

CONFERENCE PROCEEDING

Genetic Factors Influence Left-Handed Among Gifted and Talented Muslim Students

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ABSTRACT

Hand is the main organ used to manipulate the environment and to perform daily activities. Every human is endowed with a pair of right and left hands. A person's tendency to use the left or right hand can usually be clearly seen during childhood, which is from the age of two. Most children perform various activities and hold objects automatically with the right hand. However, there are a few individuals who are born with a tendency to use left-handedness. They feel that the left hand is stronger than the right hand and they are more comfortable to do many things. This group of individuals is called a recessive gene. The choice of hand use is based on a person's genetic variation. Previous studies have proven several factors that influence the preference of hand use such as environment, gender, and genes. The main purpose of this study is to analyse the genetic factors that influence the use of left-handedness on gifted and talented Muslim students at PERMATA Insan College. Based on the survey, the results show that majority of left-handed students have a family background of left-handedness and inherited from their parents. The advantage of left-handed individuals is that they have a high ability in the field of mathematics. Achievement of students understanding in Mathematics can produce Muslim scholars who are future-ready and excel in the field of Mathematical Sciences and increase their critical thinking ability.

Keywords: *Left-handed; Mathematics field; Genetic; INAQ Gifted Education*

INTRODUCTION

Individuals' hand preferences may be influenced by random variation. Handedness, like many complex traits, does not have a clear inheritance pattern. According to Halpern and Coren (1991), the left-handed could be a sign of birth stress-related neuropathy, developmental delays and irregularities and lack of immune system caused by the intrauterine hormonal environment. Their interactions with the environment are more likely to be risky. However, Carolien *et al.* (2019) express that the left-handed was affected by the year and location of birth, probable to have cultural effects. Furthermore, they said maternal smoking around the time of birth was not associated with left-hand preference. Meanwhile, Llaurens *et al.* (2008) concluded both of their studies, which stated left-handedness could be influenced by genetic, hormonal, developmental and cultural factors.

Researchers have proposed a relation between handedness and ability in Mathematics. The relation is proposed by Geschwind, Galaburda, Annett, and Kilshaw in their studies. According to them, a brain with no extreme bias towards locating language in the left hemisphere would have an advantage in mathematical ability.

It is assumed that hand preference is a continuous variation. The frequency of left-handedness never reaches 50 per cent in any human population investigated for now. Thus, left-handed is recessive. The present study's purpose is to analyze the factor of left-handed preference. Firstly, the data is collected from gifted and talented students in PERMATA Insan College using a survey method to study the background of left-handers. Subsequently, the figure was shown as evidence to prove the results. Aside from genetics, other factors that influence left-handedness were stated.

METHODOLOGY

This research explains the left-handed genetically and their behaviors among gifted students. A survey method was used to collect data from the gifted and talented Muslim students at PERMATA Insan College. The survey defines the population of left-handed in PERMATA Insan College, including determining the family background of left-handed and proof in some researchers' studies regarding the left hemisphere would have an advantage in mathematical ability by identifying their statistics of exam achievements.

RESULTS AND DISCUSSION

This survey was done to gifted and talented Muslim students in PERMATA Insan College with 205 respondents.

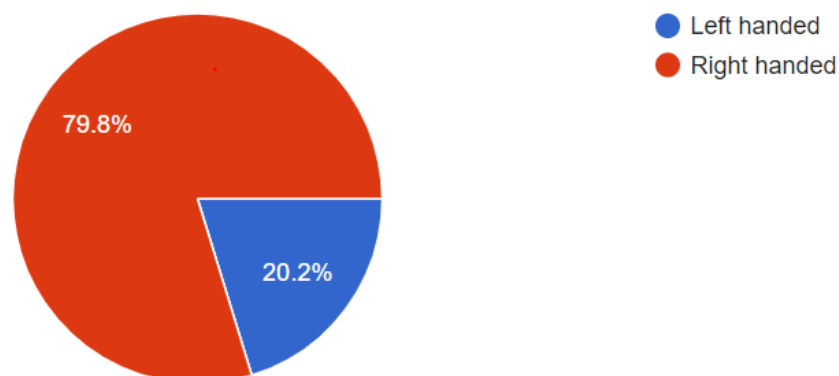


Figure 1. Result of hand preferences of gifted and talented Muslim students in PERMATA Insan College

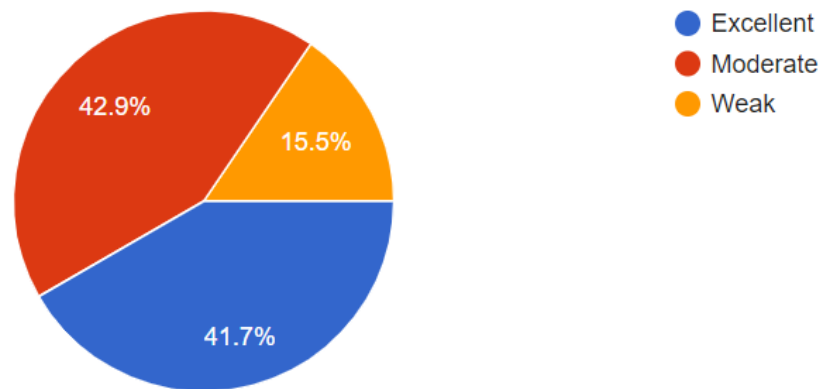


Figure 2. Mathematics achievements of gifted and talented Muslim students in PERMATA Insan College

Data from Figure 1 shows the population of left-handed of gifted and talented Muslim students in PERMATA Insan College, known as 79.8 percent of right-handed students and 20.2 percent of left-handed students. Figure 2 shows Mathematics achievements of gifted and talented Muslim students in PERMATA Insan College. Most of them get excellent in Mathematics with a range of 80 marks and above.

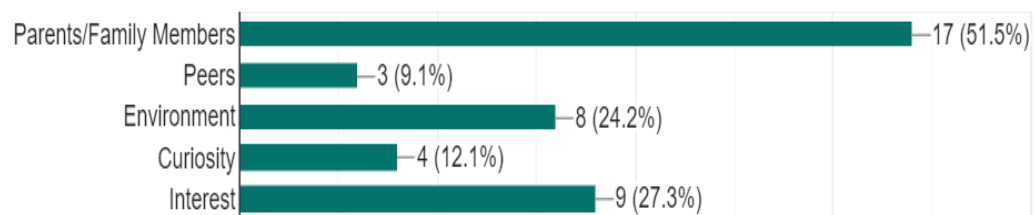


Figure 3. Factors influence left-handedness of gifted and talented Muslim students in PERMATA Insan College.

Based on the Figure 3, the percentage of parents or family members factor is the highest with 51.5 percent and the least factor of left-handed is peers' factor. Hence, the main factor of left-handed person is inherited from their parents.

CONCLUSION

Recent research on left-handed factors has shown their results. There are arguments about the other factors of left-handed. Based on the results and analysis, it can be concluded that most left-handed are inherited from their parents. Thus, it is proven that left-handed is dominantly from genetic factors. Besides, it also proves that left-handed people dominate the field of mathematics.

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