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A Study of the Genetical and Environmental Influence on the High School Curricular Scholarship Achievement of Twins.

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This study is to analyze, based on the academic record of the high school students (including normal sisters/brothers group, monozygotic twins group and dizygotic twins group) largely living in Seoul, the influence which heredity and environment have on the academic performance by subject, converted average/total scores, standing in class and standing in school year. Therefore a comparative analysis is conducted on the relation between monozygotic twins and dizygotic twins, and the relation between monozygotic twins and normal sisters/brothers as well as on the relation between dizygotic twins and normal sisters/brothers.

The environment has an influence on the difference between monozygotic twins with identical genotype, while both heredity and environment have an influence on the difference both between monozygotic twins and between normal sisters/brothers. Therefore, by comparing with each other, it is possible to determine the degree of influence which both heredity and environment have an influence on them.

It is found that both environmental and hereditary factors interact with each other for the overall academic performance by subject including the corresponding converted total/average score, standing in class and standing in school year, that the hereditary factor does not have any meaningful influence on the academic performance of national ethics, Korean reading, Korean history, Social science and mathematics, and that hereditary factor exerts influence on the academic performance of science, physical education, English and military exercises.

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A Comparative Study of the Historical Transition of Genetic Concepts and Development of Student's Genetic Concepts

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The purpose of this study is to find out the historical transition process of genetic concepts and the developmental process of individual genetic concepts from the different age group of students. And then those two developmental processes were compared to analyze the existence of similarity. For this purpose, the historical transition process of genetic concepts was analyzed with the various literature. After I made a open-ended questionnaires concerning reproduction, generation, and heredity, I selected a couple of classes from primary, middle, and high schools (total 361 students), and then made them answer the questionnaires. The results of this research are as follows; the genetic concepts of Greeks' are accordant with the primary student's concepts. Because the interpretation of scientific concepts was dominating based on the Bible, the genetic concepts of Middle Ages are similar to those of Christian students regardless of student age. The preformation theory appeared in the sixteenth and seventeenth century. This kind of idea is similar to those of the sixth grade of the elementary and some of the third grade of the middle school students. The gene was characterized as a physical factor in the nineteenth century. This concept of gene is similar to those concepts of the sixth grade of elementary school and the third grade of high school and the most of the third grade of middle school students. The genetic concepts based on de Vries's mutation theory, Morgan's gene theory and Watson-Crick's double helix model of DNA in the twentieth century are similar to those concepts of third grade of high schools. It was found that there is a general similarities between the scholar's genetic concepts appeared in the scientific history, and the genetic concepts of student age group, even though the student's genetic concepts were formed by learning.