

EFFECT OF A-12 WEEK STRUCTURED EXERCISE TRAINING PROGRAMME ON THE AUDITORILY IMPAIRED PUPILS' COMPETENCE IN ELEMENTARY SCIENCE

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ABSTRACT

This study assessed the influence of a-12 week structured exercise programme on the auditorily impaired pupils' Competency in Elementary Science. A total 78 subjects made up of 46 males and 36 females drawn from primaries 5 and 6 were randomly assigned into (a) Experimental (b) Control and (c) interactive (Psychological) group and used. The Pre-test/Post-test control designed was utilized in carrying out the study. The following research questions assisted to shape the research – To what extent will exercise training programmes influence the auditorily impaired pupils' Competency in Elementary Science with a research hypothesis that stated that – structured exercise training programme will have no influence on the competency of auditorily impaired pupils' in Elementary Science. The descriptive statistics and a one-way ANOVA analysis were used. Result obtained indicated a near better result for the experimental group over the other groups. On the basis of these findings it was concluded that the programme if embarked upon at an early age, with appropriate intensity, duration and frequently too can have positive influence on children's academic competence.

Keywords: *Competency in Elementary Science, a-12 week structured exercise, auditorily impaired pupils*

INTRODUCTION

Deficiencies are observed in auditorily impaired children in the area of physical, intellectual and academic development. Disability according to Johnson (2009) that is attributable to a physical or mental impairment that is likely to continue throughout the person's life result in function limitation in three or more areas of life activities, while McEwen and Hanson (2006) noted that developmental disability with onset in childhood year have life long effects and as such there is need for physical activities.

Physical activity according to Sherrill (1994) is a universal curriculum of human activities which will yield educational results. Physical activity is important for health maintenance in all people. (Department of Health and Human Services (D.H.H.S), 2000. Cooper, Nemet and Galassetti, 2004). One of the focus areas of healthy people 2010 is to increase physical activity and fitness for people with and without disabilities Goodwin and Campton (2004) indicated that there are physical, psychological and emotional benefits of participation in physical activities for people with disabilities. However, disparities exist for people with or without disabilities in physical activity (Schenker, Coster and Panish, 2005). Other important benefits of exercise include the development of self esteem, social integration, and the learning of social and team skills. Regular exercise improves heart and lung function as well as physical stamina and overall health. In children, however a disability can have dire consequences, since the activities that a typical child would have enjoyed are crucial for the development of skills such as physical co-ordination, cognition and communication (Long,

Meredith and Bell, 1997). When these skills are not presents in some children like the deaf/dump the onus of responsibilities fall on family or educators. What is typically done in this circumstance is to initiate a programme like the physical activities. Making activities accessible is often referred to as social inclusion or mainstreaming is given high priority by the teachers.

Studies by researchers like temple, Frey and Stanish (2006), Sit, Mcmanus, Mckenzie and Lian (2007), Boslaugh and Andresen (2006), MacDonald (2002), and Finch, Owen and Price (2001), indicated that people with disabilities are less likely to engage in physical activity, they are more sedentary and are less likely to be physically fit like their peers for a variety of reasons which include lack of access, lack of information on appropriate physical activities, lack of support of parents or community, lack of training and the nature of their disability. But Eta (1997), was of the opinion that due to lack of opportunity to participate in early childhood play and games as a result of parental restriction placed on the deaf children, has brought about inactivity of the children.

Disability according to Hornby (2010) is a physical or mental condition which does not allow the use of the part of the body completely or easily. This may be due to injury, illness or physical condition. Whereas, someone ability to hear, speak or see can be damaged but not completely destroyed and the person is referred to as having impaired hearing or sight. This implies that, if cognitive development programme is designed in their curriculum, the best possible development can be achieved.

The health consequences of inactivity include decreased circulation, poor self concept, and decreased independence (Sutherland, Couch and Iacono, 2002).

Domiano (2006) opined that evidence exist that activities in as little as four weeks in some population can bring about physiological benefits from group physical fitness. Physical activity programmes was recommended based on the area of disability, need and interest of a child. Regular exercise with appropriate frequency and duration has been documented by Sit, Mcmanus, Mckenzie and Lian (2007), to have produced significant health benefits particularly those associated with mental health, stressing the need for exercise training. Exercise became necessary because sedention in its extreme manifestation will lead to physical, emotional and finally mental degeneration (alongside) poor performance.

Intellectual development of the auditorily impaired has been a subject of much controversy over the years. Lotan, Henderson and Merrick (2006), informed that the auditory impaired have normal range of intelligence when tested on performance rather verbal substest. The author viewed exercise training as an integral component of academic development and has its importance in general education.

Eta (2002), in a study observed a higher academic performance by experimental group of auditorily impaired over a control group of similar person. The author further reported that regular exercise training by students often counteracted fatigue and improve their attention span. This study is designed to access the effect of a-12 week structured exercise training programmes on the auditory impaired pupil's competency in Elementary Science.

METHODOLOGY

A total of 78 subjects comprising 36 girls and 42 boys drawn from primaries 5 and 6 of school for the deaf, Ijokodo, Ibadan. Their ages ranges from 12-14 years with a mean age of 13 years. They were assigned into (a) Experimental. (b) Control and (c) interactive groups of

26 pupils in each group thus 14 boys and 12 girls respectively by us of randomization by balloting.

RESEARCH DESIGN/PROCEDURE

The design used for the study is the pretest/post-test design on academic performance of the subject in the study Elementary Science as an academic core subject chosen. Lotan, Henderson and Merrick (2006) informed that the auditorily impaired have normal rang of intelligence when tested on performance rather verbal substests except those with neurological impairment.

Sixteen quiz questions were raised from their authorized textbook and administered at the beginning of the research to serve as pretest and 12-weeks after same quiz questions were represented for the Post-test. The two sets of scores were subjected to appropriate statistical analysis where the mean, standard deviation of the various dependent variables were computed for significant differences of the 3 groups. A one-way analysis of variance (ANOVA) was used while the student t-test was used to observe difference in treatment effect between boys and girls.

The performances of the different groups in this study were not significantly different. When the entire groups were assessed they were not significantly different. (See Table 1 below).

Table 1. T-test on group (Males/Females) Performance in Elementary Science

Source	Sum of square	df	Mean square	F-ratio	Remark
Between Group	28.179	2	14,090	1.968	NS
Within Group	537.000	75	7.160		
Total	77				

P>0.05 NS = Non-significance

After an exposure to a 12-week structure exercised training programme. This result is inconsistent with the findings of Butterfield (1988) who posited that participation in dance movement's activities had been found to facilitate creative thinking in deaf children. When the study was focused on gender, neither the males (F=2.352P>0.05 nor the females" (F+1.877, P>0.05) see Table 2 below:

Table 2. One-way ANOVA on Performance in Elementary Science Males/Females

Gender	Source	Sum of square	Df	Mean square	F-ratio	Remark
Male	Between Group	28.179	2	14,090	1.968	NS
	Within Group	537.000	75	7.160		
	Total	565.179	77			
P>0.05						
Female	Between Group	20.389	2	10.194	1.877	NS
	Within Group	179.250	33	5.432		
	Total	199.639	35			P>0.05

Performed any better as indicated by the result. This result were congruent with those of Sliver (1997) who opined that disabilities that interfere with sports (inhibits one from play) would have detrimental effect on academic performance, the author also observed that auditorily impaired children were denied opportunities to participate in regular exercises which Sit, Mac Manus, Mckenzie and Lian (2007) documented was capable of producing those indices associated with mental health problems.

Individual class performances were assessed and the results indicated a non-significance. For example, when the scores of the subject for primary 5 was analyzed with Analysis of Variance (ANOVA) the result did not show any significant difference in performance of the 3 groups ($F(df) 2, 36 = 0.00644, P > 0.05$) see Table 3 below.

Table 3

<i>Source</i>	<i>Sum of square</i>	<i>df</i>	<i>Mean square</i>	<i>F-ratio</i>	<i>Remark</i>
Between Group	.051	2	0.26	0.00644	NS
Within Group	145.385	36	4.038		
Total	145.436	38			

$P > 0.05$

Similarly, the result for primary six (6) following the analysis of variance yielded a non-significant difference of ($F(df) 2, 36 = .061, P > 0.05$) see Table 4 below:

Table 4

<i>Source</i>	<i>Sum of square</i>	<i>df</i>	<i>Mean square</i>	<i>F-ratio</i>	<i>Remark</i>
Between Group	59.538	2	29.769	3.061	NS
Within Group	350.154	36	9.726		
Total	409.692	38			

$P > 0.05$

Although there appear to be a better class performance by primary 6, the final result upheld the hypothesis that stated, that structured exercise training programme will have no significant effect on the performance. This study results conformed to that of Keller and Bundy (1990) and Vogel (1991) who reported poor academic performance as one of the attribute of auditorily impairment.

CONCLUSION

The subjects in this study were never offered opportunities to get involved in physical exercise prior to this research, if at all they did; the activities were not geared toward achieving a goal. For instance, there was no physical education teacher to handle, even the enthusiastic pupils. There was no space, as the only available one meant to be shared by the 2 schools, was often dominated by the secondary section that saw themselves as the seniors.

While assessing the value of regular physical exercise McEwen and Hanson (2006) informed that it might have physiological value, which could lead to academic and physical performances.

RECOMMENDATIONS

1. Government should build more special schools for the teaming number of the physically challenged children.
2. More teachers should be made to undergo training in Adapted Physical Education (APE) to make them specialists who can handle the special children.
3. Government should create a specific time on the time table for both outdoor and indoor handling of physical education.
4. Parents should be encouraged to send their wards at early age to school as this may enhance the improvement of the wards performance, severity of the condition notwithstanding.

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