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**INTELLIGENCE AND THE IMPROVEMENT IN A GROSS
MOTOR SKILL AFTER PHYSICAL PRACTICES*****Research paper in Education*****Dr.Naik Tarsing B.**

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Abstract:

Forty-four male students teachers mentally practiced a gross motor skill with which they had previously been unfamiliar. At the end of the six-day practice period, the subjects' ability to physically perform the movement was assessed and was compared with the scores the subjects had obtained on a test of general intelligence. An insignificant negative correlation was obtained.

In breakdown of the relation between these two variables, it appeared that the highly skilful subjects, as assessed by their physical performance at the test, tended to have a significant negative correlation between their skill scores and the intelligence marks. This feature was noted in another study in the literature.

Introduction: .

If a physical skill is mentally practiced , a significant improvement in subsequent physical performance frequently occurs. Despite the fact that controlled experimentation in the field is a recent feature,' mental practice ' has long been used by the top-level performers in most skills.Since the work of Perry (1939), some fifteen studies have been noted in the pertinent literature and these have been focused on experimentally demonstrating and statistically examining the improvement that ' mental practice ' can produce. In the past two or three years, interest has begun to focus on the basic individual traits which enable an individual to learn by

this method and the present study investigates the possible relationship that might exist between general intelligence and the learning of a gross motor skill by mental practice alone.

The Gross Motor Skill Selected as the Criterion Movement:

The motor skill of the single leg upstart was used in this study for three main reasons. It was desired to test a skill of which the subjects had no previous physical experience. This would remove the problem of varied prior experience and might tend to limit the effects to that of innate physical ability and ability to learn by 'mental practice.' Secondly, the skill required specific equipment, access to which could be controlled, and during the experimental period, denied the subjects. This would limit the practice possible during the experimental period to the mental practice which was the variable to be examined. Finally, as mental practice had been shown to be effective mainly in simple physical skills, such as throwing, it was hoped to test its efficiency in a gross skill involving movement of the whole body.

Related Literature :

This result agrees with the many studies which, over the past thirty years, have shown that intelligence has low to trivial correlations with various estimates of physical performance, and with the findings of such studies in motor learning as

Ruch (1925): It also agrees with the earlier studies, Start (1960), Whitely (1962), which also investigated the relation between intelligence and the efficiency of learning by mental practice.

Ausubel (1958) noted that "although physical and intellectual development, for example, initially influence each other, there is no necessary relation between their respective rates of growth in a particular individual" .

Thompson (1954) noted that physical growth paralleled intellectual growth in young children and Miles (1954) in discussing intellectually gifted children, found they were superior in thirty-four anthropometric measures and in general physical development, but commented " the weakness of the gifted appeared to be most often in subjects requiring manual co-ordination .

Ausubel (1958), in his book on Child Development, pointed out that " studies of the relationship between physical status and motor ability on the one hand, and intelligence and intellectual ability on the other hand, show negligible or zero correlation through adolescence and adult life and suggested that the relatively high positive correlations which are found during infancy occur

because " many of the tests of intellectual ability included in infant intelligence scales really measure sensory-motor or neuro-muscular skill.

Method:

Forty-four student teachers' college males between the age of 22 and 25 years were given five minutes' mental rehearsal on each of six days. The scores obtained by the students on the 40 Test, were obtained from the college records and were taken to be an indication of the general intelligence of the subjects.

Result and Discussion :

The relation that exists between physique and the intellect or motor skill and academic attainment has provided considerable discussion in the literature. It is interesting to conjecture whether this weakness was relative to their other performances or to the population standards. The normal student was consistently superior to the mentally retarded on a variety of motor skill tasks. The advanced as the real reason for low motor performance scores rather than any real lack in motor co-ordination to perform the movements. There is no definite correlation between intelligence and athletic ability, and intelligence and motor ability in college men would not be refuted on the evidence of the present study. Whilst it was evident that, within the group as a whole, intelligence was unrelated to performance, it was noted that when the skill raw-scores were looked at in detail before T Scaling, there was a bimodal distribution and that the high scoring subjects appeared to differ from the less skilful in their relation to intelligence. When the sample was sub-divided into the skilful and the unskillful subjects, and these sub-samples separately correlated with the intelligence scores, it was noted that the negative correlation among the highly skilful was significant at the 1 per cent, level, whereas that among the unskillful was insignificant. The difference between the mean intelligences of the skilful and the unskillful groups was found to be statistically insignificant as was an examination. Why intelligence should be inversely related to performance in the highly skilful, posed many questions.

The I.Q. scores were correlated with ' athletic ability ' His results were very interesting and are summarised below in Table 1.

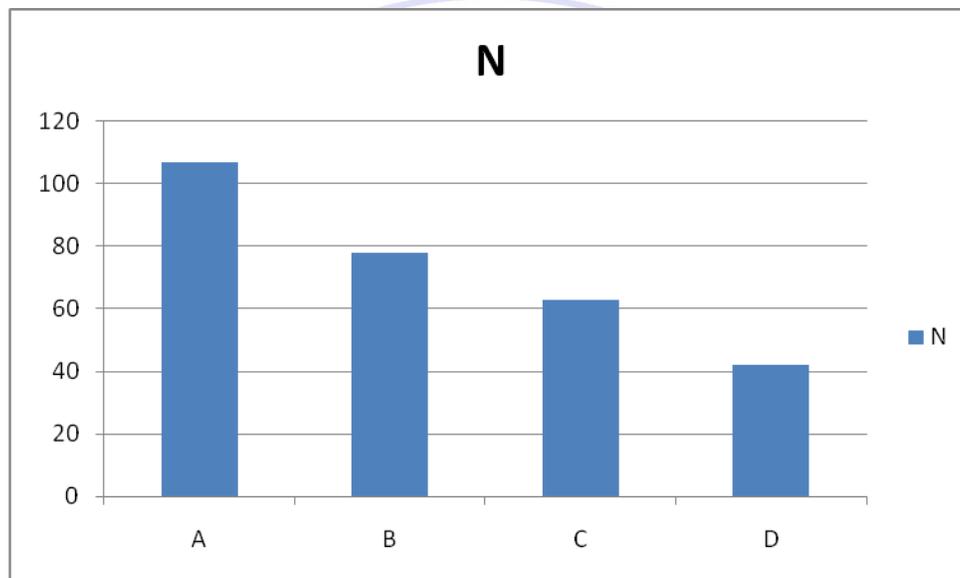
TABLE 1

CORRELATION OF GENERAL INTELLIGENCE AND ATHLETIC ABILITY

Athlete Grade	N	Correlations with I.Q.
A	107	-.20
B	78	-.10
C	63	+.22
D	42	+.10
Total	295	+.08

| Significant at 5 per cent, level.

Graph: 1



The curvilinear nature of the relation evidently masked a negative correlation significant at the 5 per cent, level for the capable athletes. The correlation trends found in the present study which had a considerably smaller experimental group. The basic factor which determined the changing relation between skill and intelligence, did not appear to be intelligence itself, but rather some other trait not yet ascertained.

In fact, any learning situation involves innate ability and motivation and thus, it is problematical whether the significant correlation noted in both studies between I.Q. and Skill is derived specifically from learning mechanisms, or motivation or natural ability. Since ability to learn and natural ability, are perhaps synonymous. When the motor learning is relatively inefficient the rationalization of techniques, which a highly intelligent person might evoke, might assist his learning and possibly his physical performance. However, where the motor learning

processes are highly efficient the more remote analytic approach of the highly intelligent may, in fact, delay learning due to the possibilities of alternative methods which might appear contradictory. This postulation of a motor learning mechanism does not imply that the learning theory at its base is any different from that involved in the acquisition of the more intellectual skills. Indeed, it is probably that it will have a similar multifactor basis but that the factors which contribute to it might be considerably different from those which have been shown to be efficient in learning intellectual tasks.

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