Using Genomewide Polygenic Scores in Education: A risk-benefit analysis

A) RATIONALE FOR THE PROJECT
Research shows clearly that individual differences in educationally relevant traits such as cognitive ability, academic achievement and motivation are partly explained by individual differences at the level of DNA. More recently, international teams have begun to identify genetic variants of small effect that correlate with educationally relevant traits, and to combine them in genomewide polygenic scores (GPS) that explain increasing proportions of variance. It seems likely that at some point in the future commercial companies will be interested in using GPSs for screening purposes, and there is potential for them to be used widely within education. It is therefore necessary that we consider the risks and benefits of such an approach, before the technology becomes available, in order that we can (a) establish principles to avoid harm; and (b) put appropriate regulation in place. This project will be of interest to people with interest in, or knowledge of, behavioural genetics; bioethics; medical ethics; law; philosophy; politics or risk analysis.

B) REFERENCES THAT SHOULD BE READ (if you do not have access to these, please email me)

C) RESEARCH AIMS / QUESTIONS
The aim of this project is to conduct a thorough analysis of the potential risks and benefits of using DNA data, alongside commonly used educational risk variables such as eligibility for Free School Meals, to inform the allocation of resources within education. The question should be considered from practical, social, ethical, legal, political and educational perspectives. Conclusions should be reached regarding whether DNA has anything useful to offer education – now or in the future; whether GPSs could be used safely and ethically to benefit teaching and learning; and what social, political and legal protection would be required to ensure the avoidance of harm.

D) METHODS
The research methods used for this project will depend on the specific research question asked, and the knowledge, disciplinary background and experience of the researcher conducting the study. The work will build on Kathryn Asbury’s experience of twin study research, and communicating
behavioural genetics to educational stakeholders, but is a new direction with new methods required. The study is likely to be interdisciplinary in nature. Exploring how other studies of genetic screening have been conducted in the medical ethics and bioethics literatures will help you to develop a coherent study design. Dr Asbury is happy to comment on draft proposals before they are submitted.