4$ ; $p < 0.01$

Tables 11(b), 12(b), 13(b) and 14(b) record the results of the one-way analysis of variance tests used to investigate the interactive effect of the Traditional method with the two levels of skill on all the Bentley sub-tests within the Traditional Group between February and March 1988.

As expected, there was a statistically highly significant reduction of the extent of under-achievement of the low skilled students (N=8) relative to the highly skilled students (N=8) on all the Bentley sub-tests after seven hours of the Traditional method as an instructional strategy.

A summary of related statistics is presented at the end of the chapter (page 114).

TABLE 7 (a)

t-test results for the difference in performance on the Bentley Skills PITCH SUB-TEST Examinations of February 1988 and of March 1988 of the SUGGESTOPAEDIA GROUP

| | SUGGESTOPAEDIA GROUP | |
|---|---|---|
| | Pitch Sub-test | |
| | Performance Scores % | |
| | February | March |
| N = total group | 18 | 18 |
| Means | 78,6% | 86,1% |
| Mean Difference | 7,5% | |
| t | 1,91 | |
| Significance | p = 0,07 | |

| | | |
|---|---|---|
| N = high scorers | 9 | 9 |
| Means | 87,2% | 93,8% |
| Mean Difference | 6,6% | |
| t | 2,424 | |
| Significance | p = 0,03 | |

| | | |
|---|---|---|
| N = low scorers | 9 | 9 |
| Means | 70% | 78,3% |
| Mean Difference | 8,3% | |
| t | 1,6835 | |
| Significance | p = 0,15 | |

TABLE 7 (b)

Analysis of variance for the interactive effect of the Suggestopaedia method with the two levels of skill on the Bentley Skills PITCH SUB-TEST within the SUGGESTOPAEDIA GROUP between February and March 1988

| ONE-WAY ANALYSIS OF VARIANCE | | | |
|---|---|---|---|
| Source of Variation | Sum of Squares | Degrees of freedom | Mean Square |
| Grand Average | 9768.027800 | 1 | 9768.0278000 |
| Between Columns | 117.194440 | 3 | 39.0648150 |
| Within Columns. | 91.777778 | 32 | 2.8680556 |
| TOTAL | 9977.000000 | 36 | |
| F = 13.620662 | | | |
| One tailed p = .0000068 | | | |

| DESCRIPTIVE STATISTICS | | | | | |
|---|---|---|---|---|---|
| Sample/Variable | Number | Mean | Median | Variance | Std Dev. |
| Pre-test Ah | 9 | 17.444444 | 17.000000 | 1.5277778 | 1.236033 |
| Post-Test Ah | 9 | 18.777778 | 19.000000 | 1.1944444 | 1.092906 |
| Pre-test Al | 9 | 14.000000 | 14.000000 | 2.2500000 | 1.5000000 |
| Post-test Al | 9 | 15.666667 | 16.000000 | 6.5000000 | 2.5495098 |

TABLE 8 (a)

t-test results for the differences in performance on the Bentley Skills TUNE SUB-TEST Examinations of February 1988 and of March 1988 of the SUGGESTOPAEDIA GROUP

| | SUGGESTOPAEDIA GROUP | |
|---|---|---|
| | Tune Sub-test | |
| | Performance Scores % | |
| | February | March |
| N = total group | 18 | 18 |
| Means | 81,1% | 85% |
| Mean Difference | 3,9% | |
| t | 1,622 | |
| Significance | p = 0,25 | |

| | | |
|---|---|---|
| N = high scorers | 9 | 9 |
| Means | 90% | 90% |
| Mean Difference | 0% | |
| t | 0 | |
| Significance | p = 1,00 | |

| | | |
|---|---|---|
| N = low scorers | 9 | 9 |
| Means | 72,2% | 80% |
| Mean Difference | 7,8% | |
| t | 3,39 | |
| Significance | $p < 0,01$ | |

TABLE 8 (b)

Analysis of variance for the interactive effect of the Suggestopaedia method with the two levels of skill on the Bentley Skills TUNE SUB-TEST within the SUGGESTOPAEDIA GROUP between February and March 1988

| ONE-WAY ANALYSIS OF VARIANCE | | | |
|---|---|---|---|
| Source of Variation | Sum of Squares | Degrees of freedom | Mean Square |
| Grand Average | 2483.361100 | 1 | 2483.3611000 |
| Between Columns | 20.083333 | 3 | 6.6944444 |
| Within Columns | 15.555556 | 32 | .4861111 |
| TOTAL | 2519.000000 | 36 | |
| F = 13.771429 | | | |
| One tailed p = .0000062 | | | |

| DESCRIPTIVE STATISTICS | | | | | |
|---|---|---|---|---|---|
| Sample/Variable | Number | Mean | Median | Variance | Std Dev. |
| Pre-test Ah | 9 | 9.0000000 | 9.0000000 | .2500000 | .5000000 |
| Post-Test Ah | 9 | 9.0000000 | 9.0000000 | .2500000 | .5000000 |
| Pre-test Al | 9 | 7.2222222 | 7.0000000 | .4444444 | .6666667 |
| Post-test Al | 9 | 8.0000000 | 8.0000000 | 1.0000000 | 1.0000000 |

TABLE 9 (a)

t-test results for the differences in performance on the Bentley Skills CHORD SUB-TEST Examinations of February 1988 and of March 1988 of the SUGGESTOPAEDIA GROUP

| | SUGGESTOPAEDIA GROUP | |
|---|---|---|
| | Chord Sub-test | |
| | Performance Scores % | |
| | February | March |
| N = total group | 18 | 18 |
| Means | 59,4% | 62,5% |
| Mean Difference | 3,1% | |
| t | 0,379 | |
| Significance | p = 0,71 | |

| | | |
|---|---|---|
| N = high scorers | 9 | 9 |
| Means | 70,5% | 70% |
| Mean Difference | - 0,5% | |
| t | - 0,099 | |
| Significance | p = ,92 | |

| | | |
|---|---|---|
| N = low scorers | 9 | 9 |
| Means | 48,3% | 55% |
| Mean Difference | 6,7% | |
| t | 0,17 | |
| Significance | p = 0,87 | |

TABLE 9 (b)

Analysis of Variance for the interactive effect of the Suggestopaedia method with the two levels of skill on the Bentley Skills CHORD SUB-TEST within the SUGGESTOPAEDIA GROUP between February and March 1988

| ONE-WAY ANALYSIS OF VARIANCE | | | |
|---|---|---|---|
| Source of Variation | Sum of Squares | Degrees of freedom | Mean Square |
| Grand Average | 5353.361100 | 1 | 5353.3611000 |
| Between Columns | 132.750000 | 3 | 44.2500000 |
| Within Columns | 234.888890 | 32 | 7.3402778 |
| TOTAL | 5721.000000 | 36 | |
| F = 6.0283822 | | | |
| One tailed p = .0022462 | | | |

| DESCRIPTIVE STATISTICS | | | | | |
|---|---|---|---|---|---|
| Sample/Variable | Number | Mean | Median | Variance | Std Dev. |
| Pre-test Ah | 9 | 14.111111 | 14.000000 | 2.1111111 | 1.452966 |
| Post-Test Ah | 9 | 14.000000 | 12.000000 | 9.0000000 | 3.0000000 |
| Pre-test Al | 9 | 9.666667 | 10.000000 | 4.5000000 | 2.1213203 |
| Post-test Al | 9 | 11.000000 | 12.000000 | 13.7500000 | 3.7080992 |

TABLE 10 (a)

t-test results for the differences in performance on the Bentley Skills RHYTHM SUB-TEST Examinations of February 1988 and of March 1988 of the SUGGESTOPAEDIA GROUP

| | SUGGESTOPAEDIA GROUP | |
|---|---|---|
| | Rhythm Sub-test | |
| | Performance Scores % | |
| | February | March |
| N = total group | 18 | 18 |
| Means | 91,1% | 93,8% |
| Mean Difference | 2,7% | |
| t | 0,747 | |
| Significance | p = 0,46 | |

| | | |
|---|---|---|
| N = high scorers | 9 | 9 |
| Means | 98,8% | 96,6% |
| Mean Difference | - 2,2% | |
| t | - 1,108 | |
| Significance | p = 0,30 | |

| | | |
|---|---|---|
| N = low scorers | 9 | 9 |
| Means | 83,3% | 91,1% |
| Mean Difference | 7,8% | |
| t | 1,27 | |
| Significance | p = 0,35 | |

TABLE 10 (b)

Analysis of variance for the interactive effect of the Suggestopaedia method with the two levels of skill on the Bentley Skills RHYTHM SUB-TEST within the SUGGESTOPAEDIA GROUP between February and March 1988

| ONE-WAY ANALYSIS OF VARIANCE | | | |
|---|---|---|---|
| Source of Variation | Sum of Squares | Degrees of freedom | Mean Square |
| Grand Average | 3080.250000 | 1 | 3080.2500000 |
| Between Columns | 12.972222 | 3 | 4.3240741 |
| Within Columns | 29.777778 | 32 | .9305556 |
| TOTAL | 3123.000000 | 36 | |
| F = 4.6467662 | | | |
| One tailed p = .0083118 | | | |

| DESCRIPTIVE STATISTICS | | | | | |
|---|---|---|---|---|---|
| Sample/Variable | Number | Mean | Median | Variance | Std Dev. |
| Pre-test Ah | 9 | 9.8888889 | 10.000000 | .1111111 | .3333333 |
| Post-Test Ah | 9 | 9.6666667 | 10.000000 | .2500000 | .5000000 |
| Pre-test Al | 9 | 8.3333333 | 9.000000 | .7500000 | .8660254 |
| Post-test Al | 9 | 9.1111111 | 10.000000 | 2.6111111 | 1.615893 |

TABLE 11 (a)

t-test results for the differences in performance on the Bentley Skills PITCH SUB-TEST Examination of February 1988 and of March 1988 of the TRADITIONAL GROUP

| | TRADITIONAL GROUP | |
|---|---|---|
| | Pitch Sub-Test | |
| | Performance Scores % | |
| | February | March |
| N = total group | 17 | 17 |
| Means | 78,2% | 84,4% |
| Mean Difference | 6,2% | |
| t | 1,4274 | |
| Significance | p = 0,15 | |

| | | |
|---|---|---|
| N = high scorers | 9 | 9 |
| Means | 89,4% | 83,3% |
| Mean Difference | - 6,11% | |
| t | - 1,452 | |
| Significance | p = 0,18 | |

| | | |
|---|---|---|
| N = low scorers | 8 | 8 |
| Means | 65,6% | 85,6% |
| Mean Difference | 20% | |
| t | 4,08 | |
| Significance | p < 0,01 | |

TABLE 11 (b)

Analysis of variance for the interactive effect of the Traditional method with the two levels of skill on the Bentley Skills PITCH SUB-TEST within the TRADITIONAL GROUP between February and March 1988

| ONE-WAY ANALYSIS OF VARIANCE | | | |
|---|---|---|---|
| Source of Variation | Sum of Squares | Degrees of freedom | Mean Square |
| Grand Average | 8547.781200 | 1 | 8547.7812000 |
| Between Columns | 119.093750 | 3 | 39.6979170 |
| Within Columns | 94.125000 | 28 | 3.3616071 |
| TOTAL | 8761.000000 | 32 | |
| F = 11.809208 | | | |
| One tailed p = .0000355 | | | |

| DESCRIPTIVE STATISTICS | | | | | |
|---|---|---|---|---|---|
| Sample/Variable | Number | Mean | Median | Variance | Std Dev. |
| Pre-test Bh | 8 | 18.250000 | 18.500000 | 2.7857143 | 1.6690459 |
| Post-Test Bh | 8 | 16.875000 | 17.000000 | 2.9821429 | 1.726888 |
| Pre-test Bl | 8 | 13.125000 | 13.500000 | 1.8392857 | 1.356202 |
| Post-test Bl | 8 | 17.125000 | 17.500000 | 5.8392857 | 2.416461 |

TABLE 12 (a)

t-test results for the differences in performance on the Bentley Skills TUNE SUB-TEST Examinations of February 1988 and of March 1988 of the TRADITIONAL GROUP

| | TRADITIONAL GROUP | |
|---|---|---|
| | Tune Sub-test | |
| | Performance Scores % | |
| | February | March |
| N = total group | 17 | 17 |
| Means | 82,9% | 85,8% |
| Mean Difference | 2,9% | |
| t | 0,565 | |
| Significance | p = 0,61 | |

| | | |
|---|---|---|
| N = high scorers | 9 | 9 |
| Means | 95,5% | 92,2% |
| Mean Difference | - 3,3% | |
| t | - 1,175 | |
| Significance | p = 0,30 | |

| | | |
|---|---|---|
| N = low scorers | 8 | 8 |
| Means | 68,7% | 78,7% |
| Mean Difference | 10% | |
| t | 1,37 | |
| Significance | p = 0,20 | |

TABLE 12 (b)

Analysis of variance for the interactive effect of the Traditional method with the two levels of skill on the Bentley Skills TUNE SUB-TEST within the TRADITIONAL GROUP between February and March 1988

| ONE-WAY ANALYSIS OF VARIANCE | | | |
|---|---|---|---|
| Source of Variation | Sum of Squares | Degrees of freedom | Mean Square |
| Grand Average | 2244.500000 | 1 | 2244.5000000 |
| Between Columns | 37.000000 | 3 | 12.3333330 |
| Within Columns | 34.500000 | 28 | 1.2321429 |
| TOTAL | 2316.000000 | 32 | |
| F = 10.009662 | | | |
| One tailed p = .0001191 | | | |

| DESCRIPTIVE STATISTICS | | | | | |
|---|---|---|---|---|---|
| Sample/Variable | Number | Mean | Median | Variance | Std Dev. |
| Pre-test Bh | 8 | 9.6250000 | 10.000000 | .2678571 | .517549 |
| Post-Test Bh | 8 | 9.1250000 | 9.000000 | .4107143 | .640869 |
| Pre-test Bl | 8 | 6.8750000 | 7.000000 | 1.5535714 | 1.246423 |
| Post-test Bl | 8 | 7.8750000 | 8.000000 | 2.6964286 | 1.6420800 |

TABLE 13 (a)

t-test results for the differences in performance on the Bentley Skills CHORD SUB-TEST Examinations of February 1988 and of March 1988 of the TRADITIONAL GROUP

| | TRADITIONAL GROUP | |
|---|---|---|
| | Chord Sub-test | |
| | Performance Scores % | |
| | February | March |
| N = total group | 17 | 17 |
| Means | 64,7% | 58,8% |
| Mean Difference | - 5,9% | |
| t | - 1,16 | |
| Significance | p = 0,26 | |

| | | |
|---|---|---|
| N = high scorers | 9 | 9 |
| Means | 74,4% | 65,5% |
| Mean Difference | - 8,9% | |
| t | - 1,65 | |
| Significance | p = 0,12 | |

| | | |
|---|---|---|
| N = low scorers | 8 | 8 |
| Means | 53,7% | 51,25% |
| Mean Difference | - 2,45% | |
| t | - 0,392 | |
| Significance | p = 0,70 | |

TABLE 13 (b)

Analysis of variance for the interactive effect of the Traditional method with the two levels of skill on the Bentley Skills CHORD SUB-TEST within the TRADITIONAL GROUP between February and March 1988

| ONE-WAY ANALYSIS OF VARIANCE | | | |
|---|---|---|---|
| Source of Variation | Sum of Squares | Degrees of freedom | Mean Square |
| Grand Average | 4900.500000 | 1 | 4900.5000000 |
| Between Columns | 125.750000 | 3 | 41.9166667 |
| Within Columns | 163.750000 | 28 | 5.8482143 |
| TOTAL | 5190.000000 | 32 | |
| F = 7.1674300 | | | |
| One tailed p = .0010211 | | | |

| DESCRIPTIVE STATISTICS | | | | | |
|---|---|---|---|---|---|
| Sample/Variable | Number | Mean | Median | Variance | Std Dev. |
| Pre-test Bh | 8 | 15.125000 | 15.000000 | 1.5535714 | 1.246423 |
| Post-Test Bh | 8 | 13.375000 | 14.000000 | 8.8392857 | 2.973093 |
| Pre-test Bl | 8 | 10.750000 | 11.500000 | 5.0714286 | 2.251983 |
| Post-test Bl | 8 | 10.250000 | 9.500000 | 7.9285714 | 2.815771 |

TABLE 14 (a)

t-test results for the differences in performance on the Bentley Skills RHYTHM SUB-TEST Examinations of February 1988 and of March 1988 of the TRADITIONAL GROUP

| | TRADITIONAL GROUP | |
|---|---|---|
| | Rhythm Sub-test | |
| | Performance Scores % | |
| | February | March |
| N = total group | 17 | 17 |
| Means | 92,3% | 93,5% |
| Mean Difference | 1,2% | |
| t | 0,443 | |
| Significance | p = 0,67 | |

| | | |
|---|---|---|
| N = high scorers | 9 | 9 |
| Means | 97,7% | 95,5% |
| Mean Difference | - 2,2% | |
| t | - 0,96 | |
| Significance | p = 0,34 | |

| | | |
|---|---|---|
| N = low scorers | 8 | 8 |
| Means | 86,2% | 91,2% |
| Mean Difference | 5% | |
| t | 1,264 | |
| Significance | p = 0,25 | |

TABLE 14 (b)

Analysis of variance for the interactive effect of the Traditional method with the two levels of skill on the Bentley Skills RHYTHM SUB-TEST within the TRADITIONAL GROUP between February and March 1988

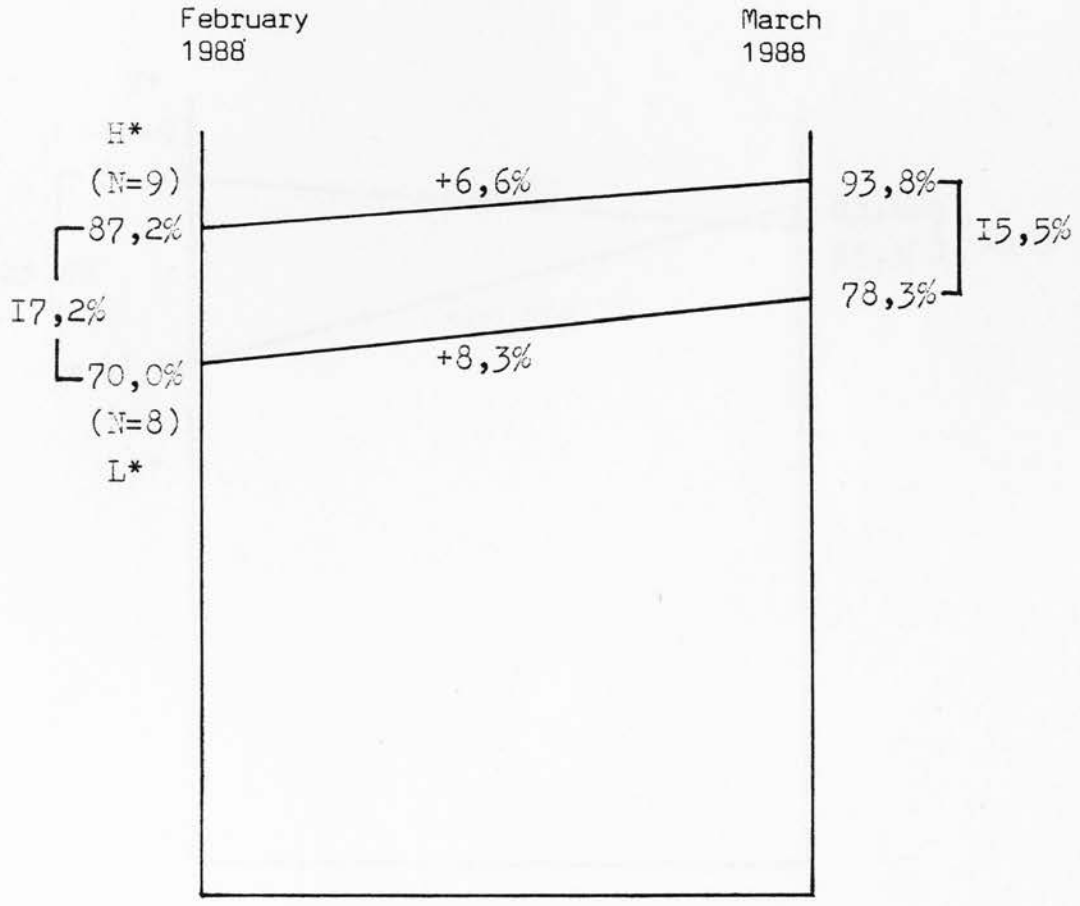
| ONE-WAY ANALYSIS OF VARIANCE | | | |
|---|---|---|---|
| Source of Variation | Sum of Squares | Degrees of freedom | Mean Square |
| Grand Average | 2756.5312000 | 1 | 2756.5312000 |
| Between Columns | 6.8437500 | 3 | 2.2812500 |
| Within Columns | 11.6250000 | 28 | .4151786 |
| TOTAL | 2775.0000000 | 32 | |
| F = 5.4946237 | | | |
| One tailed p = .0042611 | | | |

| DESCRIPTIVE STATISTICS | | | | | |
|---|---|---|---|---|---|
| Sample/Variable | Number | Mean | Median | Variance | Std Dev. |
| Pre-test Bh | 8 | 9.8750000 | 10.000000 | .1250000 | .3535534 |
| Post-Test Bh | 8 | 9.5000000 | 9.500000 | .2857143 | .5345225 |
| Pre-test Bl | 8 | 8.6250000 | 9.000000 | .5535714 | .7440238 |
| Post-test Bl | 8 | 9.1250000 | 9.000000 | .6964286 | .8345230 |

FIGURE 4

Graph indicating the following results obtained in the February 1988 and March 1988 administrations of the Bentley Pitch Sub-test for the Suggestopaedia Group.

1. Mean scores of high scorers and low scorers
2. Mean differences between the high scorers and the low scorers
3. Mean increase or decrease of the high scorers and the low scorers



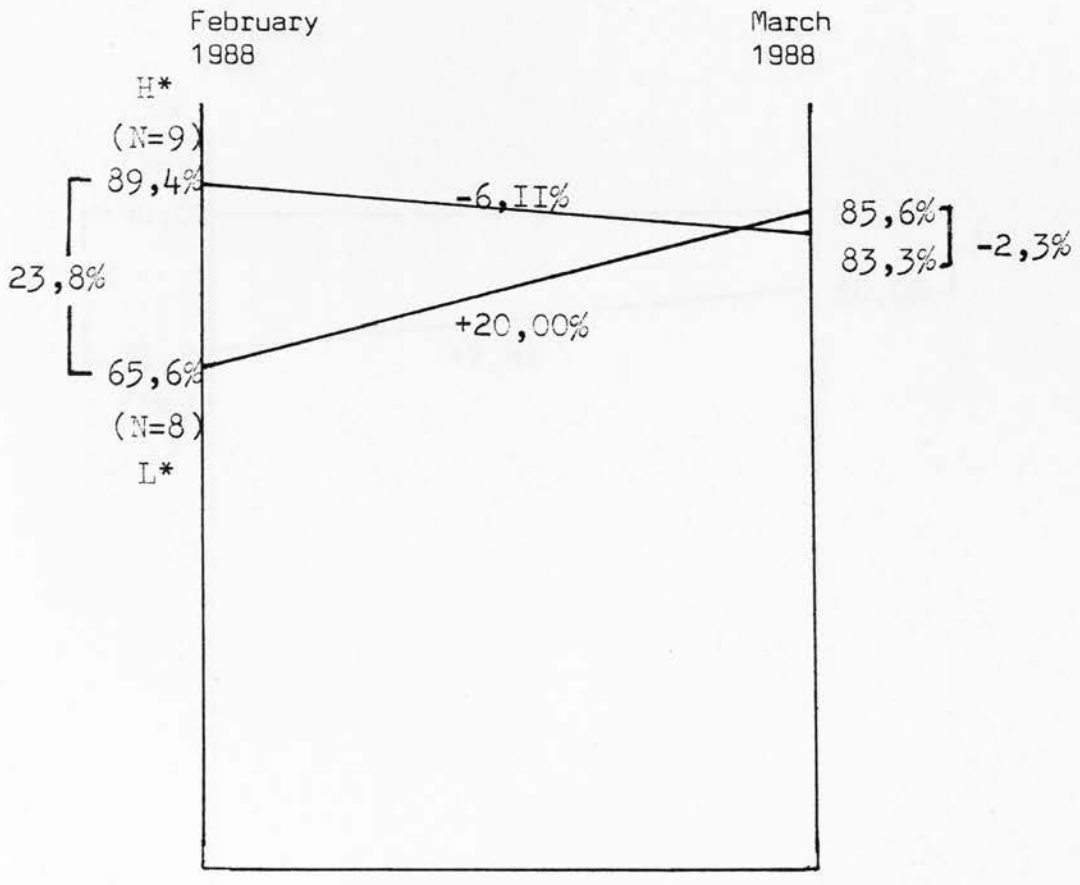

Suggestopaedia Group
Bentley Pitch Sub-test

H* = high scorers
L* = low scorers

FIGURE 5

Graph indicating the following results obtained in the February 1988 and March 1988 administration of the Bentley Pitch Sub-test for the Traditional Group.

1. Mean scores of high scorers and low scorers
2. Mean differences between the high scorers and the low scorers
3. Mean increase or decrease of the high scorers and the low scorers



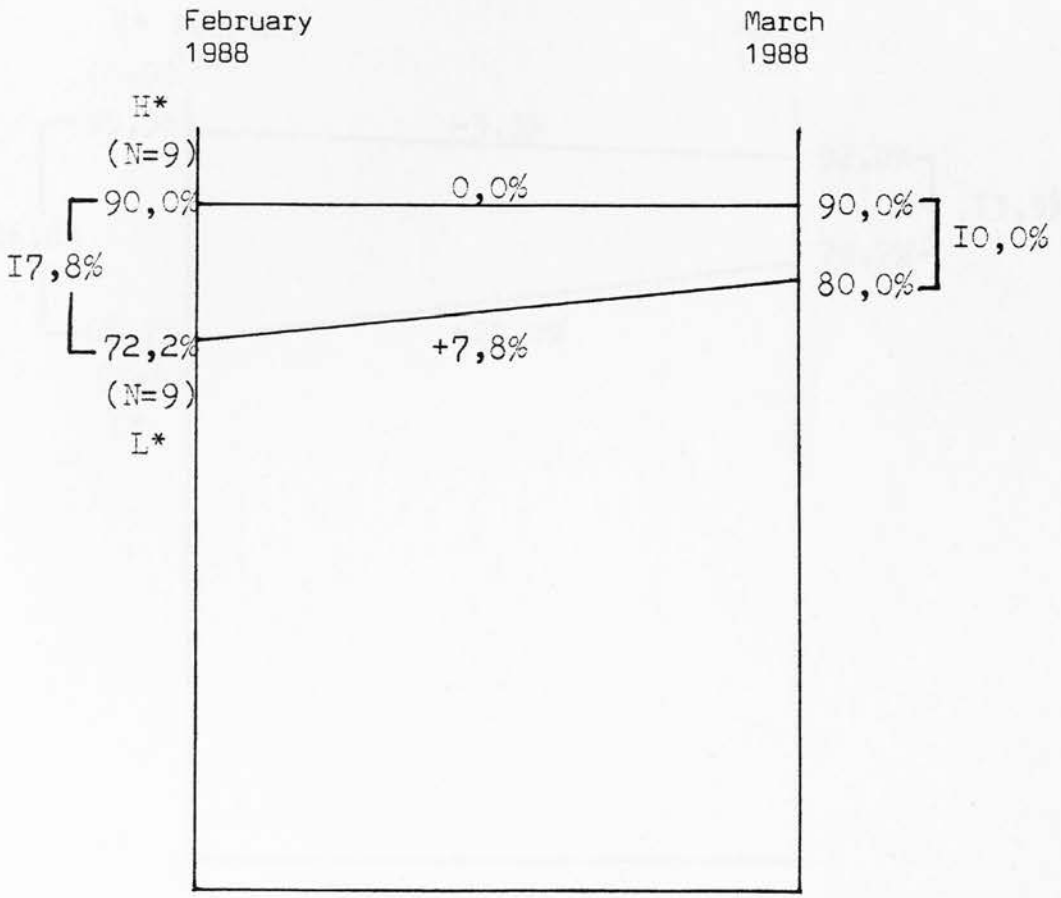

Traditional Group
Bentley Pitch Sub-test

H* = high scorers
L* = low scorers

FIGURE 6

Graph indicating the following results obtained in the February 1988 and March 1988 administrations of the Bentley Tune Sub-test for the Suggestopaedia Group.

1. Mean scores of high scorers and low scorers
2. Mean differences between the high scorers and the low scorers
3. Mean increase or decrease of the high scorers and the low scorers



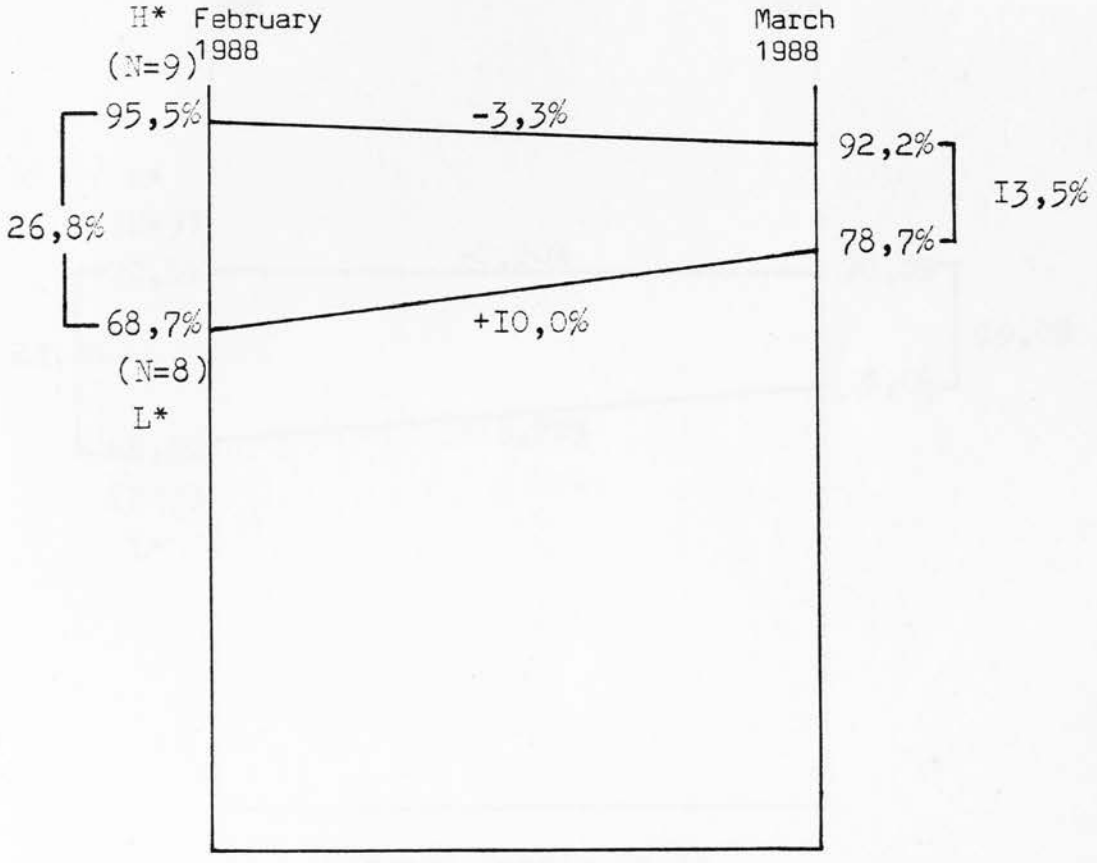

Suggestopaedia Group
Bentley Tune Sub-test

H* = high scorers
L* = low scorers

FIGURE 7

Graph indicating the following results obtained in the February 1988 and March 1988 administrations of the Bentley Tune Sub-test for the Traditional Group.

1. Mean scores of high scorers and low scorers
2. Mean differences between the high scorers and the low scorers
3. Mean increase or decrease of the high scorers and the low scorers



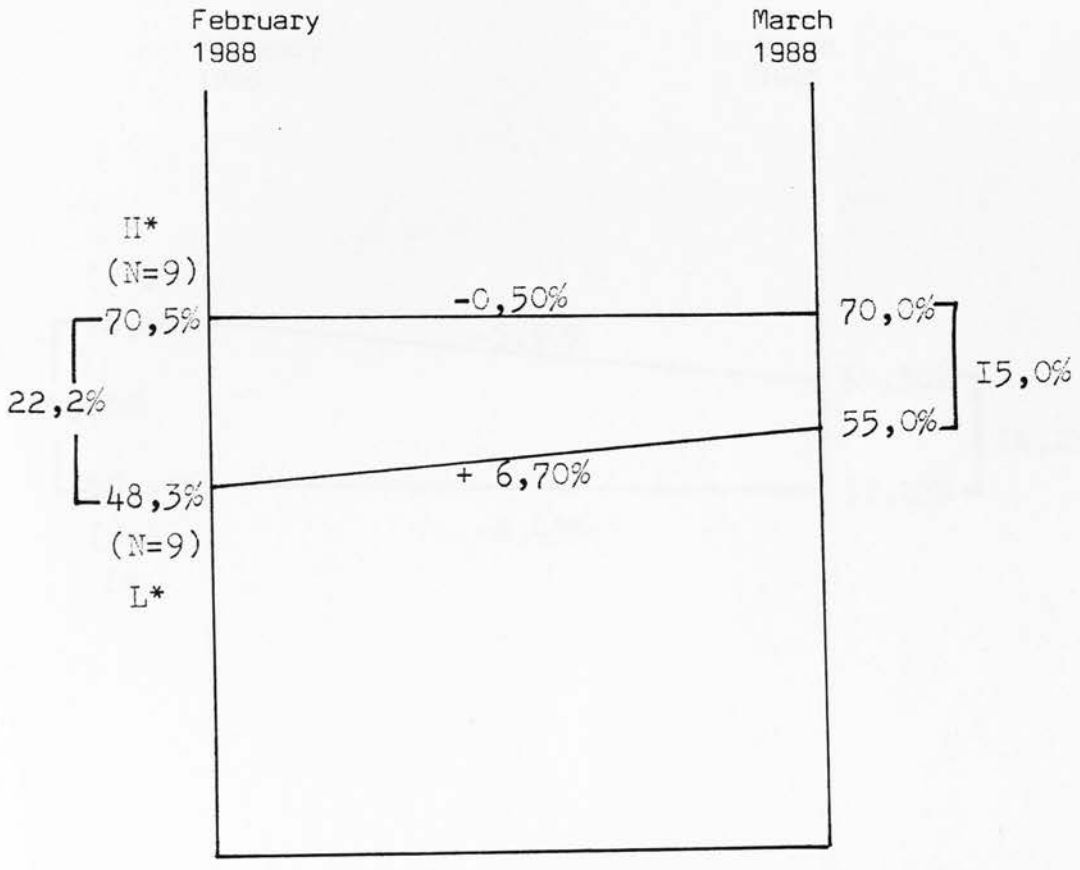

Traditional Group
Bentley Tune Sub-test

H* = high scorers
L* = low scorers

FIGURE 8

Graph indicating the following results obtained in the February 1988 and March 1988 administrations of the Bentley Chord Sub-test for the Suggestopaedia Group.

1. Mean scores of high scorers and low scorers
2. Mean differences between the high scorers and the low scorers
3. Mean increase or decrease of the high scorers and the low scorers



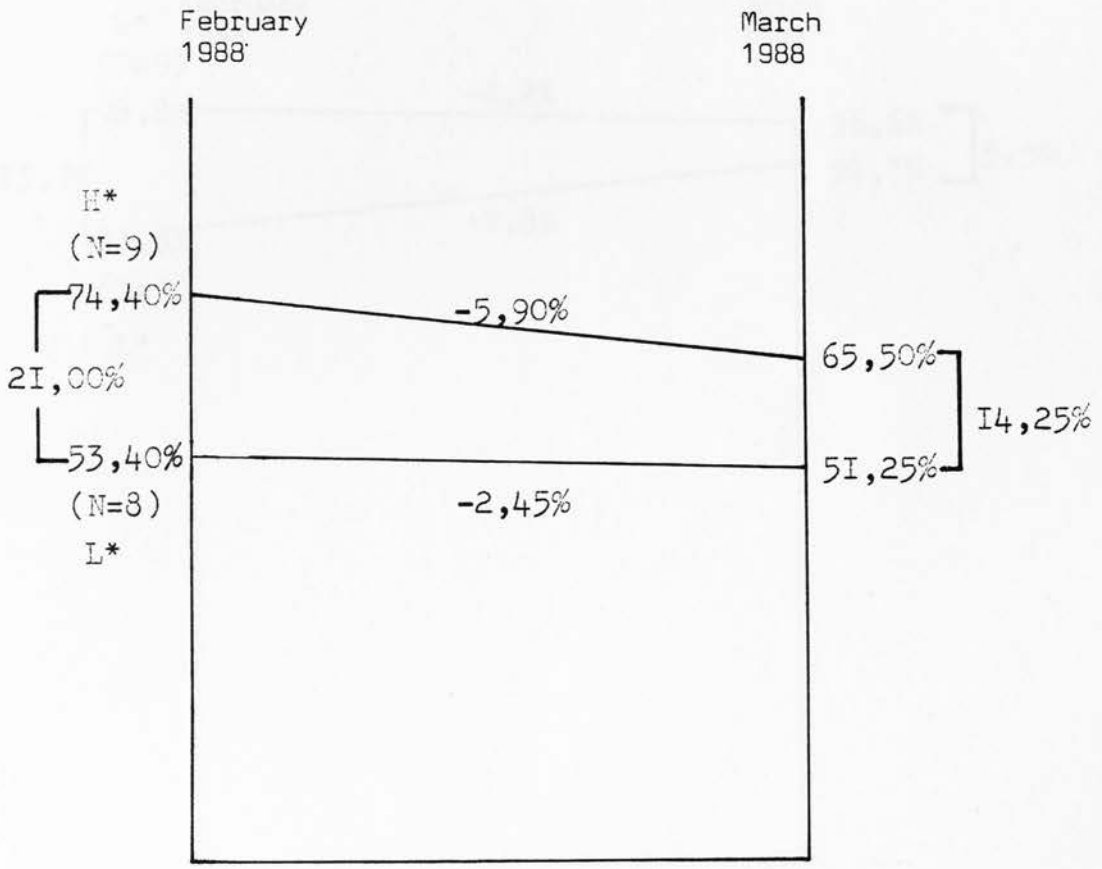

Suggestopaedia Group
Bentley Chord Sub-test

H* = high scorers
L* = low scorers

FIGURE 9

Graph indicating the following results obtained in the February 1988 and March 1988 administrations of the Bentley Chord Sub-test for the Traditional Group.

1. Mean scores of high scorers and low scorers
2. Mean differences between the high scorers and the low scorers
3. Mean increase or decrease of the high scorers and the low scorers




Traditional Group

Bentley Chord Sub-test

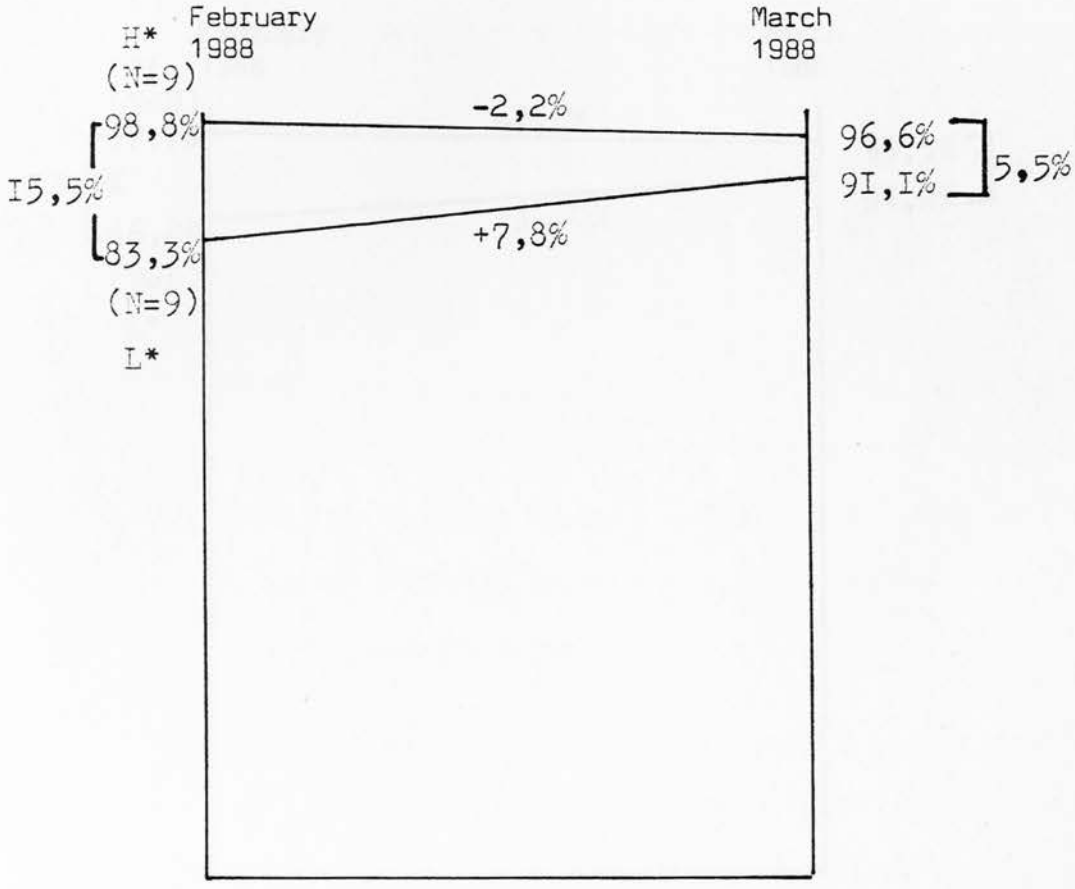
H* = high scorers

L* = low scorers

FIGURE 10

Graph indicating the following results obtained in the February 1988 and March 1988 administrations of the Bentley Rhythm Sub-test for the Suggestopaedia Group.

1. Mean scores of high scorers and low scorers
2. Mean differences between the high scorers and the low scorers
3. Mean increase or decrease of the high scorers and the low scorers



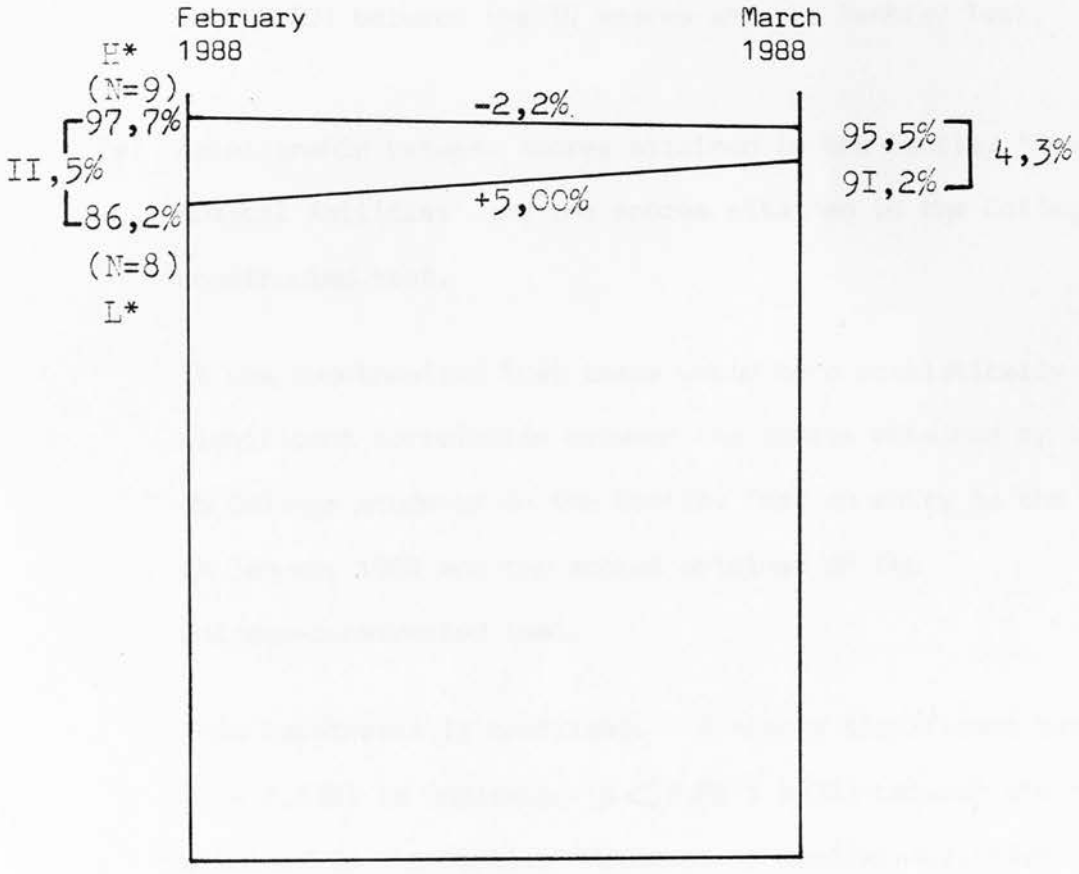

Suggestopaedia Group
Bentley Rhythm Sub-test

H* = high scorers
L* = low scorers

FIGURE 11

Graph indicating the following results obtained in the February 1988 and March 1988 administrations of the Bentley Rhythm Sub-test for the Traditional Group.

1. Mean scores of high scorers and low scorers
2. Mean differences between the high scorers and the low scorers
3. Mean increase or decrease of the high scorers and the low scorers




Traditional Group
Bentley Rhythm Sub-test

H* = high scorers
L* = low scorers

(d) Relationship between scores obtained in the Bentley 'Measures of Musical Abilities' and IQ scores

It was hypothesized that there would be a statistically significant correlation between the scores obtained by the College students whose IQ scores were available (N=32) on the Bentley test on entry to the College in January 1988 and their scores obtained on the New South African Group (NSAG) IQ test.

This hypothesis is refuted as there is no significant correlation ($r = 0.20$) between the IQ scores and the Bentley Test.

(e) Relationship between scores attained in the Bentley 'Measures of Musical Abilities' and the scores attained in the College-constructed test.

It was hypothesized that there would be a statistically significant correlation between the scores obtained by the 35 College students on the Bentley Test on entry to the College in January 1988 and the scores obtained on the College-constructed test.

This hypothesis is confirmed. A highly significant correlation ($r = 0.639$) is indicated ($p < 0.01$ ; N=35) between the scores attained in the Bentley 'Measures of Musical Abilities' and the scores attained in the College-constructed test.

## 4.2 Confirmation or Refutation of the Hypotheses

Hypothesis No. 1

A statistically significant increase in the mean scores on the Bentley Test will be obtained by the eighteen students in the Suggestopaedia Group (the author's group) between January 1988 and March 1988.

$t = 2.17$ ; $p < 0.05$

Hypothesis No. 1 is confirmed.

Hypothesis No. 2

A statistically significant increase in the mean scores on the Bentley Test will be obtained by the seventeen students in the Traditional Group (Traditional lecturer's group) between January 1988 and March 1988.

$t = 0.24069$ ; $p = 0.80$

Hypothesis No. 2 is refuted.

Hypothesis No. 3

There will be a statistically significant correlation between the scores obtained by 32 of the 35 first year Junior Primary College students on the Bentley Test on entry to the College in January 1988 and their scores obtained on the New South African Group (NSAG) IQ test.

$r = 0.20$

Hypothesis No. 3 is refuted.

Hypothesis No. 4

There will be a statistically significant correlation between the scores obtained by the 35 College students on the Bentley Test on entry to the College in January 1988 and the scores obtained on the College-constructed test.

$r = 0.639 \quad (p < 0.01 ; N=35)$

Hypothesis No. 4 is confirmed.

Hypothesis No. 5

Students who score high total marks on the Bentley skills examination on entering College, will make statistically significant gains on the same Bentley Test after seven hours of Suggestopaedia as an instructional strategy.

$t = 1.578 \quad ; \quad p = 0.15$

Hypothesis No. 5 is refuted.

Hypothesis No. 6

Students who score low total marks on the Bentley skills examination on entering College, will make statistically significant gains on the same Bentley Test after seven hours of Suggestopaedia as an instructional strategy.

$t = 2.38 \quad ; \quad p = 0.05$

Hypothesis No. 6 is confirmed.

Hypothesis No. 7

Students who score high total marks on the Bentley skills examination on entering College, will make statistically significant gains on the same Bentley Test after seven hours of the Traditional method as an instructional strategy.

$t = -0.528 \quad ; \quad p = 0.61$

Hypothesis No. 7 is refuted.

Hypothesis No. 8

Students who score low total marks on the Bentley skills examination on entering College, will make statistically significant gains on the same Bentley Test after seven hours of the Traditional method as an instructional strategy.

$t = 0.3624$ ; $p = 0.72$

Hypothesis No. 8 is refuted.

Hypothesis No. 9

There will be no statistically significant changes in the students' mean scores on any of the Bentley sub-tests after seven hours of instruction under either the Suggestopaedic or the Traditional method and neither for high scorers nor for low scorers on the initial Bentley Test given in February 1988.

PITCH SUB-TEST

Suggestopaedia Method

Mean scores (N = 18) : $t = 1.91$ ; $p = 0.07$

High scorers (N = 9) : $t = 2.424$ ; $p = 0.03$

Traditional Method

Low scorers (N = 8) : $t = 4.08$ ; $p < 0.01$

TUNE SUB-TEST

Suggestopaedia Method

Low scorers (N = 9) : $t = 3.39$ ; $p < 0.01$

Hypothesis No. 9 is refuted.

Hypothesis No. 10

Given two levels of skill on the Bentley Test (high and low) within the Suggestopaedia Group, there will be a statistically significant reduction of the extent of under-achievement of the low skilled students relative to the highly skilled students on the Bentley Test after seven hours of Suggestopaedia as an instructional strategy.

$F = 11.6$ ; $p < 0.0001$

Hypothesis No. 10 is confirmed.

Hypothesis No. 11

Given two levels of skill on the Bentley Test (high and low) within the Traditional Group, there will be a statistically significant reduction of the extent of under-achievement of the low skilled students relative to the highly skilled students on the Bentley Test after seven hours of the Traditional method as an instructional strategy.

$F = 11.4$ ; $p < 0.0001$

Hypothesis No. 11 is confirmed.

Hypothesis No. 12

Given two levels of skill on all the Bentley sub-tests (high and low) with the Suggestopaedia Group, there will be a statistically significant reduction of the extent of under-achievement of the low skilled students relative to the highly skilled students on all the Bentley sub-tests after seven hours of Suggestopaedia as an instructional strategy.

Pitch sub-test : $F = 13.6$ ; $p < 0.00001$

Tune sub-test : $F = 13.7$ ; $p < 0.00001$

Chord sub-test : $F = 6.0$ ; $p < 0.01$

Rhythm sub-test : $F = 4.6$ ; $p < 0.01$

Hypothesis No. 12 is confirmed.

Hypothesis No. 13

Given two levels of skill on all the Bentley Sub-tests (high and low) within the Traditional Group, there will be a satisfactory significant reduction of the extent of under-achievement of the low skilled students relative to the highly skilled students on all the Bentley sub-tests after seven hours of the Traditional method as an instructional strategy.

Pitch sub-test : $F = 11.8$ ; $p < 0.0001$

Tune sub-test : $F = 10.0$ ; $p = 0.0001$

Chord sub-test : $F = 7.1$ ; $p = 0.001$

Rhythm sub-test : $F = 5.4$ ; $p < 0.01$

Hypothesis No.13 is confirmed.

A summary of related statistics is presented at the end of the chapter (page 114)

4.3 Presentation and analysis of data received from the administration of Author-Constructed Test Number 2.

This test (see 3.4.4 and Appendix L) was designed for College examination purposes. In addition, its content focused on the students' practical basic musical needs for use in the classroom. The following was found :

THE SUGGESTOPAEDIA GROUP

The mean score of the Suggestopaedia Group (N=18) on the Author-Constructed Test Number 2 in March 1988 was 94,79%. This is statistically highly significantly ($p < 0.01$) higher than the mean score of 68,4% which this group obtained in February 1988. The mean

score of the Suggestopaedia Group thus increased by an average of 26,39% (Table 15(a)).

The mean score of the high scorers (N=9) of the Suggestopaedia Group in March 1988 was 97,2%. This is statistically highly significantly ($p < 0.01$) higher than the mean score of 85,2% which was obtained in February 1988. The mean score of the high scorers thus increased by an average of 12% (Table 15(a)).

The mean score of the low scorers (N=9) of the Suggestopaedia Group in March 1988 was 92,3%. This is statistically extremely highly significantly ($p < 0.001$) higher than the mean score of 51,5% which they obtained in February 1988. The mean score of the low scorers thus increased by an average of 40,8% (Table 15(a)).

Table 15(a) records the results of the t-tests used to investigate the differences in performance on the Author-Constructed Test Number 2 of February 1988 and March 1988 of the Suggestopaedia Group (N=18) as well as the high scorers (N=9) and the low scorers (N=9) of the Suggestopaedia Group.

Figure 12 records graphically the following :

* mean scores of the high scorers and low scorers
* mean differences between the high scorers and the low scorers
* mean increase or decrease of the high scorers and the low scorers

as a result of the February and March 1988 administrations of the Author-Constructed Test Number 2 for the Suggestopaedia Group.

It thus appears that those students (N=9) who scored high marks on ACT No.2 in February 1988 increased their marks even more after seven hours of Suggestopaedia as an instructional strategy, and that those students (N=9) who scored low marks in February 1988 on ACT No.2 increased their marks highly significantly after seven hours of the same teaching method.

score of the Suggestopaedia Group thus increased by an average of 26,39% (Table 15(a)).

The mean score of the high scorers (N=9) of the Suggestopaedia Group in March 1988 was 97,2%. This is statistically highly significantly ($p < 0.01$) higher than the mean score of 85,2% which was obtained in February 1988. The mean score of the high scorers thus increased by an average of 12% (Table 15(a)).

The mean score of the low scorers (N=9) of the Suggestopaedia Group in March 1988 was 92,3%. This is statistically extremely highly significantly ($p < 0.001$) higher than the mean score of 51,5% which they obtained in February 1988. The mean score of the low scorers thus increased by an average of 40,8% (Table 15(a)).

Table 15(a) records the results of the t-tests used to investigate the differences in performance on the Author-Constructed Test Number 2 of February 1988 and March 1988 of the Suggestopaedia Group (N=18) as well as the high scorers (N=9) and the low scorers (N=9) of the Suggestopaedia Group.

Figure 12 records graphically the following :

* mean scores of the high scorers and low scorers
* mean differences between the high scorers and the low scorers
* mean increase or decrease of the high scorers and the low scorers

as a result of the February and March 1988 administrations of the Author-Constructed Test Number 2 for the Suggestopaedia Group.

It thus appears that those students (N=9) who scored high marks on ACT No.2 in February 1988 increased their marks even more after seven hours of Suggestopaedia as an instructional strategy, and that those students (N=9) who scored low marks in February 1988 on ACT No.2 increased their marks highly significantly after seven hours of the same teaching method.

TABLE 15 (a)

t-test results for the differences in performance on the Author-Constructed Test Number 2 of February 1988 and of March 1988 of the SUGGESTOPAEDIA GROUP

| | SUGGESTOPAEDIA GROUP | |
|---|---|---|
| | Author-Constructed Test No.2 | |
| | Performance Scores % | |
| | February | March |
| N = total group | 18 | 18 |
| Means | 68,4% | 94,79% |
| Mean Difference | 26,39% | |
| t | 5,25 | |
| Significance | $p < 0,01$ | |

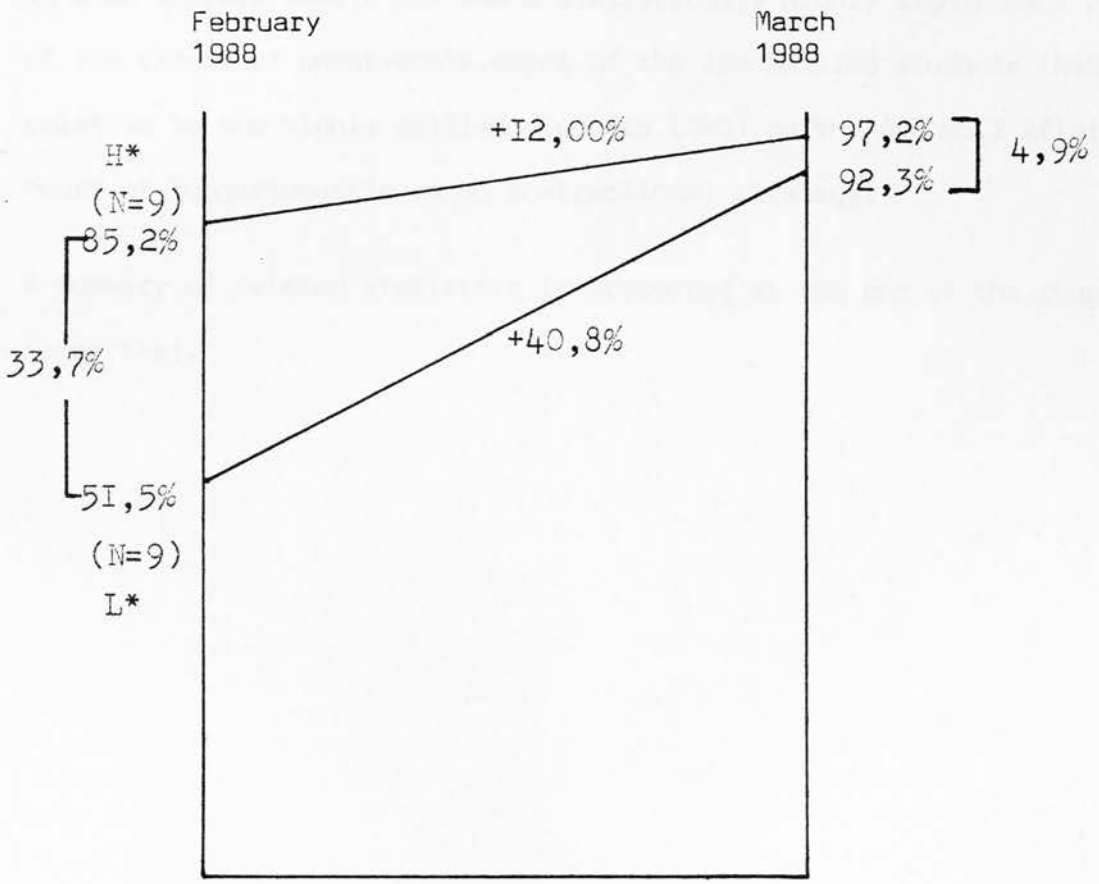
| | | |
|---|---|---|
| N = high scorers | 9 | 9 |
| Means | 85,2% | 97,2% |
| Mean Difference | 12% | |
| t | 4,25 | |
| Significance | $p < 0,01$ | |

| | | |
|---|---|---|
| N = low scorers | 9 | 9 |
| Means | 51,5% | 92,3% |
| Mean Difference | 40,8% | |
| t | 10,31 | |
| Significance | $p < 0,001$ | |

FIGURE 12

Graph indicating the following results obtained in the February 1988 and MARCH 1988 administration of the Author-Constructed Test Number 2 for the Suggestopaedia Group

1. Mean scores of high scorers and low scorers
2. Mean differences between the high scorers and the low scorers
3. Mean increase or decrease of the high scorers and the low scorers




Suggestopaedia Group
ACT No. 2

H* = high scorers
L* = low scorers

The analysis of variance indicates that there is a statistically highly significant effect between the method of teaching (Suggestopaedia) and the ACT No.2 level of achievement

($F = 72.3$ ; $p < 0.00000001$).

Table 15(b) records the results of the one-way analysis of variance test used to investigate the interactive effect of the Suggestopaedia method on the two levels of skill on the ACT No.2 within the Suggestopaedia Group between February and March 1988.

It thus appears that there was a statistically highly significant reduction of the extent of under-achievement of the low skilled students (N=9) relative to the highly skilled students (N=9) on the ACT No.2 after seven hours of Suggestopaedia as an instructional strategy.

A summary of related statistics is presented at the end of the chapter (page 114).

TABLE 15 (b)

Analysis of variance for the interactive effect of the Suggestopaedia method with the two levels of skill on the Author-Constructed Test Number 2 within the SUGGESTOPAEDIA GROUP between February and March 1988

| ONE-WAY ANALYSIS OF VARIANCE | | | |
|---|---|---|---|
| Source of Variation | Sum of Squares | Degrees of freedom | Mean Square |
| Grand Average | 153402.7800 | 1 | 153402.780000 |
| Between Columns | 7349.6667 | 3 | 2453.222200 |
| Within Columns | 1085.5556 | 32 | 33.923611 |
| TOTAL | 161848.0000 | 36 | |
| F = 72.316070 | | | |
| One tailed p < .00000001 | | | |

| DESCRIPTIVE STATISTICS | | | | | |
|---|---|---|---|---|---|
| Sample/Variable | Number | Mean | Median | Variance | Std Dev. |
| Pre-test Ah | 9 | 68.222222 | 66.000000 | 40.944444 | 6.398784 |
| Post-Test Ah | 9 | 77.777778 | 78.000000 | 4.444444 | 2.108185 |
| Pre-test Al | 9 | 41.222222 | 40.000000 | 76.694444 | 8.757536 |
| Post-test Al | 9 | 73.888889 | 75.000000 | 13.611111 | 3.689323 |

THE TRADITIONAL GROUP

The mean score of the Traditional Group (N=17) on the Author-Constructed Test Number 2 obtained in March 1988 was 92,86%. This is statistically highly significantly ($p < 0.01$) higher than the mean score of 78,97% which this group obtained in February 1988. The mean score of the Traditional Group thus increased by an average of 13,89% (Table 16(a)).

The mean score of the high scorers (N=9) of the Traditional Grpup obtained in March 1988 was 95,6%. This is statistically significantly ($p < 0.05$) higher than the mean score of 89% which this group obtained in February 1988. The mean score of the high scorers thus increased by an average of 6,6% (Table 16(a)).

The mean score of the low scorers (N=8) of the Traditional Group obtained in March 1988 was 89,75%. This is statistically highly significantly ($p < 0.01$) higher than the mean score of 67,65% which they obtained in February 1988. The mean score of the low scorers thus increased by an average of 22,1% (Table 16(a)).

Table 16(a) records the results of the t-tests used to investigate the differences in performance on the Author-Constructed Test Number 2 of February 1988 and March 1988 of the Traditional Group (N=17) as well as the high scorers (N=9) and low scorers (N=8) of the Traditional Group.

TABLE 16 (a)

t-test results for the differences in performance on the Author-Constructed Test Number 2 of February 1988 and of March 1988 of the TRADITIONAL GROUP

| | TRADITIONAL GROUP | |
|---|---|---|
| | Author-Constructed Test No.2 | |
| | Performance Scores % | |
| | February | March |
| N = total group | 17 | 17 |
| Means | 78,97% | 92,86% |
| Mean Difference | 13,89% | |
| t | 3,56 | |
| Significance | $p < 0,01$ | |

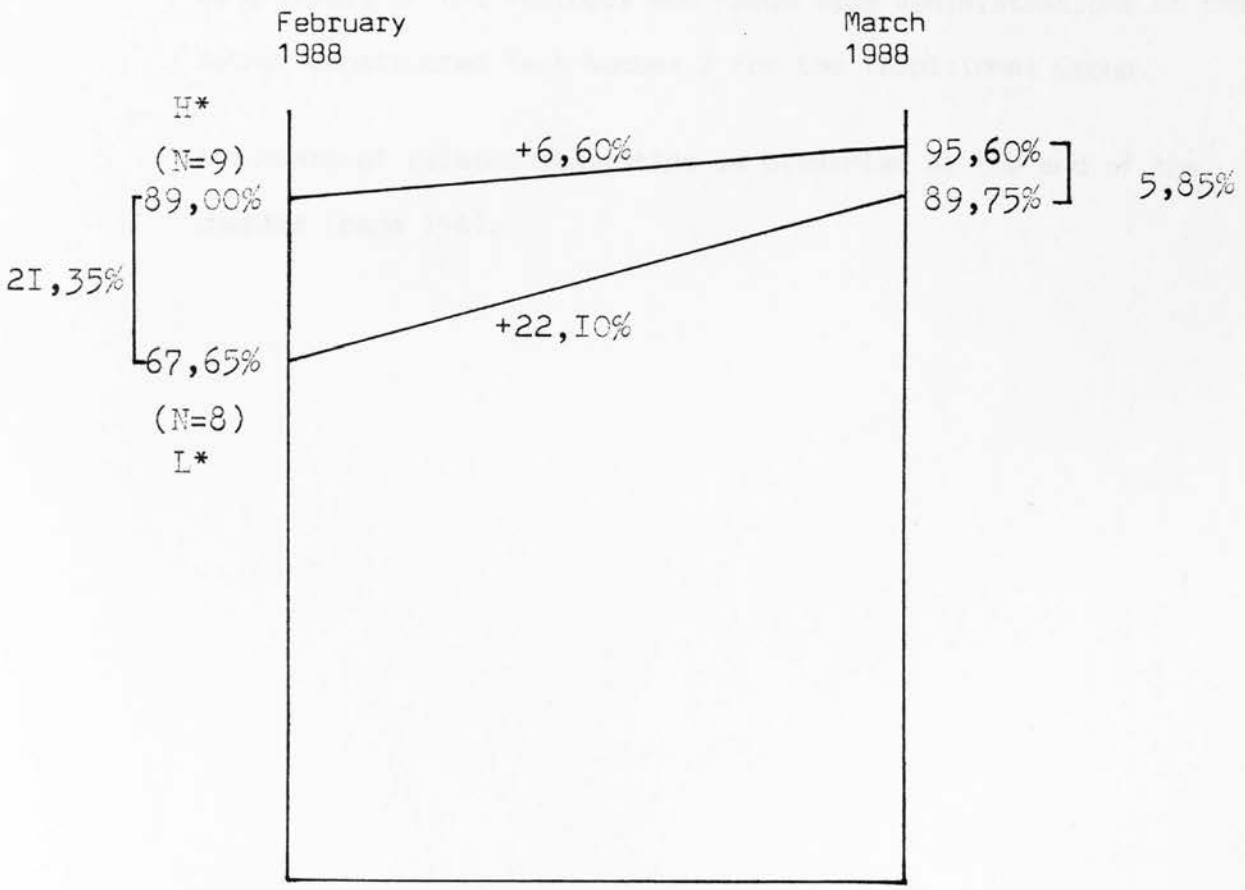
| | | |
|---|---|---|
| N = high scorers | 9 | 9 |
| Means | 89% | 95,6% |
| Mean Difference | 6,6% | |
| t | 2,39 | |
| Significance | $p < 0,05$ | |

| | | |
|---|---|---|
| N = low scorers | 8 | 8 |
| Means | 67,65% | 89,75% |
| Mean Difference | 22,1% | |
| t | 4,29 | |
| Significance | $p < 0,01$ | |

FIGURE 13

Graph indicating the following results obtained in the February 1988 and March 1988 administrations of the Author-Constructed Test Number 2 for the Traditional Group

1. Mean scores of high scorers and low scorers
2. Mean differences between the high scorers and the low scorers
3. Mean increase or decrease of the high scorers and the low scorers




Traditional Group

ACT No. 2

H* = high scorers

L* = low scorers

It thus appears that those students (N=9) who achieved high scores on ACT No.2 in February 1988 increased their scores after seven hours of the Traditional method as an instructional strategy, and that those students (N=8) who attained low scores in February 1988 on ACT No.2 increased their scores after seven hours of the same teaching method.

Figure 13 records graphically the following :

* Mean scores of the high scorers and low scorers
* Mean difference between the high scorers and the low scorers
* Mean increase or decrease of the high scorers and the low scorers

as a result of the February and March 1988 administrations of the Author-Constructed Test Number 2 for the Traditional Group.

A summary of related statistics is presented at the end of the chapter (page 114).

The analysis of variance reveals that there is a statistically highly significant effect between the Traditional method of teaching and the ACT No.2 level of achievement ($F = 17.2$ ; $p < 0.00001$).

Table 16(b) records the results of the one-way analysis of variance test used to investigate the interactive effect of the Traditional method on the two levels of skill on the ACT No.2 within the Traditional Group between February and March 1988.

It would appear that there was a statistically highly significant reduction of the extent of under-achievement of the low skilled students (N=8) relative to the highly skilled students (N=8) on the ACT No.2 after seven hours of the Traditional method as an instructional strategy.

TABLE 16 (b)

Analysis of variance for the interactive effect of the Traditional method with the two levels of skill on the Author-Constructed Test Number 2 within the TRADITIONAL GROUP between February and March 1988

| ONE-WAY ANALYSIS OF VARIANCE | | | |
|---|---|---|---|
| Source of Variation | Sum of Squares | Degrees of freedom | Mean Square |
| Grand Average | 150426.1300 | 1 | 150426.130000 |
| Between Columns | 2331.6350 | 3 | 777.208330 |
| Within Columns | 1262.2500 | 28 | 45.080357 |
| TOTAL | 154020.0000 | 32 | |
| F = 17.240510 | | | |
| One tailed p = .0000015 | | | |

| DESCRIPTIVE STATISTICS | | | | | |
|---|---|---|---|---|---|
| Sample/Variable | Number | Mean | Median | Variance | Std Dev. |
| Pre-test Bh | 8 | 72.000000 | 71.500000 | 15.142857 | 3.8913824 |
| Post-Test Bh | 8 | 76.375000 | 79.000000 | 29.125000 | 5.3967583 |
| Pre-test Bl | 8 | 54.125000 | 56.000000 | 121.553570 | 11.025134 |
| Post-test Bl | 8 | 71.750000 | 71.500000 | 14.500000 | 3.8078866 |

## 4.4 Summary of the findings

For ease of examination, a summary of all the findings is presented in the following tables. Page numbers within the tables refer to individual test results.

Table 17 Summary of the t-test results for the differences in performance between the high and the low scorers on the Bentley Battery of Tests as well as on the Bentley Sub-tests of February 1988 and March 1988 for the Suggestopaedia Group as well as for the Traditional Group.

Table 18 Summary of the results of the analyses of variance for the interactive effect of both the Suggestopaedia method of teaching with the two levels of skill (high scorers and low scorers) on the Bentley Battery of Tests as well as on the Bentley Sub-tests within the Suggestopaedia Group and within the Traditional Group between February 1988 and March 1988.

Table 19 Summary of the t-test results for the differences in performance between the high and the low scorers on the Author-Constructed Test Number 2 of February and March 1988 for the Suggestopaedia Group as well as for the Traditional Group.

Table 20 Summary of the results of the analyses of variance for the interactive effect of both the Suggestopaedia method of teaching as well as the Traditional method of teaching with the two levels of skill (high scorers and low scorers) on the Author-Constructed Test Number 2 within the Suggestopaedia Group and within the Traditional Group between February 1988 and March 1988.

TABLE 17

Summary of the t-test results for the differences in performance between the high scorers and the low scorers on the Bentley Battery of Tests as well as on the Bentley Sub-tests of February 1988 and March 1988 for the Suggestopaedia Group as well as for the Traditional Group

Bentley Battery of Tests

SUGGESTOPAEDIA GROUP

| | N | Significance | Page No. |
|---|---|---|---|
| Total group | 18 | $p < 0.05$ | 57 |
| High scorers | 9 | $p > 0.10$ | 57 |
| Low scorers | 9 | $p = 0.05$ | 57 |

Bentley Battery of Tests

TRADITIONAL GROUP

| | N | Significance | Page No. |
|---|---|---|---|
| Total group | 17 | $p > 0.10$ | 63 |
| High scorers | 9 | $p > 0.10$ | 63 |
| Low scorers | 8 | $p > 0.10$ | 63 |

Bentley Pitch Sub-test

SUGGESTOPAEDIA GROUP

| | N | Significance | Page No. |
|---|---|---|---|
| Total group | 18 | $0.05 < p < 0.10$ | 73 |
| High scorers | 9 | $p < 0.05$ | 73 |
| Low scorers | 9 | $p > 0.10$ | 73 |

Bentley Pitch Sub-test

TRADITIONAL GROUP

| | N | Significance | Page No. |
|---|---|---|---|
| Total group | 17 | $p > 0.10$ | 81 |
| High scorers | 9 | $p > 0.10$ | 81 |
| Low scorers | 8 | $p < 0.01$ | 81 |

Bentley Tune Sub-test

SUGGESTOPAEDIA GROUP

| | N | Significance | Page No. |
|---|---|---|---|
| Total group | 18 | $p > 0.10$ | 75 |
| High scorers | 9 | $p = 1.00$ | 75 |
| Low scorers | 9 | $p < 0.01$ | 75 |

Bentley Tune Sub-test

TRADITIONAL GROUP

| | N | Significance | Page No. |
|---|---|---|---|
| Total group | 17 | $p > 0.10$ | 83 |
| High scorers | 9 | $p > 0.10$ | 83 |
| Low scorers | 8 | $p > 0.10$ | 83 |

Bentley Chord Sub-test

SUGGESTOPAEDIA GROUP

| | N | Significance | Page No. |
|---|---|---|---|
| Total group | 18 | $p > 0.10$ | 77 |
| High scorers | 9 | $p > 0.10$ | 77 |
| Low scorers | 9 | $p > 0.10$ | 77 |

Bentley Chord Sub-test

TRADITIONAL GROUP

| | N | Significance | Page No. |
|---|---|---|---|
| Total group | 17 | $p > 0.10$ | 85 |
| High scorers | 9 | $p > 0.10$ | 85 |
| Low scorers | 8 | $p > 0.10$ | 85 |

Bentley Rhythm Sub-test

SUGGESTOPAEDIA GROUP

| | N | Significance | Page No. |
|---|---|---|---|
| Total group | 18 | $p > 0.10$ | 79 |
| High scorers | 9 | $p > 0.10$ | 79 |
| Low scorers | 8 | $p > 0.10$ | 79 |

Bentley Rhythm Sub-test

TRADITIONAL GROUP

| | N | Significance | Page No. |
|---|---|---|---|
| Total group | 17 | $p > 0.10$ | 87 |
| High scorers | 9 | $p > 0.10$ | 87 |
| Low scorers | 8 | $p > 0.10$ | 87 |

TABLE 18

Summary of the results of the analyses of variance for the interactive effect of both the Suggestopaedia method of teaching as well as the Traditional method of teaching with the two levels of skill (high scorers and low scorers) on the Bentley Battery of Tests as well as on the Bentley Sub-tests within the Suggestopaedia Group and with the Traditional Group between February 1988 and March 1988

Bentley [Battery] of Tests

SUGGESTOPAEDIA GROUP

| | Page No. |
|---|---|
| $F = 11.62$ ; $p < 0.0001$ | 61 |

Bentley [Battery] of Tests

TRADITIONAL GROUP

| | Page No. |
|---|---|
| $F = 11.4$ ; $p < 0.0001$ | 67 |

Bentley [Pitch] Sub-test

SUGGESTOPAEDIA GROUP

| | Page No. |
|---|---|
| $F = 13.62$ ; $p < 0.00001$ | 74 |

Bentley [Pitch] Sub-test

TRADITIONAL GROUP

| | Page No. |
|---|---|
| $F = 11.8$ ; $p < 0.0001$ | 82 |

Bentley [Tune] Sub-test

| | Page No. |
|---|---|
| $F = 13.77$ ; $p < 0.00001$ | 76 |

Bentley [Tune] Sub-test

| | Page No. |
|---|---|
| $F = 10.0$ ; $p = 0.0001$ | 84 |

Bentley [Chord] Sub-test

| | Page No. |
|---|---|
| $F = 6.02$ ; $p < 0.01$ | 78 |

Bentley [Chord] Sub-test

| | Page No. |
|---|---|
| $F = 7.16$ ; $p = 0.001$ | 86 |

Bentley [Rhythm] Sub-test

| | Page No. |
|---|---|
| $F = 4.64$ ; $p < 0.01$ | 80 |

Bentley [Rhythm] Sub-test

| | Page No. |
|---|---|
| $F = 5.49$ ; $p < 0.01$ | 88 |

TABLE 19

Summary of the t-test results for the differences in performance between the high and the low scorers on the Author-Constructe Test Number 2 of February and March 1988 for the Suggestopaedia Group as well as the Traditional Group.

Author-Constructed Test Number 2

SUGGESTOPAEDIA GROUP

| | N | Significance | Page No. |
|---|---|---|---|
| Total group | 18 | $p < 0.01$ | 104 |
| High scorers | 9 | $p < 0.01$ | 104 |
| Low scorers | 9 | $p < 0.001$ | 104 |

Author-Constructed Test Number 2

TRADITIONAL GROUP

| | N | Significance | Page No. |
|---|---|---|---|
| Total group | 17 | $p < 0.01$ | 109 |
| High scorers | 9 | $p < 0.05$ | 109 |
| Low scorers | 8 | $p < 0.01$ | 109 |

TABLE 20

Summary of the results of the analyses of variance for the interactive effect of both the Suggestopaedia method of teaching as well as the Traditional method with the two levels of skill (high scorers and low scorers) on the Author-Constructed Test Number 2 within the Suggestopaedia Group and within the Traditional Group between February 1988 and March 1988.

Author-Constructed Test Number 2

SUGGESTOPAEDIA GROUP

| | Page No. |
|---|---|
| $F = 72.31$ ; $p < 0.00000001$ | 107 |

Author-Constructed Test Number 2

TRADITIONAL GROUP

| | Page No. |
|---|---|
| $F = 17.24$ ; $p = 0.000001$ | 113 |

## 4.5 Summary of Chapter

In this chapter, the diagnostic and predictive validities of the Bentley Measures, as well as those of the individual sub-tests have been presented. The relationship between scores obtained in the Bentley Measures and IQ scores, as well as those attained in the College-Constructed test have also been described. The hypotheses have been confirmed or refuted, and the data gathered from the administration of Author-Constructed Test Number 2 was presented and analysed. In addition, a summary of all the findings was presented for ease of examination.

The following chapter presents a discussion of the results of this investigation.

CHAPTER FIVE

# DISCUSSION OF RESULTS

## Introductory Remarks

In this chapter, the effect of the Suggestopaedia method on the writer's College students as well as the effect of the Traditional method on the control group lecturer's students will be discussed. The Suggestopaedia method and the Traditional method will be compared and questions raised by this study will be answered. A discussion/criticism of both the Bentley tests as well as the Author-Constructed Test Number 2 will be followed by suggestions for the improvement of the Suggestopaedia-designed lessons as well as the Traditional-designed lessons. The chapter concludes with a critique of the investigatory method employed and presents evidence indicating the heightened importance of the problem.

## 5.1 EFFECT OF THE SUGGESTOPAEDIA METHOD ON THE WRITER'S COLLEGE STUDENTS

### 5.1.1 Discussion of the Accompanying Variables

It would appear that the Suggestopaedia method was effective on the performance scores of the experimental group as a whole on the Bentley battery of tests as well as on the performance scores of the low scorers in particular on the battery. This is encouraging, but might also be attributed to the warm, relaxed atmosphere (Appendix H), the comfortable venue, the lecturer's positive expectations of the students' ability to absorb information and to perform well, as well as to the deliberate de-focusing of musical concepts through games and fun activities.

This study has not isolated the possible influence of these accompanying variables on the outcome.

Although the high scorers' marks did not increase statistically significantly on the battery of test, they did, nevertheless, increase, thus revealing that the the more-skilled not only remained so, but increased their skills, at least marginally, as measured by the Bentley battery. A reason for this increase could be that they were stimulated, and perhaps intrigued, by the new and different instructional method. This is linked (p38) to the implication that high performance scores can be obtained both significantly and practically through the use of the Suggestopaedia method.

### 5.1.2 Discussion of the Bentley Tune Sub-test Results of the Suggestopaedia Method Group

The method appears to have been partially effective on two of the four sub-tests of the experimental group as a whole. The low scorers on the Tune Sub-test increased their scores highly significantly and, although this is an encouraging result, it is surprising to note that the results of the Pitch and Rhythm Sub-tests were not similarly affected since pitch and rhythm are major components of tune.

Since instruction in these components of tune had been received by the students, it was expected that the discrimination of differences between various pitches and between certain rhythms might be easier for the students on the Pitch and Rhythm Sub-tests than on the Tune sub-test.

It could, however, be argued that the Pitch and Rhythm Sub-tests require more acute and developed aural perception skills than those required for the Tune Sub-test, for the following reasons :

(1) the Pitch test measures semitone and finer-than-semitone pitch discrimination ranging from a difference of 1 semitone to a difference of 3/26 of a semitone;

(2) the rhythmic memory test measures the perception of slight and subtle rhythmic differences between the playing of two rhythmic patterns as is noted in items 3, 5, 7, 9 and 10 of the Rhythm Sub-test (Appendix C).

In comparison, each item of the Tune Sub-test consists of five quarter-note beats in a simple 4/4 rhythmic pattern, which is repeated; during the repetition, one of the pitches is changed by a difference of a tone or a semitone.

In view of this, it is perhaps more likely for the students to attain statistically significant increases in their scores on the Tune Sub-test than on the Pitch and Rhythm Sub-tests.

Despite the fact that the result of the low scorers on the Tune Sub-test was the only statistically significant increase, it is still encouraging to note that all the low scorers on the other three sub-tests increased their scores. Particularly encouraging is the increase of the scores of the low scorers on the Chord Sub-test as the development of this skill was not addressed. In addition, this was the lowest increase of the low scorers on all the four sub-tests. A reason for this could be that the rich visual and aural input of the course presented in a defocused manner (Appendix H), allowed the students to extract from it that which they felt was necessary for them at the time.

### 5.1.3 Discussion of the Bentley Pitch Sub-test Results of the Suggestopaedia Method Group

The only sub-test in which the high scorers increased their scores statistically significantly was the Pitch Sub-test. This could perhaps be attributed to the peripheral stimulation of a recording of 'soh-la-soh-me' played continuously on the alto metallophone during most of the duration of the sessions and to the various recorded so-called classical music selections played during the relaxation sessions as well as during the reading of the text (Appendix H). It could thus be conjectured that because the high scorers were already skilled in pitch discrimination, they were more aware of the peripheral pitch stimuli.

### 5.1.4 Discussion of the ACT No.2 Results of the Suggestopaedia Method Group

It would appear that the Suggestopaedia Method of instruction was highly effective on the performance scores of the experimental group as a whole as well as on the high and low scorers on the ACT No.2. The results reveal that the differences in the scores of the total group as well as on the high scorers were statistically highly significant, but very highly statistically significant on the scores of the low scorers. These results could be attributed to the design of the ACT No.2 itself, and could imply that one of the purposes for which it was designed, that of providing the students with certain musical skills for use in the classroom, had been achieved. In addition, it should be noted that the games and

activities which formed a large part of the lessons had, as their musical focus, many of the musical concepts which were tested in the ACT No.2.

These results appear to support the emergent trend that originates in the results of the Bentley battery of tests that, although the high scorers are by no means disadvantaged, the low scorers appear to be particularly advantaged by this method of instruction. The author notes that the other findings (5.1.1) are reflected more dramatically in the ACT No.2.

5.1.5 Discussion of the interactive effect of the Suggestopaedia method with the two levels of skill

The interactive effect of the Suggestopaedia Method with the two levels of skill was shown, in all cases, to be highly significant and particularly dramatic on the entire battery of tests as well as on the Pitch and Tune Sub-tests. Although the gap between the high scorers and the low scorers closed on both the entire battery as well as on all the sub-tests, it is noteworthy to comment that all the performance scores of the high and low scorers increased except the scores of the high scorers on the Tune Sub-test, which remained the same, and the scores of the high scorers on the Chord and Rhythm Sub-tests, which decreased minimally.

It is thus noted that sufficient stimulation was provided for those already skilled, while those who were under-skilled were able, at the same time, to develop their aural skills of aural perception in music.

The results on the ACT No.2 have indicated an even greater interactive effect of the method with the two levels of skill than the results of the Bentley battery. This could be attributed to the relaxation (Appendix H) phases of the lesson, as well as the lecturer's positive and supportive comment on the students' efforts.

## 5.2 EFFECT OF THE TRADITIONAL METHOD ON THE CONTROL GROUP LECTURER'S COLLEGE STUDENTS

It appears that the Traditional Method was not effective in raising the scores of the control group or the scores of the low and high scorers on the entire battery of tests. Reasons for these results could be that the Traditional method of presenting music classes could have been associated, by the students, with the uninteresting class music experiences which they appear to have received at school; that the venue used, an ordinary lecture room with desks set in straight rows, may not have been conducive to relaxed and stimulating learning sessions; and that the students may, in addition, have been bored, and perhaps de-motivated, by the drill methods employed by the lecturer.

### 5.2.1 Discussion of the effect of the Traditional Method on the scores of the low and high scorers on the entire Bentley battery of tests.

The method appears to have effected a small percentage increase on the score of the low scorers on the entire Bentley battery. Because the low scorers were so under-skilled, it is possible

that any sort of directed exposure to certain elements of music would effect a small increase on their scores.

The high scorers' score decreased minimally, perhaps due to previous knowledge of the musical content, as well as to a lack of additional stimulation to maintain their interest. In addition, Byrd (1978:235) notes that this kind of teaching can suppress response instead of stimulating response.

### 5.2.2 Discussion of the Bentley Pitch Sub-test Results of the Traditional Method Group

The Traditional method appears not have been effective in raising the scores of the control group as a whole, nor the scores of the high or the low scorers on any of the Bentley sub-tests except on the score of the low scorers on the Pitch Sub-test where it appears to have effected a statistically highly significant increase. In view of the apparent ineffectiveness of the method on the scores of the sub-tests, this is a most unexpected result. Perhaps the reason for this surprising finding is that low scorers need a more directed and focused method of drill-type of teaching in the area of tone matching and pitch development. Byrd (1978:285) confirms this perspective in recommending that 'drilling' methods in pitch learning are an essential requirement.

It is interesting to note that the mean score of the high scorers decreased on all the sub-tests, and perhaps this result can be attributed to the notion that repetition, drilling and a too-directed instructional approach are found to be boring, de-motivating and non-stimulating by high scorers. Byrd (1978:235) again confirms this perspective.

In addition, on the Chord Sub-test, the mean score of both the high and the low scorers decreased, the decrease of the mean score of the high scorers being approximately double that of the mean score decrease of the low scorers. This seems to imply that, whereas the low scorers appear to have been disadvantaged by the use of this method, the high scorers were particularly disadvantaged.

5.2.3 Discussion of the ACT No.2 Results of the Traditional Method Group

It appears that the Traditional method has been highly effective in raising the scores of the low scorers and effective in raising the scores of the high scorers. This is encouraging as it implies that the traditionally-instructed group have acquired certain musical skills which should be applicable to the classroom. The results appear to be due to the nature of the test as well as the directed and focused approach of the method. However, a measure of concern is expressed regarding the manner in which these musical concepts might be transmitted by the students, in the future, to the pupils, in the absence of exposure to any other instructional method.

5.2.4 Discussion of the interactive effect of the Traditional Method with the two levels of skill

The interactive effect of the Traditional Method with the two levels of skill was shown to be very highly significant on the Bentley battery of tests except on the Rhythm Sub-test where it was shown to be highly significant. It is noteworthy to

comment that, although the gap between the high and low scorers decreased, the scores of all the high scorers decreased. This seems to support the notion that high scorers appear to be disadvantaged by the use of this method. (Refer to 5.2.2)

The interactive effect of the Traditional Method with the two levels of skill on the ACT No.2 indicate that the method has been dramatically effective, and that both the low and the high scorers' mean scores increased. Perhaps the increase of the results of the high scorers which is contrary to the results of the high scorers on the Bentley battery, can be attributed to the possible motivation that the content of the test is directly applicable in the classroom, and might therefore be seen, by the high scorers, as being useful to them at some future time.

## 5.3 THE SUGGESTOPAEDIA METHOD AND THE TRADITIONAL METHOD COMPARED

### 5.3.1 Comparison of Pitch Methods of both groups

The Traditional method does not appear to have been effective on the scores of the control group as a whole, nor on the scores of the high or the low scorers on the Bentley battery. In addition, it does not appear to have affected any of the scores, on the four sub-tests, of the control group as a whole, or the scores of the high scorers. It did, however, affect statistically highly significantly the scores of the low scorers on one of the four sub-tests; the low scorers on the Pitch Sub-test. This result is surprising, especially if viewed in the light of the statistical non-effectiveness of the method on any of the other scores on the Bentley test and sub-tests.

This is seen as a counter-trend. The writer notes that this finding is important for the development of methods of teaching skills in aural perception in music, for the future.

The Suggestopaedia method, on the other hand, appeared to effect a statistically significant difference on the scores of the high scorers on the Pitch sub-test, but effected statistically no significant difference to the scores of the low scorers.

In the light of these results, it is suggested that low scorers in these need a more directed approach to the development of pitch skills, and that high scorers in pitch need more peripheral stimulation and a non-directed approach to the development of pitch skills. (Byrd, 1978:285) (Refer 5.2.2). It is further suggested that an instructional approach which would be advantageous to both high and low scorers on the Pitch sub-test might be an eclectic one which combines the peripheral stimulation and non-directed approach of the Suggestopaedia method and the more-directed and drill-like approach of the Traditional method. Thus differentiated levels of skill in aural perception in music could be accommodated.

### 5.3.2 Comparison of the ACT No.2 results of both groups

The results of the ACT NO.2 suggest that there is no difference betweem the Suggestopaedia method or the Traditional method in effecting anon the increase of the scores of both groups. Perusal of the scores of the high and low scorers within each group reveals, however, that the Suggestopaedia method effected an even greater increase in the scores of both

the high and the low scorers than the Traditional method had effected on both high and low scorers whose increases were, respectively, significant and highly significant. (Refer to 5.1.5 and 5.2.4). Various so-called classical music recordings were played during most of the duration of the sessions, and perhaps the difference in results could be attributed to this, or to the seemingly casual, fun-filled atmosphere which the author attempted to create and which seemed to cause the students to look forward to the classes with anticipation.

## 5.4 QUESTIONS ANSWERED BY THIS INVESTIGATION

The results of this investigation have answered certain questions raised in Chapter One.

Firstly, it appears that, after seven hours of Suggestopaedia as an instructional strategy, the overall aural perception skills of first year non-specialised teachers-in-training improved appreciably as measured by the Bentley 'Measures of Musical Abilities', that those students who had scored high marks on the Bentley pre-test increased their marks even more, and that those who had scored low marks on the pre-test increased their marks statistically significantly.

Secondly, the marks of those students who had scored high marks on the Bentley pre-test deteriorated, and those who had scored low marks increased them minimally after seven hours of the Traditional Method as an instructional strategy.

Thirdly, after seven hours of Suggestopaedia as an instructional strategy, it appears that the overall aural perception and performance skills of first year teachers-in-training improved appreciably as measured by the ACT No.2, that those students who had scored high marks on the ACT No.2 pre-test increased their marks even more, and that those students who scored low marks on the ACT No.2 pre-test, increased their marks significantly.

Fourthly, those students who scored high marks and low marks on the ACT No.2 pre-test, increased them after seven hours of the Traditional method as an instructional strategy.

Finally, no significant statistical relationship was found between scores attained by student in the 'Measures of Musical Abilities' and IQ scores, but a statistically significant relationship was found between the 'Measures' and the scores attained by the students in the College-constructed test.

Thus, overall, it can be concluded that the use of Suggestopaedia as an instructional strategy improved appreciably the aural perception skill of first year non-specialised teachers-in-training as measured by the Bentley 'Measures of Musical Abilities'. The method is therefore worthy of further development and refinement.

## 5.5 DISCUSSION/CRITICISM OF THE BENTLEY TESTS THEMSELVES

The Bentley tests appear to have been highly satisfactory for the purposes of this study and the students to whom they were administered answered the items with evident enjoyment and apparent confidence.

Despite the fact that the tests were designed for chidren, the level of difficulty was found to be satisfactory for the students, but the detailed and very clear instructions, on the recording, were found by the students to be repetitive and long-winded.

These directions were clearly aimed at children. The English accent of the instructor, in addition, elicited some comment.

It was noted that the pitch test had only two 'same' items and nine 'up' and nine 'down' items. This could be seen as a weakness of the test, and perhaps 'same', 'up' and 'down' should have been more evenly distributed.

The overtones produced on the recording of the Chord sub-test were confusing to the students at times; this could have been due to slightly older recording techniques. In addition, this particular test appears to be the most difficult of the test for the uneducated ear.

The tests were, nevertheless, found to be particularly practicable for classroom use, the testing and administering time of 30 minutes was found to be reasonable, and the single answer sheet was clearly designed and easy to mark.

## 5.6 DISCUSSION/CRITICISM OF THE AUTHOR-CONSTRUCTED TEST NUMBER 2

This test was needed for College administrative purposes and was designed to assess, individually, the students' ability to perform certain musical skills needed for teaching music in the Junior Primary classroom. The test consisted of the following : a repetition of

various rhythmic and melodic patterns and phrases, an improvisation of an answering rhythmic pattern to a questioning rhythmic pattern, the reading of a rhyme rhythmically, and the reading of simple rhythmic and pitch notation.

The administration of the test presented two problems.

The first problem, that of presenting standardized musical questions involving physical sound to the students individually was overcome, to a large extent, by discussion between the Traditional method group lecturer and the author.

An attempt was made to solve this problem in an even better way by producing a tape recording of the musical questions. The quality of the recording was, however, found to be unsatisfactory.

To overcome the second problem, one of possible variance of expectations and resultant scores, both testers, again through consultation, arrived at a common standard of expectations and mark allocation. A further solution to this could have been the tape-recording of all the individual testing sessions, and then assessment, on playback of the recordings, by both the Traditional method group lecturer and the author. This, due to time restraints and the design of the College time-table, was not possible.

The ACT No.2 can be seen as a useful test, not only for College administration purposes, but also as a test of the students' musical skills needed in the Junior Primary classroom. It seems to have served the purpose for which it was designed, and appears to warrant further development in other contexts such as primary schools, secondary schools and other colleges of education.

## 5.7 MAJOR POINTS FOR IMPROVEMENT OF THE SUGGESTOPAEDIA-DESIGNED LESSONS

The design of the Suggestopaedia-designed lessons (Appendix N) accommodated the basic music skills needed by the students within the time allocated to its duration: one hour per week for seven weeks. Had more time been allocated to the course, it is conceivable that far higher, and statistically significant increases in the scores of both the high and the low scorers could have been attained by the students.

The following suggestions for improvements should therefore be viewed in the light of time constraints.

### 5.7.1 Additional areas to be covered

Two further areas should be included within the lesson design; firstly, a section which focuses on developing the students' awareness and responsiveness to simple harmony, such as single sounds contrasted with two or more other sounds played together; and, secondly, a section which focuses on the use of various pitched and non-pitched percussion instruments would assist the students in the discovery, development and application of the various musical concepts through activities like tone-matching, simple composition and graphic notation leading to conventional notation.

### 5.7.2 The development of music-drama

Simple music-drama should be developed by the students as an application of music skills acquired during the lessons, and based on knowledge of the characters of their fictitious names.

Not only would this expose them to opera as an art form, but, in addition, could be directly applied to their future roles as teachers in the junior primary classroom.

Pitch development

In view of the score increase of the low scorers of the Traditional Group on the Bentley Pitch Sub-test, directed repetitive exercises, within the Suggestopaedia framework, should be developed in the form of different games and activities which focus on one pitch concept at a time. In addition, at the session at which the pitch focus is soh-me, for example, a tape recording of that interval only should be played and a certain amount of attention directed towards it; similarly, for every other pitch pattern.

## 5.8 MAJOR POINTS FOR IMPROVEMENT OF THE TRADITIONAL-DESIGNED LESSONS

The design of the Traditionally-designed lessons (Appendix D) appear to have accommodated at least one of the basic music skills required by the students. This is evidenced by the highly statistically significant increase of the score of the low scorers on the Bentley Pitch Sub-test. It is conceivable that statistically significant increases in the score of both the high and the low scorers could be attained by students if future lessons are designed with reference to the following suggestions.

Firstly, two further areas of instruction need to be addressed in the design of future lessons: one which develops the students' awareness and responsiveness to simple harmony; and another which uses various pitched and non-pitched percussion instruments to apply the various musical concepts and skills which they have learnt.

Secondly, perhaps a comfortable venue, a more relaxed approach and various relaxation exercises need to be included in the design of future lessons in order to begin to free the students from any negative perceptions of music which they might have received from music classes at school.

Thirdly, the lecturer should be aware of those students who had scored high marks in the pre-test. Those students should be encouraged to act as assistants to groups of students within the class in order to utilise their more advanced knowledge of music skills and thereby stimulate and challenge them to develop their teaching skills within the context of further developing their own musical skills.

Finally, perhaps the rigid, carefully graded approach to the presentation of content should be replaced by an approach which is less finely graded, more flexible and which presents the students with greater input of musical content.

## 5.9 CRITIQUE OF THE INVESTIGATORY METHOD OF THE PRESENT INVESTIGATION

The research method employed in this investigation has generally been satisfactory. Upon reflection, however, certain flaws have become apparent.

Firstly, a two control group design should have been used instead of the classical design (pre-test, post-test control group design). The classical design has strong internal validity, but the main problem of this design appears to be one of external validity. Because the experimental and control groups are both pre-tested, the question

arises whether the same finding will be obtained for other individuals who are selected from the same population but who were not pre-tested. The problem, therefore, is not one of lack of control, but one of generalisation.

There is, in addition, the possibility of an interaction occurring between the pre-test and the experimental treatment.

Another flaw of this design is that control subjects could be contaminated by experimental subjects. Although the control group is not exposed to the experimental treatment, they might have the opportunity of interacting with the experimental subjects between pre- and post-tests.

The two control group design is an extension of the classical design and comprises two control groups and one experimental group. The advantage of this three-group design becomes obvious in situations where the pre-test is expected to interact with the experimental treatment. The second control group is not pre-tested but is exposed to the experimental treatment. Their post-test scores are then used to determine the interaction effect. Thus, the two control group design is aimed at providing both an estimate of the size of any such interaction as well as an estimate of the effect of the experimental treatment alone.

This design, the two control group design, would have been used had the conditions been ideal. In addition, the author would have taught all three groups. Due to restrictive time-table constraints, however, the use of this experimental design could not be implemented.

Secondly, the author should have taught both the Suggestopaedia Group as well as the Traditional group. This, however, was logistically

impossible as the restrictions of the College time-table had allocated but one hour per week to the module of seven weeks for the development of aural skills of the 35 first year Junior Primary students. As noted previously (Chapter3, 3.3), the Suggestopaedia Group and the Traditional Group were taught concurrently, and it was thus physically impossible for the author to have taught both groups at the same time.

Finally, a well standardized, reliable and valid psychological test of confidence pertaining to the use of skills of aural perception in music by the students should have been administered to the 35 students before the commencement of the courses of instruction in February 1988 and again after the conclusion of those same courses, in March 1988.

## 5.10 HEIGHTENED IMPORTANCE OF THE PROBLEM

The importance of the problem posed by this investigation, that of developing skills of aural perception in first year non-specialised teachers-in-training, appears to be heightened by D.G. Lewis (1986) in 'Rhythm and Sight-Reading Competency of Standard Five pupils in Transvaal Education Department School'.

For the purposes of this study, presentation of the following extracts of the work seem to be appropriate. In addition, it needs to be noted that the setting and population of Lewis' investigation are comparable to that of this investigation, and that the Transvaal Education Department (TED) Music Syllabus is comparable to that of the Cape Education Department.

Extract from the Transvaal Education Department Music Syllabus

"Pupils attending schools under the control of the Transvaal Education Department follow a comprehensive music syllabus during the first six years of schooling. This syllabus is designed to ensure that all pupils are musically literate by the end of Standard 4, and are 'able to

(a) look at a piece of printed music and form a mental image of what it should sound like;

(b) then realise the mental image by singing or playing from the score, and then,

(c) like their teacher, enjoy and criticise their singing or playing.'

TED syllabus (1978)

(D.G. Lewis, 1986:1)

Projected Level of Attainment of Musical Literacy

"In respect of the rhythm factors taught in the school syllabus and tested in this investigation, less than an eighth (12,3%) of Std 5 test subjects (N=308) in the schools concerned have mastered the content of the standard one syllabus and only 1,9% of them can be said to have grasped the standard four syllabus.

In respect of the pitch factors tested in this investigation, 6,4% of standard five test subjects (N=308) in the schools concerned have mastered the content of the standard one syllabus and only 0,3% of them can be said to have grasped the standard four syllabus."

(D.G. Lewis, 1986:76)

"It is disturbing to record that less than half the (standard five) pupils are able to sing in tune after six years of formal music classes."

(D.G. Lewis, 1986:91)

Reasons for Non-attainment of Musical Literacy

Lewis presents the following reasons for the non-attainment of musical literacy :

> "The reasons for the neglect of rhythm, pitch, group instrumental work and music appreciation are to be found both in the shortage of time available to cover the complex syllabus, and in the hesitancy of teachers to deal with aspects of the syllabus where they lack confidence and musical knowledge."
>
> (D.G. Lewis, 1986:102)

> "... it is apparent that the teaching of the basic music skills of rhythm and pitch ..., and the levels of mastery attained are far below the standards set in the syllabus. The question of a supply of adequately trained teachers for the subject is a factor which influences the standards attainable in class music in the primary schools."
>
> (D.G. Lewis, 1986:93)

> "Because there is a great shortage of qualified music teachers in primary schools, music lessons often have to be taken by teachers who have received no training in class music teaching and who do not consider themselves competent to present the subject."
>
> (D.G. Lewis, 1986:104)

Lewis' study has revealed dramatic discrepancies between the rhythmic sight-reading ability, the pitch sight-reading ability and the intonation ability of standard five pupils and the expectations of the Transvaal Education Department syllabus. In addition, he has offered reasons for this state of affairs. In view of this, it is not surprising to read the following :

> "Experience with students entering a College of Education and who have to take a compulsory music course indicates ... that the majority of them possess little music reading ability, and lack the elementary skills of music competency which could be expected as a result of following the school music syllabus."
>
> (D.G. Lewis, 1986:2)

Included in his recommendation is the following :

> "A reassessment of music courses at Colleges of Education in order to encourage potential students who have little or no musical background but who need or wish to gain some expertise in this field."
>
> (D.G. Lewis, 1986:111)

In the light of Lewis' study, it appears that the problem of developing skills of aural perception in first year non-specialised teachers-in-training at the Cape Town College of Education is not only heightened, but its solution is urgent if the ideal of music education for all children is to be retained as a goal of education.

## 5.11 SUMMARY OF CHAPTER

In this chapter, the effect of both the Suggestopaedia method and the Traditional method was discussed and compared. Questions raised by this investigation were answered and the various tests used were discussed and criticised. Suggestions for improvement of both the Suggestopaedia method designed lessons and the Traditional method designed lessons were offered and the investigatory method was criticised. In addition, the importance of the problem posed by this study was highlighted.

The following final chapter summarizes the investigation and makes certain recommendations.

CHAPTER SIX

# CONCLUSIONS, IMPLICATIONS AND RECOMMENDATIONS

## 6.1 Summary of the Present Investigation

The origin of this investigation lies in the poor system of music education in schools, the results of which include the lack of music knowledge and elementary practical skills displayed by the majority of first year teachers-in-training at the Cape Town College of Education. On completion of their training, these students are expected to have acquired the ability to present a sequentially structured music education programme to junior primary pupils in schools. Because the teachers-in-training have not acquired this ability by the conclusion of the course, they lack confidence in the area of music instruction and are hesitant to present these classes.

This implies that ways need to be found which will develop that ability, for if it is not developed, the malady of a poor or a nil music education will be perpetuated and children will thus be deprived of a rich and meaningful musical heritage, resulting in the majority of pupils leaving school after twelve years, musically illiterate.

This deprivation of musical knowledge is not confined to the College population in particular, but is linked to a society which, in general, appears to be musically illiterate and unskilled in practical music-making.

The purpose of this investigation was to assess the effectiveness of the use of an alternative teaching method to that presently in use for developing skills of aural perception in music in teachers-in-

training, the results of which could serve as a basis for the development of their ability to present music education lessons in the future.

From inception, the present investigation presupposed that:

* each student possessed potential musical ability,
* assumed that each student had been exposed previously to music of one kind or another,
* was linked to Bentley's theory of the music developmental aspects of children in their early years, and
* was linked to an instructional method, Suggestopaedia.

A review of the literature pertaining to the 'Measures of Musical Abilities' by Arnold Bentley, resulted in the conclusion that Bentley's battery of tests was the optimal instrument for the purposes of this study. The literature relating to Suggestopaedia indicated that its use could, in less time, produce greater acquisition and retention of content, could produce significantly higher performance scores, both statistically and practically, and could be adapted to special needs of students.

The findings of this study indicated that the adapted use of Suggestopaedia was effective on the performance scores of the Suggestopaedia Group as a whole and the performance scores of the low scorers of that group as measured by the Bentley battery of tests.

On the Bentley Pitch Sub-test, it was significantly effective on the performance scores of the Suggestopaedia group as a whole as well as on the performance scores of the high scorers. In addition, it was significantly effective on the performance scores of the low scorers on the Bentley Tune Sub-test.

The Traditional method was significantly effective on the performance scores of the low scorers of the Traditional Group on the Bentley Pitch Sub-test only.

On the Author-Constructed Test Number 12, the scores of both the high scorers and the low scorers improved dramaticlly, but in both instances, this improvement was greater in the experimental (Suggestopaedia) group.

## 6.2 Implications of the Present Study

As has been stated, the origin of this investigation is the direct result of the poor state of music education in schools. The present study merely address a resultant problem of this, but did not concern itself with what the writer sees as the central issue, that of standards in music education. An implication of the study is that music education in schools and related areas needs to be investigated so that solutions can be found to problems as are experienced by music educators at tertiary level. There appear to be five significant areas in which research is indicated.

(1) Colleges of Education and universities should develop innovative teaching methods designed specifically for teachers-in-training who lack musical skills and music knowledge, so that their future roles may be effectively filled. The findings of this investigation indicate that an eclectic approach could be considered as a starting point.

(2) Music education syllabi for schools need to be critically scrutinized and changed if necessary, and methods of class music instruction in schools need to be reassessed and developed into ones which will effectively promote music knowledge and music skills.

(3) The role and function of music specialists should be critically assessed and evaluated against the apparent lack of music literacy exhibited by pupils after receiving at least six years of music education at schools. The apparent ineffectiveness of their teaching could well imply an investigation into the music and music education courses offered by colleges of education and universities.

(4) The demands of the current syllabus, and the time allocated to its successful implementation could be an unrealistic expectation within the framework of the school curriculum (Lewis 1986:112). Further, if this is so, and the time allocated to music education is insufficient, it could imply that the society, through its decision-makers, does not see music education as an important ingredient in the education of the child. This, in turn, implies that music education, through adult extra-mural classes, for example, is necessary in order to reverse, as far as possible, these seemingly negative attitudes towards music education in schools.

(5) Because music and music education are compulsory courses for the junior primary student, a battery of standardized, validated and reliable tests need to be designed specifically for the testing of teachers-in-training so that the weaker students can

be isolated for more intensive training at the beginning of their courses of instruction. Such a battery should include tests of pitch, tune, rhythm and chord discrimination (much like Bentley's tests), as well as an assessment of timbral discrimination. In addition, the battery should test theoretical music knowledge, individual viva voce responses to music skills needed in the classroom, the reproduction of sounds, pitches, rhythms and tunes, and the practical interpretation of elementary music notation. Furthermore, a psychological test measuring students' perceptions of their musical ability and confidence in music should be included so that this very important area of the students' development can be monitored.

Finally, the implications for further research appear to include the following :

(1) The repetition of this investigation using different colleges of education but with comparable populations.

(2) The repetition of this investigation using colleges with different languages and cultural groups.

(3) While some educationists may theorize that music education in a pre-packaged form is unacceptable educationally, the writer notes that it is preferable to use pre-packaged music instructional materials than not to provide any music education at all for the pupils. It is therefore recommended that sequentially structured pre-packaged lessons be developed. The design of the package should be

user-friendly and be accompanied by texts of lesson plans, tape recording and illustrations. This would greatly assist teachers with no musical training (Lewis, 1986:109).

(4) In order to effect changes in attitudes to music, it is recommended that universities and colleges of education offer extra-mural courses in music for adults (Meske, 1987:41).

> " Perhaps ... crucial are the number of people who have not played or sung previously or who know little or nothing about music, but now want to learn."
>
> (Clingman, 1988:37)

Music education for adults

> "... opens pathways to new attitudes and new approaches."
>
> (Clingman, 1988:37)

> "Adults want to continue growing and learning. ... Music is one of the great disciplines of human thought ... (and provide) ... a second chance."
>
> (Clingman, 1988:37)

## 6.3 Recommendations

In view of the implications suggested as a direct result of this study as well as the circumstances with which it is inextricably intertwined, the following recommendations seem appropriate.

(1) A re-assessment of colleges of education music courses should be instituted in order to benefit particularly those students who lack musical skills and musical knowledge. This proposed

investigation should take cognisance of existing successful methods, and new methods should be the subjects of research. The courses should culminate in an intensified practical teaching phase in the final year, during which music education lessons only are taught by the students; this phase should last for not less than eight weeks.

(2) The role of the music specialist within the school should change from one of providing individual tuition to one of preparing curriculum materials for use by generalist colleagues. The specialist could develop the music education skills of these teachers through regular training sessions. This implies a certain amount of teacher-retraining and this concept has been developed through music consultancy programmes initiated by the University of Reading, Great Britain (Kemp and Freeman, 1988:21-23). All teachers who have a specialised knowledge of music attend a course lasting about four weeks. During this time, instruction in various aspects of music consultancy is given, and resource materials developed by the trainee-consultants for use in their schools by their non-specialised colleagues. The implications of music consultancy extend far beyond the scope of the day course or in-service training.

(3) Because specialist treachers are not generally employed in the junior primary phase, the class teacher is expected to teach all areas of the junior primary curriculum. Additional research concerning the design of music curricula, syllabi and teaching methods is therefore needed by colleges of education for students with little knowledge and no practical music skills and who require specialised music skills for use in the classroom.

(4) Further research is required into the realities of music education within the classroom from pre-primary through to matric. The allocation of time for music, the perceptions of music education held by music specialists as well as by generalist teachers would need to be investigated in terms of these realities, as well as the music specialists' qualifications and the education institutions from which they received their training in music education.

(5) Research into the re-definition of the roles of music specialists and their possible effectiveness in developing the musical literacy of a school's population.

(6) Research into the views of samples of society concerning their perceptions of the relevance and importance of music education.

(7) The development and design of a battery of diagnostic and predictive tests for use specifically at colleges of education.

## 6.4 Conclusion

It is evident that change is required in the field of teacher training in music and music education in general so that the art of music, one of the expressive manifestations of human endeavour which identifies us as human beings, becomes accessible to all. It has an essential role to play in children's emotional and aesthetic development. The lack of accomplishment in music by children should be of great concern, not only to music educators, but to educators in general.

Not to take steps to provide primary school pupils with basic music skills and music knowledge is to deprive them in adulthood of access to a rich and meaningful musical and cultural heritage. The need to provide children with a suitable musical environment in which they are able to respond imaginatively, thus securing a permanent place for music in their lives, in the life of the school and ultimately in that of society, is a challenging and urgent task. If the challenge is accepted, the world of music can surely become a tangible reality for every child.

# APPENDIX A

APPENDIX A

# AN EXPERIMENT IN THE USE OF SUGGESTIVE AND ACCELERATIVE LEARNING AND TEACHING TECHNIQUES (SUGGESTOPAEDIA)

Mervyn Garlick

Paper presented at the South African Music Educators' Society
University of Cape Town, June 1984

This paper outlines an experiment undertaken at the Cape Town College of Education during 1987, the aim of which was to discover how the use of suggestive and accelerative learning and teaching techniques (suggestopaedia) could develop the aural and reading skills of first-year students in the Junior Primary course. Against the background of a brief summary of what suggestopaedia entails, the paper explores the problems encountered in the first-year course in question and the procedure used in the experiment, and ends with a brief analysis of some of the results.

Traditional methods of language acquisition recommend a gradual and gentle way of introducing students to a new language. These models argue that at the beginning of a course of instruction only a few easy words should be introduced, together with a couple of rules of syntax. They maintain that all or most the material of each lesson must be mastered, tested and drilled before proceeding, and that close attention to details of spelling, pronunciation and word selection are essential. Their fear is that the learners' memory systems may collapse from an overload of input if they are not allowed time to absorb all they learn. Karl Sandberg, however, argues that while it is wise to be concerned with overloading the learning system, it is not wise to ignore the ability of the mind to select from a rich

environment what it needs and what is currently relevant to it.(1) He suggests that this small quantity of input and gradual progression creates a deficient learning environment and provides little for the student to select from. He calls this the 'empty bin' approach and contrasts it with the 'full bin' approach in which a great volume of material is introduced and the opportunity given to the learner to select from it whatever he finds meaningful and useful.

The past two decades have shown an enormous advance in the understanding of first and second language acquisition, of learning psychology and of language itself. One resultant school of thought sees the learner rather than the subject matter as central to the learning process and views the learner not as a disembodied brain but as a whole person. This school sees the ego-involvement as a primary force for or against learning, and the acquisition of skill or knowledge as not simply resulting from the injection of subject matter reinforced by drill, but requiring readiness (from the learner) before it can be assimilated and become functional. In effect, this school rejects both the behavioural and cognitive models of learning which focus more on the brain than on the whole person in a dynamic social matrix. This approach introduces and stresses the dimension that takes into account and deals with the intrapersonal and interpersonal aspects of the learning process. A leading figure in this school is Dr George Lozanov, a Bulgarian psychiatrist who has developed an accelerative learning and teaching system known as suggestopaedia, a holistic system based on suggestology, the science of suggestion. It is based on the simultaneous observation of the following three principles :

1. Principle of joy and lack of strain - pleasure and inner motivation allows concentration without the anxious tensions which come from lack of confidence in one's ability to understand, memorize and utilize the material.

2. Principle of unity of the conscious and unconscious - I shall explain this in a moment under Double-Planeness.

3. Principle of the suggestive link - this requires instruction that produces close inter-personal relations similar to those existing in group psychotherapy. This also requires the co-ordination of the desuggestive-suggestive factors which allow the learner's reserves to be tapped.

These three principles are based on the original principles of suggestopaedia and are :

(1) authority : the more prestige the authority is thought to have, the better the recipient will accept and retain the information

(2) infantilization : the goal of this principle is to make the adult (learner) as receptive as a small child exploring and discovering. This is based on the assumption that the child is more spontaneous and creative than the adult and has the ability to absorb and retain huge amounts of information

(3) Double-planeness : this refers to two levels of awareness. The first level is the linguistic code and its immediate significance, and the second level or plane is the whole environment of signals, conscious and unconscious, which include non-verbal signs, gestures, movement, body language and so on. Because so many stimuli are perceived para-consciously, suggestopaedia relies a great deal on the second plane

(4) Intonations : our intonations say a great deal on the paraconscious level and can have a very positive (or negative) effect on students. As Lozanov has noted, "intonation is actually an expression of internal psychological content".(2)

(5) Rhythm : words are presented at certain time-intervals during the first concert, which will be explained shortly

(6) Pseudopassivity : this refers to a state of concentrated psycho-relaxation which is promoted by a calm atmosphere and selected music, and it helps to overcome the anti-suggestive barriers as well as activating the reserves of the mind.

All these suggestive factors are closely inter-related and mutually reinforcing.

> In summary, it can be stated that the purpose of suggestopaedia is to release the unused capacities of the human brain. To be able to do that, it is necessary to overcome the anti-suggestive barriers by using suggestion, desuggestion and the paraconscious. Another vital factor to ensure the releasing of unused reserve potentials is to utilize the whole brain in the learning process; thus, optimizing memory and retention by creating teaching conditions where the brain can function in a global, integrated and, therefore, most effective way.(3)

Before I describe the mechanics of suggestopaedia in practice, as applied at the Cape Town College of Education, I shall briefly mention some of the problems faced at the College, which are linked to the need for this experiment. There are four main problem areas:

Firstly, we are faced with the enormous problem of having to develop, virtually from scratch, music reading, aural and sight-singing skills in first-year Junior Primary students. Of the approximately forty students who enrol each year, at least two-thirds have had little or no musical training or exposure to music. By their second year, they are expected to be sufficiently musically competent to teach the following areas of music: singing, creative movement, instrumental work and notation. Needless to say, we experience a great amount of negativity on the part of the students, and as a result they begin to experience a mental block about teaching music and even about music itself. Ultimately, they are afraid to teach music in the classroom and the children are deprived of an essential component of their education.

Secondly, our timetable allocates to us one half-hour per week for the development of these skills. With so many public holidays falling on 'aural' days, this allocation was further reduced to twelve half-hour sessions of which two would have to be given up: one for testing and one for a questionnaire.

In terms of allocation of time, it is interesting to note that Lozanov's foreign language courses were one month courses of twenty-four working days with four lessons per day. The time allocated per day was three and a half hours and this gave eighty-four hours of instruction per course. Our course consisted of only ten half-hour sessions over five months, giving a total of five hours in five months!

Thirdly, music is an integral and vital part of the whole system of suggestopaedic learning and teaching, so my problem here was, how does one use as content that which is an integral part of the suggestopaedic process? The fourth and final problem was how to devise a worthwhile 'experiment' within these severe limitations.

The first and second problems cannot be solved at this point, but I think their solution is dependent upon the solution of problems three and four. The latter are integrally related but I think that the key to the solution of all the problems lies in the fourth one.

What does experiment really mean? According to the Oxford Student's Dictionary of Current English it has two meanings: firstly, the sense of pre-arranged tests or trials carried out carefully in order to gain new knowledge (as in perform/carry out an experiment in chemistry, for example) and secondly, the sense of new procedures adopted in order to prove a hypothesis or gain new knowledge (as in experimenting in cooking). Clearly, the meaning of 'experiment' in my case was the second, more

adventurous one, in that I was learning by experiment, using a new method with unforseeable results as opposed to a known method in which one would manipulate a set of variables according to a pre-determined formula and be reasonably assured of the results. I took this meaning one step further by placing my experiment in a research framework.

As a model for my experiment I used John Nisbet's Spectrum of Educational Research (4) :

| The Agricultural Model: experiments to improve your products by manipulating treatments | | | | The Anthropological Model: go and live there and see what it is like |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
| Experimental method | Exploratory survey | Curriculum development | Action research | Open-ended inquiry |
| Empirical educational science | Fact-finding as a basis for decision making | New syllabus content and method. Field trials and evaluation | Interventionist | Grounded theory. Participant observation Illuminative evaluation |

Categories 1 and 2 represent the empirical tradition; the belief that educational problems can and should be solved by objective empirical evidence until the whole field is uncovered. Category 3 is the largest single area of educational research developments since the early 1960s. It draws on theory and survey, uses experimental fieldwork and is prepared to venture into open-ended inquiries.

Category 4 brings research and innovation together in interventionist types of study; research monitors change and research is a guide to action, while the results of action are a guide to research. There is a built-in tension existing between the concepts of action and research; action has the qualities of commitment, involvement, enthusiasm and so on while research is more limited in appeal; the qualities needed being detachment, suspension of belief, lack of trust in results, etc.

Category 5, open-ended inquiry, can be seen as a logical consequence of the protest against the scientific detachment of traditional psychological and psychometric studies. This type of research sees the focus from the point of view of the learner, and consequently grounded theory is built up from observation and participation, not imposed on the 'subjects'.

The experiment which I have undertaken draws most heavily from categories 3 and 4 but also uses certain aspects from other models. As John Nisbet maintains, no research method is entirely right or wrong: "The most effective reserch employs a variety of strategies, across the spectrum."(5) The aim of this experiment was to attempt to prove that the use of suggestive and accelerative learning techniques would enhance and accelerate the learning of elementary aural and sight-singing skills in first-year college students at the Cape Town College of Education.

I have, very briefly, given here an overview of the theory and practical application of suggestopaedia. Now, using that theory and having participated in a two-week course of suggestopaedic learning and theory, and above all, being fascinated by the use of music in a pedagogical system, I decided to experiment with the aforementioned principles in a new aural and sight-singing skill development course at the Cape Town College of Education. One of my main reasons was that music is, after all, a language, so it should be possible to develop and accelerate the learning of these skills using a pedagogical method that has proved extremely successful in language acquisition over a short space of time.

Coincidentally, at the end of 1986 we had decided to discard the traditional approach to aural and sight-singing and structure our own course based on Wheeler and Raebeck's 'Orff and Kodaly Adapted for the Elementary School'.

This was founded on the notion that, through experiential learning, the student teachers would have a better grasp of how to approach the development of aural and sight-singing skills with the children in their own classrooms.

Two sessions per week were held, each session being one and a half hours, since, in terms of the research that has been done in Canada, the USA and Bulgaria, it was discovered that no more than seventy-two hours should elapse between the first and the second session. The two sessions were structured according to the following organizational plan :

First session : Physical and mental relaxation.
Some light exercises are used to rid the body of unnecessary tensions. As soon as the body is physicall relaxed, it is then possible to relax mentally. This is a prerequisite for more effective brain activity.

Primary and Secondary Activations.
During these phases the students are familiarized with the new material, and at the same time a very positive and suggestive set-up is created.

First Concert
This is the reading of the teaching material to the accompaniment of music. The teacher's voice becomes another musical instrument while the students follow the text on the left hand side of the page and glance at the translation on the right hand side of the page, to the acompaniment of instrumental Classical music.

Second Concert
The students do not follow the text, but sit back and relax with their eyes closed. The text is then read to the accompaniment of Baroque music while the students allow their minds to wander. The most important element in this concert is that they relax as fully as they are able to.

Second Session : The material of the first session is dramatized by reading aloud, playing non-competitive games, acting out skits, etc. "Fun with language is more important than accuracy, which is learned imperceptibly, like balance in riding a bicycle."(7)

Within these sessions, the following means, amongst others, are used :

1. The Pygmalion effect : when a teacher expects a pupil to do well, the chances are that he will do well.

2. The Hawthorne effect : this assists with overcoming the anti-suggestive barriers in the initial stages. When the snowball effect starts and the reserve capacities are released, the decrease of the novelty and consequent decrease of the Hawthorne effect will not matter.(8)

3. Big picture : the provision of an overall view of what the students are going to learn. Attention is directed to the wholeness of the course.

4. Defocused learning : according to Naude and du Preez massive quantities of information can be activated when the awareness continuum is lowered, that is, when attention is defocused.(9)

5. Massive, rich and varied input : this has an additional role in suggestopaedia in that it suggests to students that they are capable of absorbing huge amounts of information.

6. The venue : the visual appearance of the venue is critical, and it should be totally different from an ordinary classroom. The lounge-like atmosphere of the room to some extent defuses the fear that unpleasant learning is going to take place here; rather the contrary is suggested. The floor is carpeted, easy, comfortable chairs are used, painting, plants, flowers, etc. decorate the room.

7. Music : music combines with psychology and teaching to form a holistic pedagogical system, or a 'gestalt pedagogy'. Furthermore music plays an important role in the creation of a pleasant, suggestive atmosphere, and by doing that it facilitates the overcoming of the anti-suggestive barriers, and it always acts in harmony with the other suggestive factors.(10)

In administering the experiment the following procedure was used :

1. Pretest : a simple notation therory test was given, from the results of which the thirty-eight students were grouped into three grades of ability, as follows :

| | | |
|---|---|---|
| Group 1 | (80% - 100%) | 12 students |
| Group 2 | (30% - 79%) | 13 students |
| Group 3 | ( 0% - 29%) | 13 students |

Group 1 was disregarded for the purpose of this experiment, group 2 was regarded as a comparison group and group 3 as an experimental group.

2. Sessions : there were ten sessions, or lessons, each lasting half an

2. Sessions : there were ten sessions, or lessons, each lasting half an hour. All groups followed the same course, based on 'Orff and Kodaly Adapted for the Elementary School'; each group had a different lecturer; the comparison group took place in an ordinary lecture room and the experimental group took place in the new 'suggestopaedia' room.

3. Tests : an extremely elementary aural and sight-singing test was held during session number nine.

4. Questionnaire : a questionnaire consisting of eighteen questions, plus three aural recognition tasks, was given during the final session.

Structure and content of the Sessions

After consultation with Dr H.L. Botha, our resident suggestopaedia expert, I decided to adjust the format of the ten sessions in the following way, calling the units 'lessons' :

1. Lesson 1

   (1) Greet students individually

   (2) Big picture

   (3) Students to choose fictitious names (characters from operas)

   (4) Physical exercises - in the form of a game to acquaint ourselves with names

   (5) Mental relaxation - early pleasant learning experience

An early pleasant learning experience (EPLE) is a guided imagery session, to the accompaniment of music, where the students are taken to a time and place where they learn with joy and ease. It is regarded as an achor. "When the anchoring process has been skilfully executed the stimulus/response mechanism can be called upon to serve the learning process on later occasions."(11)

Lessons 2 - 7

   (1) Greet students individually

   (2) Games

   (3) Physical exercises

(4) Mental relaxation - 'mini' concert session; text read over music; covered the input that had taken place prior to the concert session.

3. Lessons 8 - 10

Basically the same as lessons 2 - 7, but the 'mini' concert was deleted due to lack of time. In its place was inserted three to four minutes of relaxation (closed eyes, lying down comfortably), concentration on the music that was played, as well as on breathing.

Every aspect of the course had a music-developmental purpose, and during these sessions the following content was covered :

1. Dynamic concepts : crescendo, diminuendo, forte, piano
2. Tempo concepts : steady, accelerando, ritardando
3. Notation : developed through use of games, fictitious names, proverbs, nonsense poems, movement, drawing on their own interpretation of notation, tonic solfa, staff notation and French time names
4. Pattern and pulse : developed through their own fictititious names, proverbs, nonsense poems and games; isolation of pattern and of pulse as well as pattern against pulse
5. Question and answer : both rhythmic and pitch; the ultimate goal of this is improvisation
6. Movement : acting out stories with instrument accompaniment; moving to quarter, half and whole notes (use of tambour);
7. Playing of instruments (Orff) : used as accompaniment to movement, songs, etc.

Because the approach was holistic, it was difficult to keep these parts in isolation. Each part reinforced, and to some extent overlapped, with other parts.

Results of the two tests

Given that this research was not structured in the empirical tradition of educational research and that the marks rest on only five hours of

experimentation with thirty-eight students, the results nevertheless seem to indicate a dramatic improvement in aural and sight-singing ability, particularly in the experimental group. This suggests that the suggestopaedia method works well particularly for weak students. However, despite the limitations of the conditions under which we were working it is still an encouraging result. I hope to repeat this experiment under a more refined and controlled research design in the future.

The replies from the questionnaire revealed, perhaps more fully than the bare figures quoted above, some reasons for the students' improvement. There were twenty questions asked, relating to the students' responses to the whole experiment, and answers were either positive, negative or neutral.

The questions mostly explored the students' reaction to music before, during, and as a result of, the suggestopaedia experiment, and the answers revealed a significant improvement both in the students' attitude towards music as a subject and in their confidence in their own aural ability. There was also a (less) significant difference betwen the responses of the students from the two groups. For example, 85% of students in the experimental group (eg) felt that their pitch awareness had increased, compared to 67% in the comparison group (cg), although in the actual pitch test given at the end of the course the eg scored an average of 92% and the cg 100%; similarly, 92% of the eg felt their rhythmic awareness had increased, compared to 75% of the cg, although both groups scored 100% in the final rhythm test. It would appear that the significance of the experiment lay not so much in improved ability as in improved confidence, and this is borne out by the fact that only 8% of the eg felt confident about

their music skills before the course compared to 100% after the course ended.

A place for free comments was inserted in the questionnaire, and some of these are given below :

Experimental group's comments

> Although I have always loved music and wanted to learn it, I have thought that it was impossibly difficult. I do feel more confident and relaxed now.
>
> I really enjoyed this course, it was a fun way to learn. I wish that more of our subjects could be done like this.
>
> I was slightly confused at first because I didn't know why we were doing this but I had fun and I enjoyed learning. The music which was played in the background was very relaxing and helped to create the general atmosphere for learning.
>
> I have always enjoyed pop music but now I really love listening to classical. It really is a pleasure to learn the piano. Before I used to be very embarrassed in singing but now I could by myself to the whole class!
>
> I found the course a lot of fun, and it helped me a great deal. I didn't feel pressurised to learn and got things right first time round.
>
> Before the course I only enjoyed one type of music but now I'm aware of and enjoy different types. I enjoyed playing the instruments in class.
>
> I found these aural classes a lot of fun.
>
> A very successful and enjoyable way of learning. Developing skills (one) is not aware of.
>
> I enjoyed the course thoroughly and it enabled me to learn music and about music by having fun. Better to learn this way than just to be lectured to in front of a blackboard.
>
> I enjoyed the class and felt relaxed all the time I was in the class - except for my singing in the beginning. I feel more relaxed and confident about my singing although it can still be improved a great deal.

Comparison group's comments

> I found the course a little too drawn out. And also a bit too repetitive. It was a nice relaxed atmosphere though.

I enjoyed the gentle and positive approach towards music - I never felt pressurised or highly nervous.

Was a nice way of getting to know a bit about music; especially for a beginner.

The course was a very enjoyable way of getting to know more about music.

I thought that this course was very profitable. My whole attitude towards music has changed and I love all my music classes.

It was good to have small groups and to know that if you make a mistake it doesn't matter.

Amazing. I found it a bit boring at times though, but otherwise very enjoyable.

It was an enjoyable course. I enjoyed the relaxed atmosphere.

I enjoyed working in small groups as I did not feel so self-conscious when singing in front of others.

Benefited greatly - valuable exercise.

This experiment was a direct result of my having attended an intensive two-week suggestopaedia course in January 1987 and it was thus structured to fit into a timetable that had already been scheduled. IN 1988 I hope to repeat the experiment within a timetable scheduled to accommodate it, and to this end seven one-hour sessions spread over seven weeks have already been scheduled.

The real success of an experiment such as this can only be measured by observing students' performance in front of a class. I shall therefore continue to monitor the behaviour of the 'experimental group' students in particular, during their five-week teaching module in school in 1988. I have already observed that during 'micro-teaching' sessions in front of their peers in August 1987 they performed better than their predecessors did in 1986.

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This experiment in suggestopaedia was motivated by a desire to make 'the

best of a bad job', as it were, and it would be far better for music studies to be given a much larger place in our overall timetable. Nevertheless, it does go to prove already, I think, that increased skills and increased confidence go hand in hand within the suggestopaedia method, and maybe it will lead to the teachers in junior primary classes (where the musical foundations are laid) giving children a better foundation for their future musical development and future love of music. Even given the present severe limitations in our training colleges this method might help to break the vicious circle of lack of interest, motivation and skill that our present schoolchildren and student teachers are imprisoned within.

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# APPENDIX B

APPENDIX B

REVIEW OF MUSICAL APTITUDE MEASURES

Seashore Measures of Musical Talents

The aim of Seashore's Measures of Musical Talents, the first standardised test of musical aptitude to be published (1919), was to measure the attainment of musical attributes which Seashore considered essential to evaluate musical potential. He argued that musical ability consists of six loosely related specific sensory capacities - pitch, intensity, time, memory, consonance and rhythm - and that the six together would yield a musical profile for a given individual. The first battery, Seashore's Measures of Musical Talent, was published in 1919 and included five tests - sense of pitch, intensity of discrimination, sense of time, sense of consonance and tonal memory. In 1925 a sixth test, sense of rhythm, was added and, in 1939, a completely revised edition of the battery was published. In this, the terms 'talent', 'intensity', and 'consonance' were replaced by 'talents', 'loudness' and 'timbre', the task on the time test was altered and the length of each test was reduced. Subsequent revisions in 1956 and 1960 included a revision of the test manual and a slight modification of the manual but, essentially, the edition currently in use is the same as the 1939 edition which consisted of six tests - pitch, loudness, time, timbre, rhythm and tonal memory. The tones for the pitch, loudness, time and rhythm tests were produced by a beat-frequency oscillator, for the timbre test by a special generator and use was made of an electronic organ for the tonal memory test.

Seashore's test philosophy has been criticized (Mursell, 1937) for its atomistic and unmusical orientation as well as its focus on psychophysical,

and not necessarily musical, differences, and Wyatt (1939) was disturbed by the claim that test scores reflect innate capacity and cannot be improved by practice.

The Seashore tests have some validity and support comes from data gathered at the Eastman Conservatory of Music (Stanton, 1935) where the scores achieved in the tests (1919 edition) were added to scores achieved in a test of tonal imagery, a measure of academic intelligence and a case history. The combined scores were used for selection purposes. From the reliability coefficient reported in the current test manual (1960) for each of the tests, it is evident that the pitch and tonal memory tests are the most reliable throughout (George, 1980), but in terms of contemporary standards for test construction, none of the reliability coefficients are very satisfactory (George, 1980) and given that they are, for the most part, sub-standard, the validity of the tests is also suspect (George, 1980).

Kwalkwasser-Dykema Music Tests

The influence which Seashore had on music testing is evident in the second standardised test, the Kwalkwasser-Dykema Music Tests, published in 1930 and, for a long time, the Seashore Test's only serious rival. It is built on ten sub-tests, six of which resemble the Seashore battery - pitch, intensity, time, quality, rhythm and tonal memory. The other four tests comprise two achievement measures - pitch imagery and rhythmic imagery - and two preference measures - tonal movement and melodic taste. The tasks in some of the sub-tests are not the same as the Seashore tasks and this battery used orchestral instruments and the Duo-Art Reproducing Piano to present the material to be tested. There is no reference in the test manual regarding the purposes of the tests so it is assumed that musical

achievement and preference as well as the six areas isolated by Seashore are, in Kwalkwasser's opinion, necessary for the testing of musical aptitude.

The reliabilities of the tests have been questioned extensively and, except for the measures of tonal memory and final movement, the reliabilities are very low (Farnsworth, 1934). Not only are these reliability coefficients sufficiently low to cause one to question seriously the value of the battery (George, 1980), but extremely disturbing is the fact that only one set of norms is offered (Gilbert, 1941).

Drake Musical Aptitude Tests

These represent a different approach to the problem of measuring musical aptitude. Drake, as part of his doctoral research, developed the following four tests - music memory, interval discrimination, retentivity (a test of absolute pitch) and intuition (tests of phrase-balance, key centre and time balance). In subsequent research, Drake (1933) indicated that his musical memory test was the most promising as a measure of musical aptitude. This was published in 1934 under the title 'Drake Musical Memory Test: A Test of Musical Talent'. In 1954 he replaced this test with two well-standardised tests, one of musical memory and one of rhythm. These, the Drake Musical Aptitude Tests, were designed as measures of those two fundamental attributes.

Farnsworth (1969) noted that the two tests inter-correlate only slightly with reliabilities in the high .80s or low .90s and that norms are available for music and non-music students. George (1980) reported that the musical memory test has superior content validity.

Wing Standardised Tests of Musical Intelligence

This battery was first published in 1939 and underwent subsequent revisions in 1957, 1960 and 1961, some of them being suggested by the research and criticism of Bentley (1955). The edition currently in use is known as the 'Wing Musical Aptitude Tests' and consists of a battery of seven tests all played on the piano. The first three tests - chord analysis, pitch and pitch memory - appear to measure aptitude while the other four - rhythmic accent, intensity (loudness), phrasing and harmony - are preference measures. Wing was convinced that musical ability, as measured by his tests, is largely innate, not necessarily related to intelligence, nor influenced by environment and he noted that the main aim of the battery was

> "... to pick out musically bright children at about the age of transfer to the secondary schools in order to give them the opportunity, if they wished to avail themselves of it, of coaching in an orchestral instrument; the test, therefore, attempts to measure both acuity of musical hearing and a sensitivity to performance."
>
> (Wing, 1962:39)

Farnsworth (1969) reported that the total battery reliability is .93, although individual test reliabilities range as low as .65, that five-step norms are available for each year from ages 8 to 17 and that the battery has considerable validity.

Gretsch-Tilson Musical Aptitude Test

This test, using the original Seashore measures as a model, was published at about the same time as Seashore's revised battery (1939). It was intended to act as a substitute or, at any rate, be an altenative for the original Seashore measures and consisted of four tests - pitch, intensity, time and tonal memory. The intensity and time tests were played on an

audiometer, the pitch test on a reed instrument and the tonal memory test on an electric organ. The purpose of this battery was to provide a quick and accurate assessment of the musical potential in elementary and secondary school students.

The only reliability data presented by Tilson are test-retest coefficients. George (1980) noted that these provide an indication of temporal reliability but that no information about the internal consistency of the tests was given. Farnsworth (1945) concluded that for children of the fifth and eighth grades, these tests, though crude and brief, were as reliable as the parallel tests of the Seashore battery but, for the college level, they were unsatisfactory.

(Gaston) Test of Musicality

'A Test of Musicality' by E. Thayer Gaston was published in 1942 and followed by various minor changes in 1950, 1956 and 1957. The first section takes the form om a questionnaire and requires information on the individual, his family, contributions to various musical activities and the significance of music in the home. The musical section modifies components of several other tests and consists of several parts which include pitch discrimination, detection (both aural and visual), rhythmic and tonal changes and sense of key centre. They are all played on the piano.

This battery differs from all of the formerly published musical aptitude measures in that Gaston, rather than measuring sensory abilities, sought to measure perceptual abilities within a musical context.

Farnsworth (1969) noted that this test was standardised on about 15 000 children between the ages of 9 and 18. R.R. Bentley (in George, 1980)

obtained a correlation of .522 between this test and grades achieved in music by about 200 high school students and concluded that the test has some predictive value. The reliabilities are considered to be very good (George, 1980).

Kwalkwasser Music Talent Test

Jacob Kwalkwasser, a former student of C.E. Seashore and author of the 'Kwalkwasser-Dykema Music Tests' (1930), published another test in 1953, the 'Kwalkwasser Music Talent Test'. Neither the purposes for which this newer test was designed nor its psychological constructs are indicated in the manual. Nevertheless, it can be thought of as an abridged form of the earlier tests. The content - pitch, time, rhythm and loudness measures, the tones of which are all produced electronically - consists of four of the six sensory discrimination factors of the previous battery. Kwaklkwasser appeared to have disregarded the research literature and broke approved test practice by publishing a commercial test without any reliability data.

Of the two reported research studies which cite validity coefficients, R.R. Bentley (1955), (in George, 1980) obtained a correlation of .46 with music grades, and Petzold (1960) obtained correlations of .34, .34 and .39 with teachers' ratings.

(Gordon) Musical Aptitude Profile

This battery, one of the most recent series of tests, was published in 1965 after six years of research and four revisions. Its main aim was

> "... to act as an objective aid in the evaluation of students' basic musical aptitude so that the teacher can better provide for individual needs and abilities."
> (Gordon, 1965:2)

Edwin Gordon designed these tests in order to increase the measurement of the basic factors of musical aptitude which, for him, were musical expression, aural perception and kinesthetic musical feeling. The battery consists of seven tests divided into three sections - tonal imagery section comprising melody and harmony, tests played on the violin and violin and 'cello respectively; rhythm imagery section consisting of tests of tempo and meter both played on the violin; and a musical sensitivity section which included a phrasing test played on the violin and 'cello as well as balance and style tests both played on the violin.

Farnsworth (1969) noted that, at high school level, the tests showed reliabilities which ranged from .69 for balance and phrasing to .84 for tempo. The reliability of the battery taken as a whole was .95. A separate study, R.E. Lee (1967)(in George, 1980) of college students in a beginners' music theory course reported a reliability of .90 for the composite score and coefficients of .79, .83 and .85 for the respective division scores.

The Gordon battery is an important contribution to measures of musical aptitude and is constructed comprehensively and meticulously. It does, however, require much time to administer due to its length and is extremely expensive to purchase.

# APPENDIX C

APPENDIX C

MEASURES OF MUSICAL ABILITIES - Arnold Bentley

Texts of the instructions, pitch differences used and items of the tonal memory (tune), rhythmic memory, and chord analysis tests. The answer sheet is included at the end of this appendix.

*Pitch Discrimination Test*

"Test number one—pitch. Listen to these two sounds" (item 2—semitone up); "the second sound is higher than the first and has moved 'up'. Listen to these two sounds" (item 1—semitone down); "now the second sound is lower than the first; it has moved 'down'. The next two sounds" (item 9—'same') "are the same. Some of the sounds you will hear are much closer together than you might expect. Listen to these" (item 12—6 c.p.s. difference up); "the second sound goes 'up' from the first. Now listen to one that goes 'down' " (item 13—6 c.p.s. difference down). "So; if the second sound is the same as the first, write 'S'; if the second sound goes up, write 'U'; if the second sound goes down, write 'D'. Is that clear? 'S' for same; 'U' for up; 'D' for down. I shall call out each number as we come to it."

PITCH DISCRIMINATION TEST—PITCH DIFFERENCES USED

| Item | Direction of movement | Difference as fraction of a semitone | Difference in c.p.s. | First sound c.p.s. | Second sound c.p.s. |
|---|---|---|---|---|---|
| 1 | Down | 1 | 26 | 440 | 414 |
| 2 | Up | 1 | 26 | 440 | 466 |
| 3 | Up | ¾ | 18 | 440 | 458 |
| 4 | Down | ¾ | 18 | 440 | 422 |
| 5 | Up | ½ | 12 | 440 | 452 |
| 6 | Down | ½ | 12 | 440 | 428 |
| 7 | Down | c. 5/13 | 10 | 440 | 430 |
| 8 | Up | c. 5/13 | 10 | 440 | 450 |
| 9 | Same | — | — | 440 | 440 |
| 10 | Up | c. 4/13 | 8 | 440 | 448 |
| 11 | Down | c. 4/13 | 8 | 440 | 432 |
| 12 | Up | c. 3/13 | 6 | 440 | 446 |
| 13 | Down | c. 3/13 | 6 | 440 | 434 |
| 14 | Down | c. 5/26 | 5 | 440 | 435 |
| 15 | Up | c. 5/26 | 5 | 440 | 445 |
| 16 | Same | — | — | 440 | 440 |
| 17 | Up | c. 2/13 | 4 | 440 | 444 |
| 18 | Down | c. 2/13 | 4 | 440 | 436 |
| 19 | Down | c. 3/26 | 3 | 440 | 437 |
| 20 | Up | c. 3/26 | 3 | 440 | 443 |

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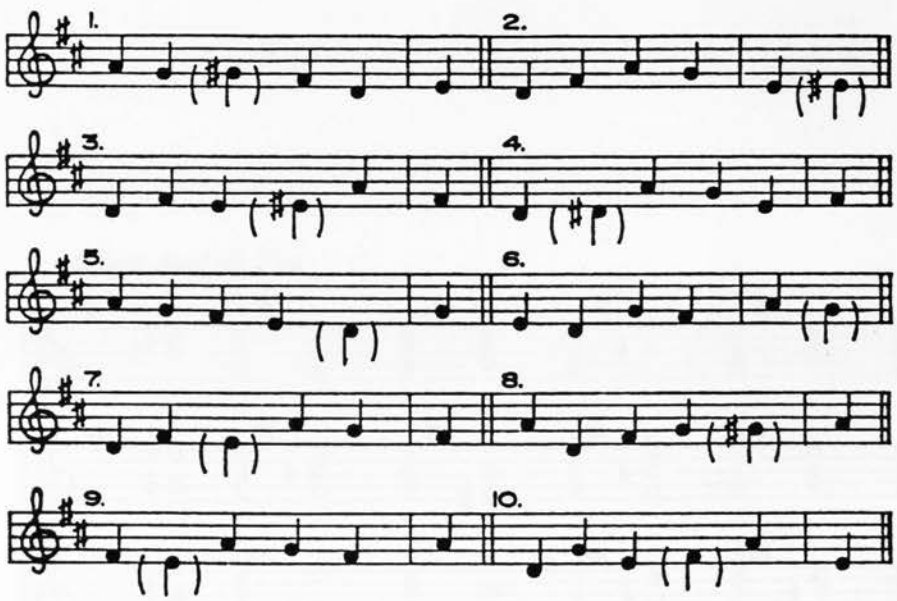
| Item | Direction of movement | Difference as fraction of a semitone | Difference in c.p.s. | First sound c.p.s. | Second sound c.p.s. |
|---|---|---|---|---|---|
| 1 | Down | 1 | 26 | 440 | 414 |
| 2 | Up | 1 | 26 | 440 | 466 |
| 3 | Up | ¾ | 18 | 440 | 458 |
| 4 | Down | ¾ | 18 | 440 | 422 |
| 5 | Up | ½ | 12 | 440 | 452 |
| 6 | Down | ½ | 12 | 440 | 428 |
| 7 | Down | c. 5/13 | 10 | 440 | 430 |
| 8 | Up | c. 5/13 | 10 | 440 | 450 |
| 9 | Same | — | — | 440 | 440 |
| 10 | Up | c. 4/13 | 8 | 440 | 448 |
| 11 | Down | c. 4/13 | 8 | 440 | 432 |
| 12 | Up | c. 3/13 | 6 | 440 | 446 |
| 13 | Down | c. 3/13 | 6 | 440 | 434 |
| 14 | Down | c. 5/26 | 5 | 440 | 435 |
| 15 | Up | c. 5/26 | 5 | 440 | 445 |
| 16 | Same | — | — | 440 | 440 |
| 17 | Up | c. 2/13 | 4 | 440 | 444 |
| 18 | Down | c. 2/13 | 4 | 440 | 436 |
| 19 | Down | c. 3/26 | 3 | 440 | 437 |
| 20 | Up | c. 3/26 | 3 | 440 | 443 |

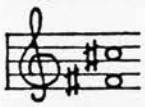
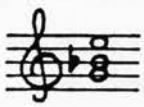
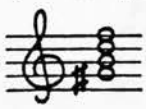
*Tonal Memory Test*

"Test number two—tunes. For each item two tunes will be played, like this" (second half of item 4, repeated). "If the second tune is the same as the first, as that was, write 'S'. If the second tune is not the same as the first, one note will have been changed. Listen to this example, and count the notes as they are played" (item 10). "In the second tune the third note is changed, and you would write the figure '3'. Listen to it again, and don't forget to count" (item 10). "So; if the third note is changed you will write the figure '3'; if the fourth note is changed you will write the figure '4'; if the second note is changed you will write the figure '2'; and so on. All the tunes have five notes; count them as they are played."

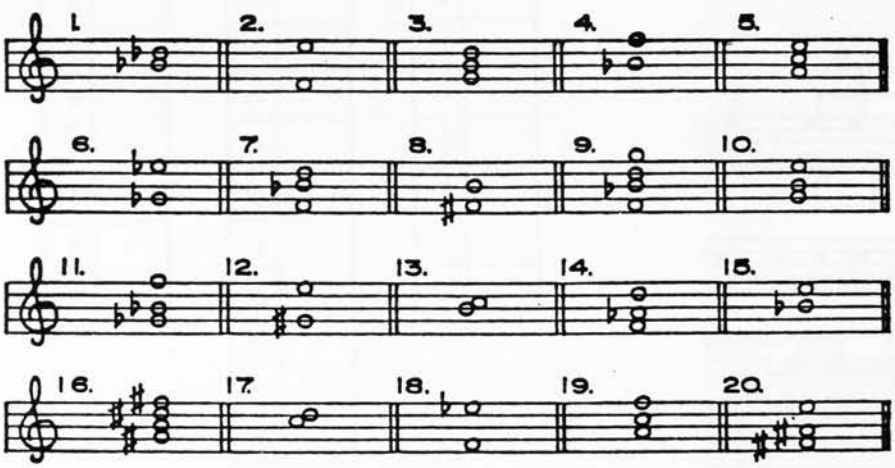
*Tonal Memory Test*



*Chord Analysis Test*

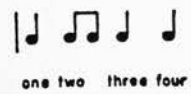
"Test number three—chords. You will hear chords; that means groups of notes played together. For example, here is a chord  containing two notes. Listen to the two notes played separately" (example); "and again, together, as a chord" (chord repeated). "Here is another chord  containing three notes. Listen to the three notes played separately" (example); "and together, as a chord" (chord repeated). "Now listen to a chord containing four notes  ; here are the four notes played separately" (example); "and together, as a chord" (chord repeated). "In the test the notes will not be played separately; they will be played together, as chords. Listen carefully, and write down the number of notes you hear in each chord."

*Chord Analysis Test*

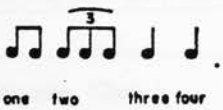


*Rhythmic Memory Test*

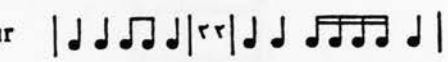
"Test number four—rhythm. You will hear two patterns of notes. Each pattern has four beats, or pulses, like this:

One two three four 

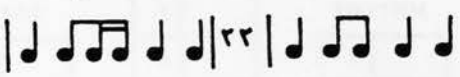
; or like this:

One two three four 

. If the second pattern is the same as the first, write 'S', for 'same'; if the second pattern is different from the first, write down the number of the beat or pulse that is changed. Listen to this example, and see if you can decide which beat is changed:

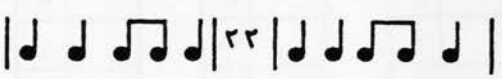
One two three four 

Yes, the third beat was changed. Here is another:

One two three four 

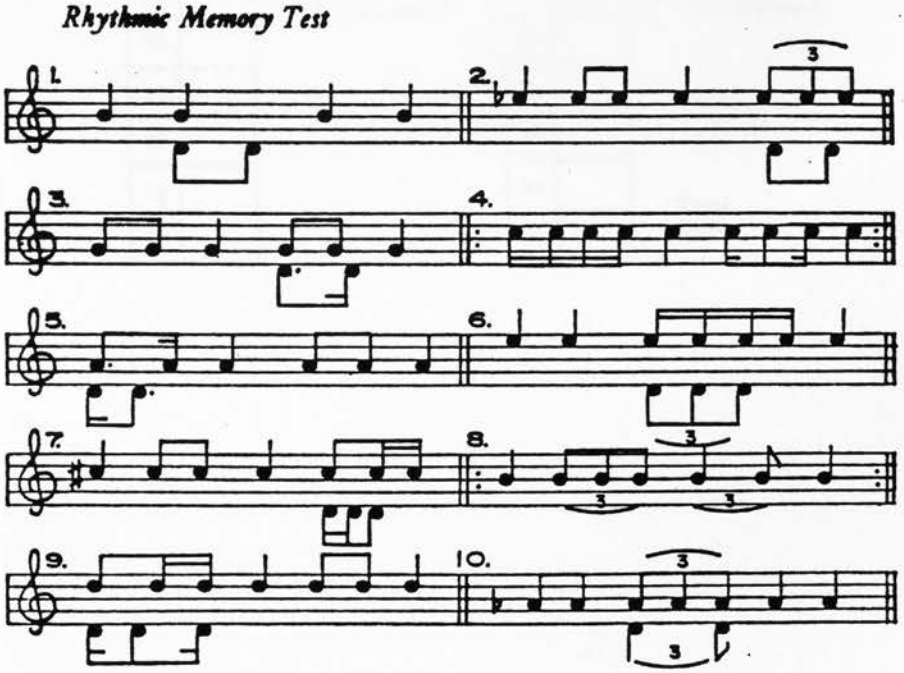
**There the second beat was changed. And another:**

**One two three four**



**Those were the same. Your answer will be either 1 or 2 or 3 or 4 if there is a change, or S if the two patterns are the same. Now here is the test.**[10]

***Rhythmic Memory Test***



## MEASURES OF MUSICAL ABILITIES—Arnold Bentley

Name..... School.....

Sex..... Age:.....years.....months. Class..... Date.....

I PITCH

| | |
|---|---|
| 1 | |
| 2 | |
| 3 | |
| 4 | |
| 5 | |
| 6 | |
| 7 | |
| 8 | |
| 9 | |
| 10 | |
| 11 | |
| 12 | |
| 13 | |
| 14 | |
| 15 | |
| 16 | |
| 17 | |
| 18 | |
| 19 | |
| 20 | |

II TUNES

| | |
|---|---|
| 1 | |
| 2 | |
| 3 | |
| 4 | |
| 5 | |
| 6 | |
| 7 | |
| 8 | |
| 9 | |
| 10 | |

III CHORDS

| | |
|---|---|
| 1 | |
| 2 | |
| 3 | |
| 4 | |
| 5 | |
| 6 | |
| 7 | |
| 8 | |
| 9 | |
| 10 | |
| 11 | |
| 12 | |
| 13 | |
| 14 | |
| 15 | |
| 16 | |
| 17 | |
| 18 | |
| 19 | |
| 20 | |

IV RHYTHM

| | |
|---|---|
| 1 | |
| 2 | |
| 3 | |
| 4 | |
| 5 | |
| 6 | |
| 7 | |
| 8 | |
| 9 | |
| 10 | |

Total Score .....

# APPENDIX D

APPENDIX D

SUGGESTOLOGY

Suggestology developed in an attempt to reveal and utilize the reserve capacities genetically determined in man and addressed, in particular, suggestion which influences the personality on the paraconscious level. The role of suggestion was studied by Lozanov (1978) in the fields of psychotherapy, medicine and education.

He defined Suggestology thus :

> "Suggestology is the comprehensive science of suggestion in all its aspects, but for the time being it deals mainly with the possibilities of suggestion to tap man's reserve capacities in the sphere of both body and mind."
>
> (Lozanov, in Blair 1982:146)

Certain terms need classification; they are

* man's reserve capacities

> "... unmanifested but genetically predetermined capacities operating mainly in the paraconscious and surpassing the normal ones several times over."
>
> (Lozanov, in Blair 1982:147)

* suggestion

> "... a form of mental reflection in which, primarily through unconscious mental activity, a special set-up is created for developing the functional reserves of man's psyche."
>
> (Racle, 1976:150)

* the paraconscious

> "... in the sense of more-or-less unconscious."
>
> (Lozanov, 1978:74)

* 'set-up'

> "... the regularities of spontaneous mental activity."
>
> (Racle, 1976:150)

Theoretically, if a 'set-up' is created for freeing the reserve capacities, it would, through a rapid and automotive process, be able to develop and utilize them. This process, however, needs suggestive organization and integration of the conscious-paraconscious which are inseparably linked.

Paraconsciousness, in contrast to 'the paraconscious', is an important element for freeing the reserve capacities. It is a constant mental activity and includes

> "... all automatic or secondary automated activities: unconscious automated elements in the field of conscious mental activity: subsensory (subliminal) stimuli: peripheral (marginal) perceptions: most of the emotional stimuli: intuitive creativity: the second plane of the communicative process: a considerable part of the processed information in the process of conditioning, associating, coding and symbolizing: and a number of unconscious inter-relations which have informational, algorhythmical and reprogramming effects on the personality."
>
> (Lozanov, 1978:74)

It receives suggestive signals or stimuli, particularly numerous in the field of the arts, and these act directly on the conscious by provoking reactions, evoking feelings and creating desires.

All these stimuli of paraconsciousness permeate each other and take part in the desuggestive-suggestive process. This process attempts to free the personality from negative and restricting suggestions and beliefs caused by socially suggested norms and negative expectations of ability. These beliefs result in the development, by the personality, of anti-suggestive barriers which are internalized to

> "... try to protect the seemingly safe and trustworthy status quo."
>
> (Dhority, 1984:2-4)

Lozanov identified three anti-suggestive barriers :

* critical-evaluative thinking
* intuitive-evaluative thinking
* ethical thinking

and maintained (1978:165-166) that these must be by-passed so that use can be made of the unused reserve capacities of the mind.

The means through which suggestion overcomes these barriers are complex, however, if an attempt is made to separate them. The following two can be inspected :

* Infantilization

> "... is a controlled state of intuitive activity, emotional plasticity, increased perceptiveness and confidence in the possibility of freeing one or another of the reserve capacities in a given situation. Infantilization arises when a highly harmonized contact is established with a person possessing authority (prestige), but it can also come about unaided."
>
> (Lozanov, in Blair:149)

* Pseudopassivity (Concert pseudopassiveness)

This is a condition similar to the state in which one finds oneself when listening to serious music - a state of concentrative relaxation,

> "... a calm mental state, lacking any stress, free of any needless thoughts and action, with lowered ideomotor activity. On the background of this calm mental state a pleasant untiring concentration is realised similar to our concentration at a concert."
>
> (Lozanov, in Blair:149)

As an application of this general theory of suggestion, Lozanov developed Suggestopaedia which he applied to language learning and teaching and which he noted was

> "... Suggestology applied in the process of instruction."
>
> (Lozanov, 1978:vi)

# APPENDIX E

APPENDIX E

SUGGESTOPAEDIA : THE SIX ORIGINAL PRINCIPLES

Authority

This refers to the authority of the source of the information, eg. a great writer, poet, composer or artist. The more prestige (authority) the source has, the better the recipient will accept and retain it.

> "The concept of authority (not authoritarism! (sic)) as it is used in suggestology stands for the non-directive prestige which by indirect ways creates an atmosphere of confidence and intuitive desire to follow the set example."
>
> (Lozanov, 1978a:187)

Infantilization

Infantilization is not infantilism and "does not imply a full scale return to earlier age periods" (Lozanov, in Racle, 1976:155). Its aim is to make it possible for the adult to be as receptive as a small child exploring and discovering his world with apparent ease and joy. This is based on the assumption

> "... that the child is more spontaneous and 'creative' than the adult and that in addition, the former can absorb larger amounts of material into his more active memory."
>
> (Bancroft, 1976:199)

Lozanov noted that infantilization is

> "... a universal reaction of respect, inspiration and confidence which, without disrupting the level of normal intellectual activity, considerably increases the perception, memory and creativity functions. In infantilization, perception and memorization and creative imagination seem to return, to some extent, to the more favourable level of the earlier age periods."
>
> (Lozanov, 1978:191)

## Double Planeness

> "Double planeness comprises the enormous signalling stream of diverse stimuli which consciously or semi-consciously, are emitted from or perceived by the personality."
>
> (Lozanov, 1978:193)

In any act of communication, there is more than one level (plane); the linguistic code exists on the first level and the whole environment of the spoken word exists on the second - these include gestures, posture, intonation and rhythm. Everything on this second level contributes to the creation or reinforcement of the student's confidence in the teacher, facilitates removal of the anti-suggestive barriers and contributes to the activation and utilization of the mental reserves.

## Intonation

This principle, one of the elements of the second plane, is an important factor in the communication process. Verbal suggestion is determined largely by content and expressiveness of speech (Bancroft, 1976:209). It incorporates sound, intensity, intonation and accents which correspond with the meanings of the words.

Dhority noted (1984:5-3) that one's intonations say much on the paraconscious level and, if used carefully, can have a positive effect. Lozanov observed that

> "... intonation is actually an expression of internal psychological content."
>
> (Lozanov, 1978:195)

Rhythm

Bancroft (1976:212-213) stated that at the Institute of Suggestology, Sofia, Bulgaria, experimentation had been conducted which explored the rhythmic presentation of material to be learned. She concluded that the rhythmic presentation of the content over a particular timespan (eg. every five seconds) had an effect on memorization and retention, and noted that

> "The precise rhythm plays a critical role."
>
> (Bancroft, 1978:152)

and that

> "Rhythm has a positive influence on memory."
>
> (Bancroft, 1978:155)

Pseudo-Passivity

> "(Pseudopassivity) ... is a state of concentrated psychorelaxation.
>
> ... On the background of this calm mental state, a pleasant untiring concentration is realized similar to our concentration at a concert."
>
> (Lozanov, in Blair 1982:149)

The development of the state of pseudo-passivity is assisted by the presentation of a suitable recorded music programme in a calm atmosphere.

Together with other factors such as authority, intonation and rhythm, pseudo-passivity is an important device for overcoming the anti-suggestive barriers and activating the reserves.

# APPENDIX F

APPENDIX F

SUGGESTOPAEDIA : THE THREE PRINCIPLES

Although these principles are discussed individually, they nevertheless function in an integrated manner.

The First Principle

Pseudo-passivity

This principle advocates joyful, relaxed learning, much like that of a small child discussing his world. If the teacher uses positive suggestion to enhance this condition, a state will be created which will foster undisturbed intellectual and creative activity without causing fatigue or the consumption of energy that accompanies strained attention. As a result of this warm, supportive environment, the personality will not feel threatened, and inproved brain functioning and learning will follow. (Naude & Du Preez, 1985:49-59).

The Second Principle

Synthesis

This principle, the process of synthesis, requires the instruction to involve, simultaneously, both conscious and paraconscious activity and the participation of the learner's two hemispheres, the cortex and subcortex (Lozanov, 1978:259). It entails the use of two approaches :

* direct imitation based on memorization
* indirect reasoning based on activity requiring intellectual effort.

Both of these are based on the suggestive set-up which activates the reserves of memorization and intellectual activities (Racle, 1976:54).

The Third Principle

Suggestive Inter-relation

This principle calls for the method of instruction to be similar to the process of group psychotherapy. It concerns the suggestive inter-relations (or links) which are established between the teacher and students, as well as among the students.

Botha (1986:108) noted that this suggestive link is characterized by

* a positive and supportive attitude
* trust and positive expectations in relation to the students' abilities
* absence of destructive criticism
* de-emphasis of errors
* encouragement of active participation in communicative acts
* trust in the ability of the teacher

(Botha, 1986:108)

These three principles are based (Lozanov, 1978:26) on the following psychophysiological laws :

- global participation of the brain
- simultaneous processing of analysis and synthesis
- simultaneous and indivisible participation of the conscious and paraconscious

(Lozanov, 1978b:26)

# APPENDIX G

APPENDIX G

# THE MEANS OF SUGGESTOPAEDIA

## Psychological Means

This group of means, one aspect of the 'indivisible unity' (Lozanov, 1978:261) of the three groups, requires the Suggestopaedic teacher to have the ability to utilize the emotional stimulus and the many variants of unconscious perceptual and thinking processes. This implies that the teacher should have theoretical and practical knowledge of the psychological means.

## Didactic Means

This refers particularly to the manner in which all the techniques, aids and materials are used during the Suggestopaedic course.

## Artistic Means

These means "introduce a special kind of liberating-stimulating didactic art (music, literature, acting, etc.) into the process of teaching and learning" (Lozanov, 1978:26), and are used to create a pleasant atmosphere during

> "... the lesson, (and) to enhance the emotional impetus, the suggestive set-up, attitude, motivation, expectancies."
>
> (Lozanov, 1978:262)

Racle (1979:134) maintained that the arts are the richest forms of suggestion and Lozanov (1978a:262) noted that by exposing learners experientially to art forms, part of the material to be learnt is immediately assimilated without any effort.

# APPENDIX H

APPENDIX H

THE TECHNIQUES OF SUGGESTOPAEDIA

1. The Concert Sessions

These are the first and second concerts during which large amounts of material are presented while selected music is played. At each concert the same content is used but with different music and a different vocal style. The facilitator treats these concerts with a certain amount of ritual and during them the students are behaviourally passive and make no conscious effort to memorise or understand the programme being presented. The learners are given texts which they follow during the first concert.

> "As in Ancient Greece, two forms of music were used - one appealing to the emotions, one appealing more to the intellect ... also bears considerable resemblance to the sessions of modern music therapy in which musical selections are chosen to provoke the first arousal, then security."
> (Bancroft 1985:15)

Thus the first concert uses music and a style of speech which are both more 'emotional' in nature while the second concert uses music and speech patterns regarded (in the suggestopaedic context) as 'mathematical' or 'philosophical' (Bancroft 1978:153).

The first concert

Music from the classical or romantic periods is used during this concert and while the selected music is played, the facilitator reads the text aloud following a certain rhythmic pattern almost as if he were paying no attention to the meaning of the words. His style of delivery is dictated by the rhythm, tempo, dynamics and phrasing of

the music and he integrates his voice with it (the music) as though it were another musical instrument. When concerted music is used, the facilitator intones with the solo instrument and is silent during the tutti sections. (The 'tutti' sections are those sections in a musical composition where the orchestra plays but not the solo instrument.) The students follow the text during the reading; during the pauses (in the reading) they are able to glance at the translation or explanation on lthe right hand side of the text. They are also encouraged to repeat words and phrases softly to themselves and to visualize the scenes as vividly as possible.

Graphically, the first concert presentation may be represented as follows

Voice -

Music - 

(Dhority 1984:9-5)

The Second Concert

During this concert, the material to be read remains the same as in the first concert but the music now selected is from the baroque period. The facilitator reads the material in a natural tone of voice guided by its meaning and not by the music's tempo, dynamics, rhythm or phrasing. The students are invited to put their texts aside, to relax in a comfortable position with their eyes closed and, while listening to the music, to allow their minds to wander freely.

Graphically, the second concert presentation may be represented as follows


(Dhority 1984:9-5)

2. The Pygmalian Effect

This phenomenon, also referred to as the self-fulfilling prophecy, concerns achievement based on "significant others'" expectations. Thus, if the teacher has high expectations of the student, the student should fulfil these expectations.

3. The Hawthorne Effect

This term is derived as a result of an investigation conducted at the Western Electric Company, Chicago. USA.

> "The studies concerned the relationship between certain working conditions and worker output efficiency. Illumination was one of these manipulated experimented variables. It was discovered that as light intensity was increased, worker output increased. After a certain peak was apparently reached it was decided to see what effect the reduction of intensity of illumination would have. To the surprise of the researchers, as intensity was decreased by stages, output continued to increase. The researchers concluded that the attention given the workers and their awareness of participation in an experiment apparently were important motivating factors. From these studies the term 'Hawthorne Effect' was introduced into psychological literature."
>
> (Best, 1970:148-149 in Botha 1986:368)

The Suggestopaedic application of this phenomenon is that the effect, on the learner, of a different learning environment as well as a new instructional method will, initially, be one of motivation and

stimulation. By the time the effect decreases, the anti-suggestive barriers will have been overcome and the reserve capacities activated.

Rituals

Suggestopaedia involves procedures which can be regarded as 'rituals', such as the Suggestopaedic cycle itself, as well as components of the cycle, eg. the concert sessions.

Ritual, in this context, can be defined as a way of doing something which people regularly follow when they are in a particular situation."

According to Prichard (1977:170), ritual facilitates the absorption of a large quantity of material, and Botha (1986:371) noted that it creates expectations and offers a sense of security to the learner.

The Placebo Effect

The use of a placebo is a procedure associated with members of the medical profession. A course of 'sugar-coated pills' is prescribed for the patient instead of true medication and the patient reacts positively to this 'treatment'. Racle (1979:135) noted that

> "The effect of a placebo is not produced simply by using non-pharmaceutical products in place of real medicine. Its effectiveness is in fact in direct proportion to the effectiveness which the patient administering and receiving it, attributes to it."
>
> (Racle, 1979:135)

In Suggestopaedia, certain rituals can act as a placebo. Music, as used in the concert sessions, for example, is seen by the learners as an important factor for accelerating learning as well as promoting mental and physical relaxation.

Fictitious Biographies

The student chooses a new identity which he uses for the duration of the course. This includes the use of a fictitious name, occupation and place of origin. Behind the shelter of this new identity, he becomes less inhibited and thus infantilisation is facilitated.

'Big Picture'

The presentation to the students of an overview - 'big picture' - of the course content.

Defocused Learning

This process, which includes the use of games, role play and songs, draws attention away from the material to be learned. Naude & Du Preez (in Botha, 1985:139) maintain that massive quantities of information can be learned when the awareness continuum is lowered, ie. when attention is defocused.

Massive, Rich and Varied Input

Although this term is self-explanatory, it has an additional role in that, due to the quantity of material, it suggests to the students that they are capable of absorbing large amounts of information.

The Venue

This is a critical means and its appearance is different to that of an ordinary classroom. It has the furnishings and atmosphere of a sitting-room and desuggests the belief that unpleasant learning will take

place there.

Poems, Songs and Stories

Poems, songs and stories are used to enrich and, to a certain extent, defocus the input. In addition, drama plays an important role and the students are encouraged to produce, and present, playlets using their newly acquired knowledge.

Music

The selected use of music is acknowledged as an essential part of suggestopaedic learning and teaching (Brislan, 1985:25) and, satisfying emotional and aesthetic needs, it reinforces the ritualistic effect of the class, particularly during the concert sessions, secures the authority principle and involves the whole brain. It also enhances the general suggestive atmosphere and thus leads to positive expectations on the part of the students. It also assists with relaxation which Lozanov maintains is the 'crux of the matter' as it facilitates the by-passing of the anti-suggestive barriers, enhances retention and by extension, optimizes learning. Music acts in harmony with other suggestive factors and supports the learning process by acting as a medium (carrier) to activate the reserve capacities of the mind.

> "As a part of the total conscious-unconscious duality of the learning setting, it contributes to the non-specific mental reactivity which activates the reserves of the mind."
>
> (Caskey, in Botha, 1986:147)

Apart from helping to create superior cerebral activity "by assisting with lateralization of the content in the left hemisphere and the encoding of it in the right hemisphere" (Dhority, 1984:9-4) music is used to enhance the

creation of the second plane of the suggestive atmosphere and to defocus the memorization process. It also assists in the flow and presentation of the dialogue (content) and contributes towards the creation of a non-threatening environment in which the student can gather impressions of a non-specific variety.

Relaxation

Since 1971, an unofficial English translation of Lozanov's thesis has been circulated in the West. In this he referred to the state of relaxation as being the 'crux of the matter' for best perceiving suggestion. Lozanov (1978) noted subsequently that, during relaxation, students are more receptive to suggestions related to motivation and expectation and maintained that they are the real causes of hypermnesia (super-memory). Caskey (1980) argued that

> "Relaxation, physical and mental, is essential to SALT (Suggestive-Accelerative Learning and Teaching) methodology, but it is (1) a global, almost Gestalt, learning setting atmosphere closely related to several SALT principles rather than an isolated activity; and (2) it is best achieved with a combination of learning environment characteristics rather than through specific muscle relaxation training and a daily emphasis on this segment of suggestive-accelerative method."
>
> (Caskey, 1980:22)

It is clear, therefore, that relaxation is an important element of Suggestopaedia, especially when used in conjunction with the other techniques of Suggestopaedia.

The Text

The text is an important device in the Suggestopaedic class because it incorporates most of the principles, means and techniques. Botha (1986:154-157) notes that a Suggestopaedic text should conform to certain criteria which include the following :

"- The text must be aimed at the target group as far as interests, needs and ability are concerned ...

- The text must be emotionally pleasant and satisfying and the students must find it easy to identify with the characters in the text ...

- The situations depicted in the text must be relevant to the students and they must be able to see themselves in similar situations, using similar language ...

- The text must have some idealistic goal or climax to be attained ...

- Metaphors, parables, fables and visual imagining involving all the senses are ... enriching (to) a Suggestopaedic text ...

- All the senses must be addressed in the text ...

- The text should be full of direct and indirect suggestions of how easy and enjoyable it is to learn, of how much reserve potential is latent in the human brain ... and that success is possible for every normal human being ..."

Imagery

Russel (1979) noted that

> "Imagery is a sensory-type experience in the mind without an actual corresponding situation providing the immediate sense stimulus.
>
> (Russel, 1979:110)

and stated (Russel, 1979:112) that strong mental images enhance memory considerably. During Suggestopaedic sessions, the students mentally 'image' what the text suggests and are therefore able to remember and retrieve the information effectively.

Hand (1984) noted

> "Haber (1970) and Franken & Rowland (1979) have found that the picture memory of humans is remarkably efficient. There is tremendously large storage capacity for pictorial representations and, therefore,

visual context through which to associate other items for recall. While most picture memory loses detail, the meaning or sense of the representation is retained, with enough of the pattern to reconstruct most of the main elements in the picture."

(Hand, 1984:17)

# APPENDIX I

APPENDIX I

THE SUGGESTOPAEDIC CYCLE

The Suggestopaedic cycle consists of three phases :

The Pre-Session Phase

During this phase, the students are familiarized with the new material to be presented. In order to ensure that the students will follow the next section of the text, the teacher might use certain artistic techniques such as mime and drawing. During this time, a positive suggestive set-up is created.

The Session Phase

In this phase, the two concerts are held. (Vide Appendix H - The Concert Sessions.)

The Post-Session Phase

The material which has been presented to the students in the above phases is activated in this phase, in two ways :

Primary Elaboration

> "It ensures the reproduction of the material given in the session. It comprises imitation of the text, questions and answers, reading, etc. The students must be stimulated without being given a false impression that they know more than they really do."
>
> (Lozanov, 1978:272)

Secondary Elaboration

> "... the material is activated ... to such an extent that it is possible to make new combinations with it..."
>
> (Lozanov, 1978:272-273)

In addition, supplementary texts are read, role play is encouraged, games are played and play-acting in small groups takes place. The playlets, which the students devise, should have emotional content like humour and sadness.

# APPENDIX J

CAPE TOWN TEACHERS' COLLEGE

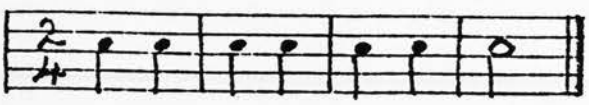
APPENDIX J

MUSIC DEPARTMENT

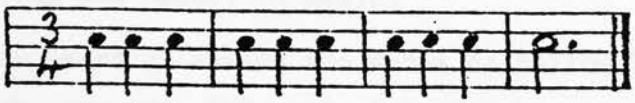
COLLEGE-CONSTRUCTED TEST (CCT)

DE.I 19..... SURNAME ..... Initials .....

1. Are the following in *WALTZ*-time or *MARCH*-time?

1.1 

| | |
|---|---|
| | WALTZ |
| | MARCH |

1.2 

| | |
|---|---|
| | WALTZ |
| | MARCH |

2. Write the *TIME-NAMES* (taa, ta-te or taa-aa) BENEATH these notes :

*TIME-NAMES* : .....

3. In the squares provided, write the following NOTE-VALUES (*NOTES*) :

3.1 ONE CROTCHET

3.2 TWO QUAVERS JOINED

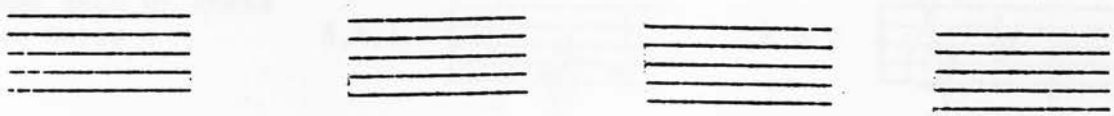
3.3 ONE MINIM

3.4 ONE SEMIBREVE

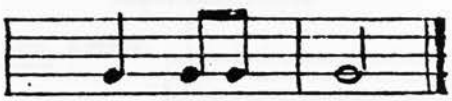
3.5 FOUR SEMIQUAVERS JOINED

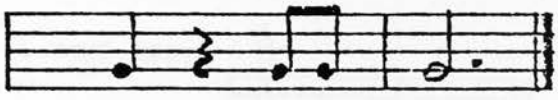
4. On the staff write ONE of EACH of the RESTS indicated :

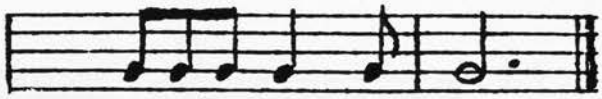
4.1 CROTCHET REST 4.2 QUAVER REST 4.3 MINIM REST 4.4 SEMIBREVE REST

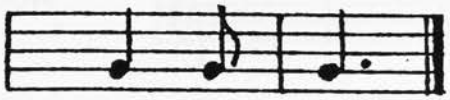


5. In front of each of these short rhythms write the correct TIME-SIGNATURE :

5.1 

5.2 

5.3 

5.4 

6. Explain the Time-signature $\frac{4}{4}$ :

_____

_____

7. Regarding PITCH and MELODY in music,

7.1 have you heard of naming the notes as follows?:

doh ray me fah soh lah te

| | |
|---|---|
| | YES |
| | NO |

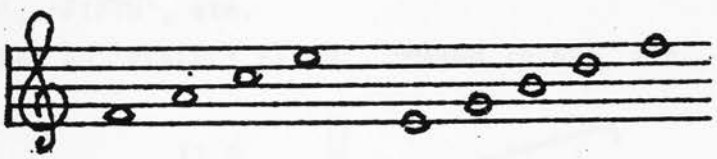
7.2 Do you know that this system is called TONIC SOL-FA?

| | |
|---|---|
| | YES |
| | NO |

8. In writing music correctly in STAFF NOTATION, LETTER NAMES (A-G) are used.

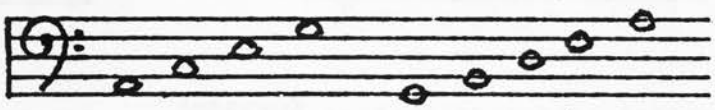
8.1 On this small section of the piano keyboard write the names of the WHITE keys.

8.2 Name the following notes in the TREBLE clef



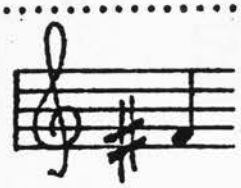
NOTE NAMES: .....

8.3 Name the following notes in the BASS clef



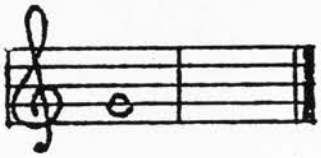
NOTE NAMES: .....

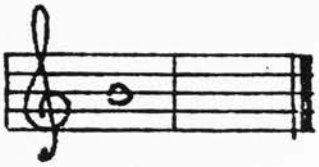
8.4 Name each of these two notes :

8.4.1 

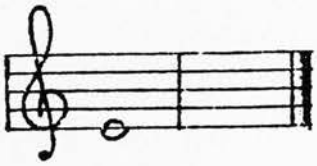
8.4.2 

9. In each 'empty' bar write the note either a TONE or a SEMITONE ABOVE the given note AS INDICATED:

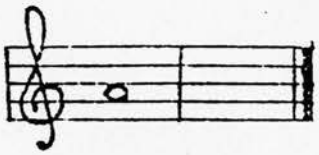
9.1 A TONE ABOVE 

9.2 A TONE ABOVE 

9.3 A SEMITONE above

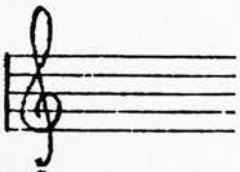


9.4 A SEMITONE above



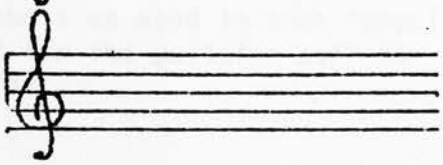
10. Write the KEY-SIGNATURE of each of the following keys in the Treble clef:

10.1 G major

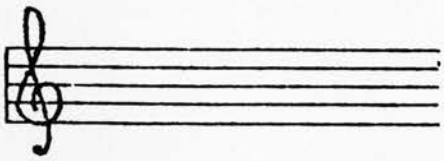


10.2 F major

10.3 B major



10.4 D flat major



11. Name each INTERVAL given below :

EITHER simply as 'SECOND', 'FIFTH', etc.

OR, if you can qualify them as 'PERFECT FIFTH', 'MINOR THIRD', etc., do so.

11.1

Interval .....

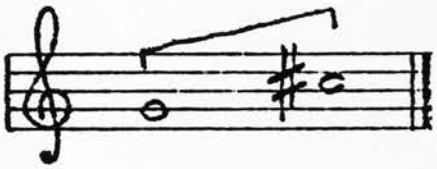
11.2

Interval .....

11.3

Interval .....

11.4



Interval .....

12. Do you 'know about', OR have you 'heard of' :

12.1 Harmony, using Roman numerals - eg. I, IV, V for the primary triads?

| | |
|---|---|
| | Yes, I know |
| | Have heard of |
| | No |

12.2 Chord symbols as used in much 'popular' music and for the guitar - such as C, F, $G^7$ etc.

| | |
|---|---|
| | Yes, I know |
| | Have heard of |
| | No |

# APPENDIX K

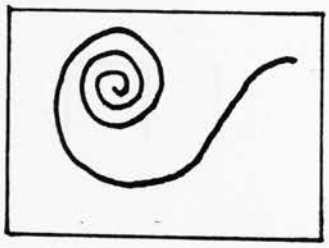
APPENDIX K

AUTHOR-CONSTRUCTED TEST NUMBER I (ACT No.I)

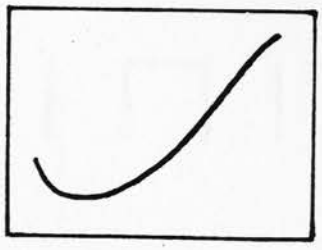
Name ..... Date .....

Listen carefully, and then circle the one, in each group, which fits the sounds you hear ...

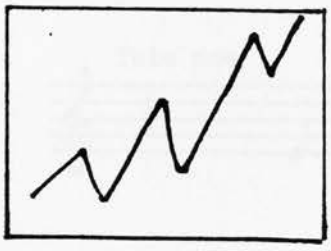
1.



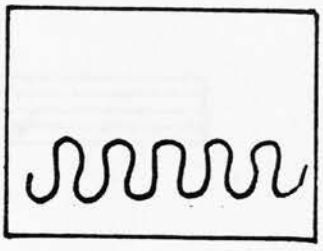
OR



2.



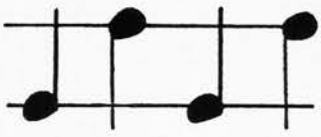
OR



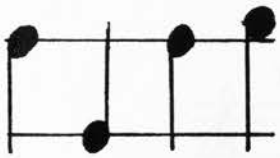
3.

OR

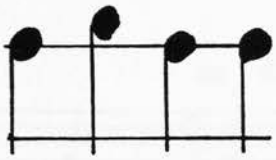
OR



4.

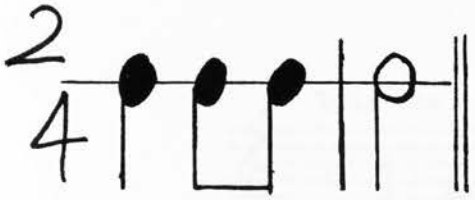


OR

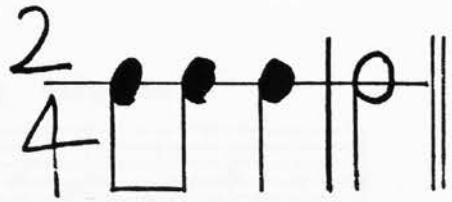


OR

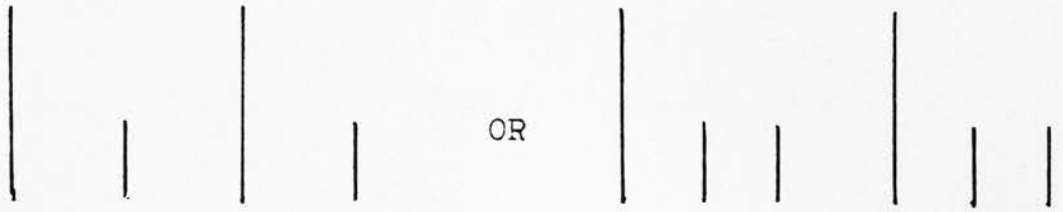
5.



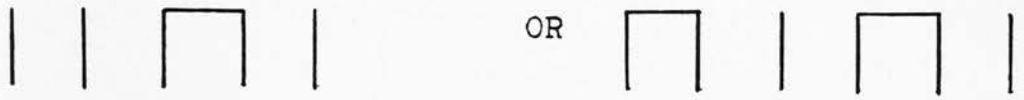
OR



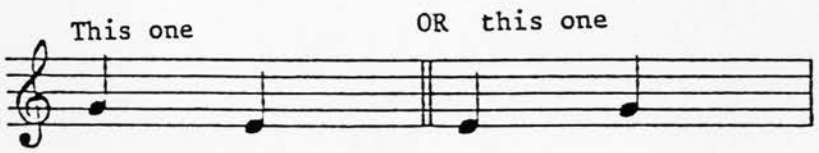
6.


OR

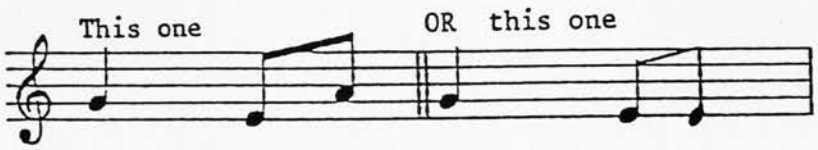
7.


OR

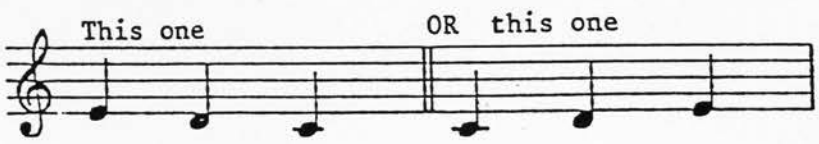
8.


This one
OR this one

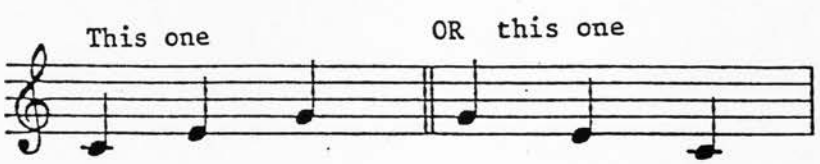
9.


This one
OR this one

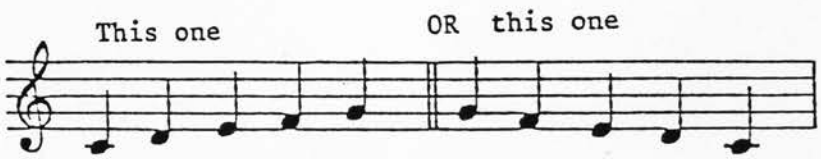
IO.


This one
OR this one

II.


This one
OR this one

I2.


This one
OR this one

# APPENDIX L

APPENDIX I : AUTHOR-CONSTRUCTED QUESTIONNAIRE (ACQ)

NAME .....

SEX ..... AGE .....YEARS.....MONTHS. CLASS ..... DATE .....

1. Do you enjoy music? Yes / Don't know / No
2. What do you feel about the following types of music? (Insert ✓s )

| | I like it a lot | I like it | I neither like nor dislike it | I dislike it | UGH!! |
|---|---|---|---|---|---|
| Classical | | | | | |
| Jazz | | | | | |
| Pop | | | | | |
| Other (specify) ..... | | | | | |

3. Are you aware of music? Yes / Don't know / No
4. Do you have music skills? Yes / Don't know / No
5. Can you sing? Yes / Don't know / No
6. Do you ever attend 'live' music concerts? Yes / No
7. If you are aware of music, what kind of music are you aware of? (Insert ✓s)

| | Very aware | Aware | Neither aware nor unaware | Unaware | Very unaware |
|---|---|---|---|---|---|
| Classical | | | | | |
| Pop | | | | | |
| Jazz | | | | | |
| Other (specify) ..... | | | | | |

8. Do you feel relaxed at the thought of learning music skills?
   Yes / Don't know / No
9. Do you have confidence in your singing ability?
   Yes / Don't know / No

10. Can you sing in tune? Yes / Don't know / No

11. Would you like to attend 'live' music concerts?
Yes / Don't know / No

12. Do you think you have potential in music? Yes / Don't know / No

13. Do you feel confident when you sing? Yes / Don't know / No

14. Do you think music-learning can be fun? Yes / Don't know / No

15. Do you think you have a sense of rhythm? Yes / Don't know / No

16. If you do enjoy music, what kind(s) of music do you enjoy?
Classical / Jazz / Pop / Other (specify) .....

17. Do you think you have potential in music skills?
Yes / Don't know / No

18. Have you ever sung by yourself in front of other people?
Yes / No

19. How do you rate your singing skills?
Very good / Good / Neither good nor bad / Bad / Very bad

20. Do you have confidence in your sense of rhythm?
Yes / Don't know / No

21. If you would like to attend 'live' music concerts, what kind(s) of music would you like to hear?
Classical / Jazz / Pop / Other (specify) .....

22. Do you have confidence in your ability to learn music skills?
Yes / Don't know / No

23. Do you feel relaxed when singing by yourself in front of other people?
Yes / Don't know / No

24. Do you think that your sense of rhythm can be improved?
Yes / Don't know / No

25. If you have attended 'live' music concerts, how many of the following types (kinds) have you attended during the last two years ?

Classical _____
Jazz _____
Pop _____
Other(specify)
..... _____

26. Do you feel motivated to develop your music skills?

Yes / Don't know / No

27. Do you think that your ability to sing in tune can be developed?

Yes / Don't know / No

28. Assuming you had potential music skills, would you like to develop them?

Yes / Don't know / No

29. Any comments you wish to make ....

# APPENDIX M

APPENDIX M

APPENDIX M

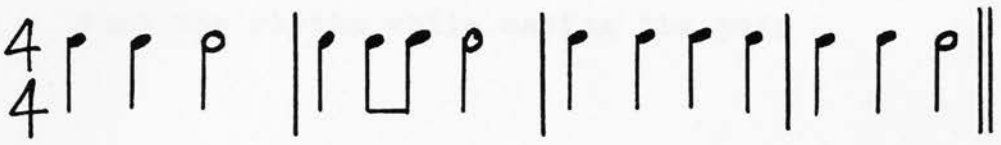
AUTHOR-CONSTRUCTED TEST NUMBER 2 (ACT No.2)

## A U R A L

I. Student to ECHO the following :

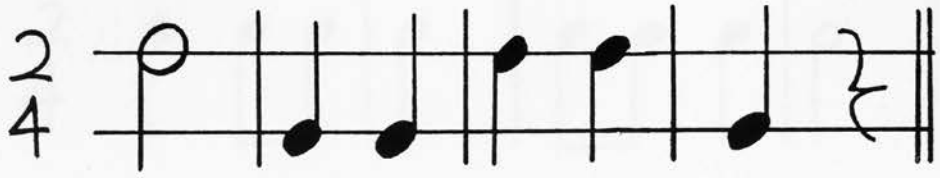
Lecturer to clap first.

(a)  (IO)

(b)  (IO)

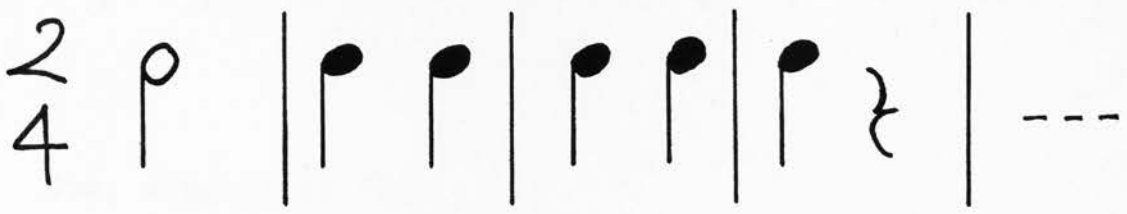
2. Students to ECHO the following : (IO)

Lecturer to play tune first.



3. Student to CLAP an answer to the following question : (IO)

Lecturer to clap question.



# S I G H T - S I N G I N G

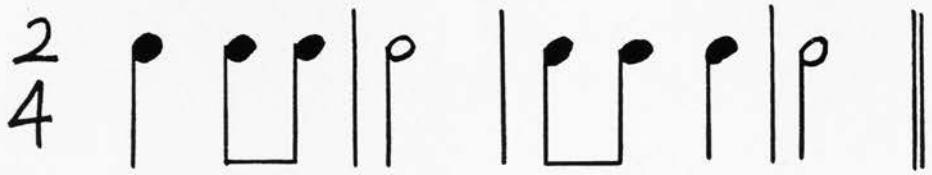
I. Read this poem :

Here's Sulky Sue
What shall we do ?
Turn her face to the wall
Till she comes to.

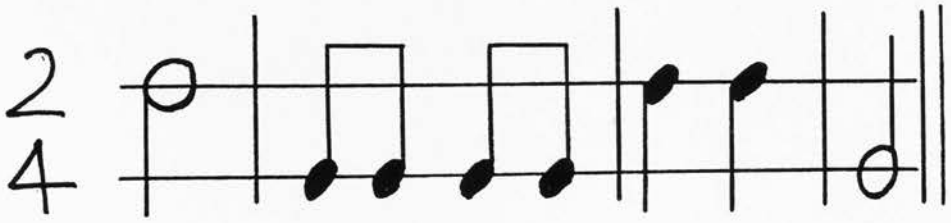
Now - say it rhythmically (IO)

then - clap the rhythm while saying the poem (IO)

2. CLAP the following rhythm - say to French Time Names if you wish (IO)



3. CLAP the following piece



Now, sing it to "la"
(Lecturer to first sing/play the two pitches for the student)

# APPENDIX N

APPENDIX N

DETAILS OF THE SUGGESTOPAEDIA-DESIGNED LESSONS

The first lesson was designed as follows :

1. Lecturer greeted students individually as they entered the room. The students were then invited to sit in the armchairs and to make themselves comfortable. Certain selected music was played during this time.

2. An overview of the course was then presented, during which time the students were given positive expectations of the course and of their ability to realise their unlimited potential.

3. Students chose fictitious names and assumed new identities. The names from which they chose were female characters from various operas.

4. A memory game was played to reinforce the new name chosen by the student, to acquaint the students with each other's new names and to introduce the fictitious name of the lecturer to the students.

5. **Activation:** during this phase, the students did some form of physical activity in the form of a game.

6. The concert session then took place, during which 'A Guided Fantasy' (Dhority, 1984) was read to the accompaniment of selected music (pages 5/6 of this Appendix). During this time, the students were asked to relax in their armchairs, or to lie on the floor on their backs, with their eyes closed.

The next 6 lessons were designed as follows :

1. Lecturer greeted students individually as they entered the room. The students then sat comfortably in the armchairs provided. Certain selected music was played during this time.

2. Development of Rhythmic Response and Awareness: this was achieved through various echo-clapping games.

3. Tempo-Dynamic Response and Awareness: this was achieved through various games and activities.

4. Revision of Fictitious Names: this was achieved through certain games and activities involving the application, at each session, of one of the following broad musical concepts : Pitch
   Rhythm
   Dynamics
   Timbre
   Form

5. Activation: during this phase, the students did some form of physical activity in the form of a game.

6. Development of Tone-Matching and Pitch Response: this was achieved through movement, games and various activities while the various pitches on solfa were sung by the student.

7. Application of rhythmic and pitch organisation to the students' fictitious names. Attempts by the students to graphically describe the rhythm and pitch they are experiencing was developed from vague symbols to simple notation during lessons 2 to 7.

DURING STEPS 2 TO 7, A TAPE RECORDING OF SOH-ME-SOH-LA-SOH, PLAYED ON THE ALTO METALLOPHONE, WAS HEARD.

8. A Song involving physical movement was sung.

9. The Concert Session, during which the text was read to the accompaniment of certain selected music. During this time, the students were asked to relax in their armchairs, or to lie on the floor on their backs, with their eyes closed.

During lessons 5, 6 and 7, no text was read.

'A GUIDED FANTASY'

Dhority, Lynn. 1984.

From: Acquisition Through Creative Teaching (ACT). The Artful Use of Suggestion in Foreign Language Instruction. Sharon, MA: Center for Continuing Development.

As you begin to collect your energies .... and become more and more and more present .... you can notice the regularity of your breathing .... allowing it to be as comfortable, slow and deep as feels good .... If it feels more comfortable .... to close your eyes .... that is fine .... And as you become aware .... of the chair supporting your bodies .... securely and easily .... you can let any discomfort go .... as if it were flowing .... right out through the chair .... These special chairs .... have been provided .... so that .... it is easy to relax .... The support for your head .... encourages you to relax .... your neck, your head and mind .... The support .... for your arms .... allows you .... to rest your arms .... and open easily .... to new experience .... The pleasant colors .... and objects in the room .... invite you to enjoy yourself .... through your senses .... And as you relax deeper and deeper .... you may find it easy .... to drift back to a time .... when you learned something new .... when learning filled you .... with joy and satisfaction .... A time when you experienced .... that learning is easy .... and as natural .... as breathing in .... and out .... This special, positive .... learning experience .... may have occurred recently .... or months or years ago .... You may have been alone .... with a friend .... a teacher .... a guide .... you will remember .... And as you re-experience ..... re-live this special .... positive learning, .... you may hear all the sounds .... that are there, .... smell the fragrances .... see all the details of the scene .... feel the positive sensations .... accompanying the experience .... You may even .... become aware .... of the essence of this experience .... which makes it so special .... It may be wonder .... delight .... joy .... mastery .... self-appreciation .... excitement .... confidence

.... or another quality ..... you will be able to know .... Whatever that essence is .... you will be able .... to let it begin filling you now .... so that the essence .... of this special learning experience .... resonates throughout your being .... reminding you .... that this experience .... is a resource for you, .... a valuable possession .... which you can call upon .... to remind you .... how you love to learn .... how you are able .... to learn naturally .... easily and successfully .... You may even realize .... that as you embark .... upon new learning experiences .... all you have to do .... is recall your positive learning experience .... and your mind will become attuned .... to the way .... you like to learn, .... attuned to the way you learn effectively and successfully .... And in the days and weeks ahead .... as we help each other .... enjoy learning together, .... you may find .... that there is some part of you, .... some inner sign which wakens .... when it is reminded .... of your special experience .... and you may find .... that the special essence .... will begin to emerge .... again and again .... to help you experience .... the kind of learning .... you are seeking .... In a minute .... we will be returning .... with our conscious awareness .... back to this moment, .... to this room, .... and when we do, .... you may find it easy, .... if you wish, .... to bring with you .... some of the essence .... of your special, positive learning .... You will feel refreshed, .... alert .... and awake, .... ready to utilize .... your inner resources .... and the resources of the group .... and this class .... to full advantage .... Now, in your own time, .... at your own pace, .... slowly bring your awareness back here, .... to this room, .... together with the other people here .... As you open your eyes, .... notice the objects and people around you .... Listen to the sounds in the room .... feel the firm floor beneath your feet .... Welcome back .... I sense .... that that was a special experience for some of you .... I trust .... that it is a positive wzay to begin our learning adventure together. ....

# APPENDIX O

APPENDIX O

DETAILS OF THE TRADITIONAL-DESIGNED LESSONS

All the lessons for the Traditionally-taught group were designed as follows:

1. Development of Rhythmic Response and Awareness : this was achieved through various repetitive echo-clapping patterns

2. Tempo-Dynamic Response and Awareness : this was achieved by a directed focus to the particular dynamic or tempo concept to be taught

3. Development of Tone-Matching and Pitch Response : this was achieved through repetition and traditional drilling methods

4. Notation was explained in a traditional manner with reference to musical symbols on music-manuscript paper

# APPENDIX P

APPENDIX P

CHARACTERISTICS OF THE TRADITIONAL METHOD

This method is linked to the Authoritarian Method of teaching (Byrd, 1978:235).

It requires a great deal of repetitive drilling and the least ingenuity on the part of the teacher. It introduces new content and concepts in a gradual and detailed way and does not proceed with new material until older concepts have been mastered, tested and drilled.

The problem with this kind of teaching is that it represses, instead of stimulating and evoking, individual response.

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