Procedure

Both parents and children gave consent to participate in the study and were compensated for any travel costs. Children were given a present to take part and families completed a questionnaire or DNA cheek swab at home prior to the experiment to confirm zygosity (making sure they were twins).

Children completed the **Ravens Standard Progressive Matrices (SPM)** in separate rooms. They were given verbal instructions and completed the test at their own pace. The test consists of 60 problems (5 sets of 12) that increasingly become more difficult.

Adults completed the **Ravens Advanced Progressive Matrices** test. They were given written instructions and also worked at their own pace. Although the number and arrangement of questions were different the test produced comparable results.

The researchers used 2 theoretical models to determine whether **spousal resemblance** could be better explained by **phenotype assortment** or **social homogamy**.

Phenotype Assortment *is the idea that associative mating occurs as individuals choose one another due to having similar intelligence levels. For example, someone may choose to continue a relationship with someone as they believe them to have similar intelligence level or may end a relationship due to having different levels.*

Social Homogamy *is the idea that as people with similar intelligence are put together in the same environment they are more likely to end up having children together. For example, people who meet each other at work and form relationships may have similar IQs and educational backgrounds so are not necessarily basing their decision off intelligence alone.*

Results

IQ measures derived from the tests were estimated using the **Rasch** model.

No significant sex differences were observed across the whole participant group or within individual groups.

Cultural transmission didn't have a significant effect on genetic variance of IQ. The absence of such common environmental effects shared by families has been shown in other similar studies, further reducing the role of the environment in intelligence.

Spousal correlation for Rasch IQ estimated was moderately high **(0.33)** which confirms existing evidence that people are likely to mate with partners of similar intellectual ability. The statistical modelling showed that the reasons for this were based on phenotype rather than social circle (social homogamy).

Environmental factors were found to be more important in children with a genetic disposition for low IQ groups than those with a disposition towards high IQ groups. This suggests a GE interaction wherein genetic and environmental factors affect one another to determine intelligence levels. This means that people with a certain genotype (i.e. lower IQ) are more sensitive to environmental influences than others.