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**STUDENTS WITH SIGNIFICANT MOTOR SKILL IMPAIRMENT
- A LONGITUDINAL STUDY -**

**A thesis presented in partial fulfilment of the requirements for
the degree of Master of Education, Department of Education
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Palmerston North, New Zealand**

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ABSTRACT

This is a four year follow-up study of a group of students who were originally tested in the 1982 South Auckland Perceptual Motor Dysfunction Survey in Hamilton. All those students identified at the primary school standard three level as having significantly impaired motor skills (clumsy), and a selected group of students who were just above the level of significant impairment, were traced for retesting in order to examine the motor skill development of these students.

In all 55 students were retested. Thirty-eight of the 62 students (61%) identified with significant impaired motor skills in 1982 were retraced in the Hamilton area in 1986. Seventeen of 23 students selected (74%) from the group of students whose motor skills were just above the level of impairment were also retraced. This retesting percentage result compares favourably with other related longitudinal studies.

The Bruininks-Oseretsky Test of Motor Proficiency was used to test students at both the standard three and form three levels. This is a comprehensive and reliable test of motor skills. Such an extensive motor skills testing programme has not to the writer's knowledge been undertaken in the context of a longitudinal study before.

Seventy-three percent (73%) of those students (two out of every three students) with significantly impaired motor skills in 1982 continued to have motor skill problems at the form three level in 1986. Gross motor skills (Balance, Bilateral Co-ordination, Strength, and Running Speed and Agility) were more impaired than fine motor skills with Balance subtest skills showing the greatest degree of impairment.

Thirty-five percent of those students (35%) whose motor skills just were just above the level of significant impairment at the standard three level showed a deterioration in their motor skills over the four years to be classified as having significantly impaired motor skills in 1986.

The above results and a calculation of the incidence of students with significantly impaired motor skills at both the standard three and form three levels do not support a maturational effect on motor skill development.

This study briefly explored whether student participation in sport and recreation pursuits influenced the development of motor skills. No direct correlation was found. Schools were however identified as significant providers of sport and recreation opportunities for the students tested.

The results of this times series research design approach were able to be compared to the cross-sectional design of the 1982 South Auckland Perceptual Motor Dysfunction Survey as means of determining the incidence level of students with significant motor skill problems and identifying the motor skill characteristics of such students. Differences are evident from these approaches and are discussed briefly.

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Without the insight of the South Auckland Physical Education Council in 1982 neither the South Auckland Perceptual Motor Dysfunction Survey nor this longitudinal study would have been possible. Through their initiative and the professional guidance and support of Mr J. R. Hughes (Inspector Physical Education, Education Department) important benchmarks in Physical Education have been achieved in these research studies.

I wish to thank Patricia Eyre (nee Maurice) and Joy Russell for their valuable assistance in testing the students. Their help meant that the testing was completed efficiently and smoothly with a minimum of disruption to the schools involved.

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The write-up of this research work has been delayed several years because of a car accident involving the writer at the completion of the testing programme, and the recovery necessary as a result of this. With the support of friends, colleagues and family throughout, and the professional support of Mr J. R. Hughes and the Education Department at Massey University, this study has been able to be completed.

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CHAPTER ONE :

INTRODUCTION

Little research has been carried out in the area of physical education in New Zealand either to identify areas of significant achievement, to identify areas where there is significant impairment or concern among school students, or to support the findings of overseas research studies in this field. There are few bench-marks available in New Zealand to indicate that past and current physical education syllabuses, and the teaching practices of teachers have contributed adequately to the development of basic motor skills of students in our schools. If physical education teachers are to convince others in the education arena that what they do is effective and vital to the overall development of growing students, then they must undertake or have access to research that demonstrates the need for physical education in the school syllabus, and which shows how effective they are in providing what is needed.

The South Auckland Perceptual Motor Dysfunction Survey which was initiated by the South Auckland Physical Education Council in 1982, is one such significant piece of New Zealand physical education research (Donaldson and Maurice 1983). The aim of this study was to determine the incidence of students in Hamilton schools with significantly impaired motor skills for their age, and hence to determine the need for some form of adapted physical education programmes in Hamilton schools. This research study showed an incidence level of 18.6% of primary school students and 21.3% of students at the secondary level with significantly impaired motor skills. These results provided evidence, for the first time, that motor skill problems of some magnitude existed in New Zealand schools. It is likely a similar incidence of motor skill impairment, as was found in the Hamilton area, exists in schools throughout New Zealand (Donaldson and Maurice, 1983).

In the New Zealand education system little or nothing is currently being offered to help students with significantly impaired motor skills and there is increasing concern in some schools about what happens to these students. Some believe that as these students mature their motor skills will naturally improve

without specific help. Others believe that only through well planned intervention programmes can these students make significant motor skill improvement. To date there have been few longitudinal studies undertaken worldwide to give support to either approach.

This current research work is a four year follow-up study of those primary school students identified in the 1982 South Auckland Perceptual Motor Dysfunction Survey as having significantly impaired motor skills. The study also involves a follow-up of a number of students who were considered to be just above the cut-off point of those with significantly impaired motor skills to see whether their motor skills had improved or deteriorated in the subsequent four years. The work undertaken is believed to be the first longitudinal study of its kind of such magnitude to be conducted in New Zealand. Further, no other such comprehensive longitudinal motor skills testing programme appears to have been reported in the international literature that investigates the incidence of motor skill impairment in the same school population, using the same norm referenced test, and which can identify in some detail the nature and the degree of the motor impairment that is evident.

This type of research work can offer valuable information to those in the education field involved in curriculum development, and to those involved in implementing policy and syllabus as the basis for the teaching of physical education in schools. Furthermore it identifies for teachers, for College of Education Physical Education staff and for trainee teachers the specific motor skill areas which require increased teaching and practice if adequate improvement and mastery of motor skills in the school setting is to be achieved.