

INFORMATION SHEET FOR PARTICIPANTS

Ethical Clearance Reference Number: HR-24/25-46677

YOU WILL BE GIVEN A COPY OF THIS INFORMATION SHEET

Title of project

Effects of Technology on Cognitive Ability in Youth

Invitation Paragraph

I would like to invite you and your child to participate in this research project. Before you decide whether you want to take part, it is important for you to understand why the research is being done and what your participation will involve. Please take time to read the following information carefully and discuss it with others if you wish. Ask me if there is anything that is not clear or if you would like more information.

What is the purpose of the project?

The purpose of the project is to understand the effect of technology on the cognitive ability of young people. The extensive integration of digital devices into daily activities might mean that the way young people think is shaped in new ways. We seek to assess both the possible drawbacks, including influences on attention spans, memory retention, language abilities, and social engagements, alongside the benefits derived from technology. So far, the evidence on these matters is mixed, and comes from small cohorts. Without carrying our research with huge and diverse participant pools, we are not yet in a position to draw concrete insights about whether technology is good or bad for children's brains. Through your participation, you will assist in producing evidence about how digital technologies really affect young people, which is important to children, parents, and people making guidelines and policies in schools and governments.

Why have I been invited to take part?

You are being invited to participate in this project because you requested an invitation, or because you or your parent/guardian has previously taken part in the REACT study, or the Great British Intelligence study, and agreed to be contacted about future studies.

What will happen if I take part?

If your child is aged 15, we will ask you to consent to their participation on their behalf, then they will be asked to assent (agree) to participation. **If they have already turned 16**, they are able to consent to participating by themselves.

If your child takes part in the project, they will be asked to complete a survey about their personality and use of technology (around 25 minutes), then complete a set of brain games probing their attention, memory and problem solving ability (around 20 minutes).

The study is entirely online. You can use any internet-connected device of your choice, but we recommend you use a laptop or a desktop computer in a quiet environment free of distractions.

This is a follow-up study, and you and your child will be invited to participate over time. Invitations to take part will be sent at the start, 6 months later, 12 months later, then once a year after this. Taking part will be similar each time. Your child doesn't have to take part every time. They may also be invited to take part in other parts of the study during this time.

The survey includes questions about your child's health, experiences, habits, and behaviours. They will also be asked about their interactions with others, behaviour at school, and engagement with technology, including social and communication apps and websites, AI (artificial intelligence), and unpleasant experiences like cyberbullying.

Here are some examples of questions your child will be asked:

'Over the past week, I have no energy for things'

Options: Never, Sometimes, Often, Always

'I am helpful if someone is hurt, upset or feeling ill'

Options: not true, somewhat true, certainly true

'How often do you do any type of physical activity on average?'

Options: Daily, A few times a week, Once a week, Once every two weeks, Once a month, Less than once a month, Never, I do not know

'At what age did you get your first smartphone?'

Option: 0-18 age

'Have you ever experienced someone being mean or hurtful to you online?'

Options: Yes, No

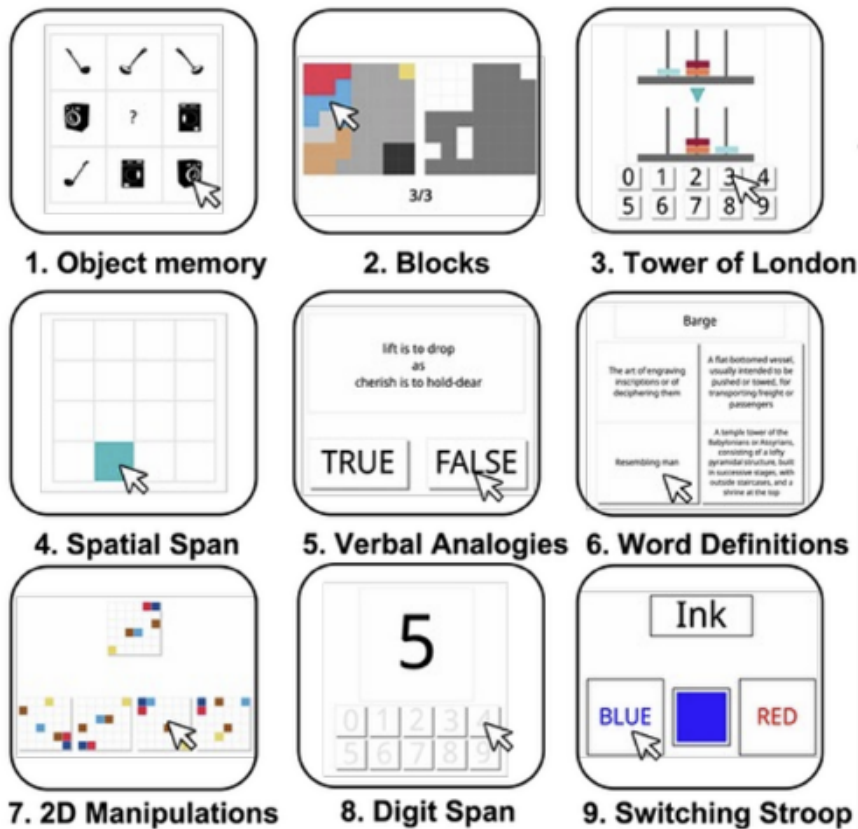
'How often do you use artificial intelligence tools, like chatbots or apps, to help with schoolwork or other tasks?'

Options: Never, Rarely, Sometimes, Often, Always

'Has an artificial intelligence chatbot or app ever told you to get mental health support? What did you do?'

The content of your child's survey answers and brain games results will not be shared with parents, teachers or health professionals. The survey is for research only, and cannot make diagnoses of medical or learning conditions. There will be no consequences associated with any responses they make as part of their participation. Signposting information is provided if you are concerned about any of the issues raised in the study.

Here are examples of the kind of brain games in the study. Before each one, there are animated instructions and a practice.



Do we have to take part?

Participation is completely voluntary. Your child should only take part if they want to. Choosing not to take part will not disadvantage you or them in any way. Once you and they have read the information sheet, please contact us if you have any questions that will help you decide about taking part. If you decide to take part, we will ask you to consent to the terms on the welcome page. You may take a screenshot of this for your record.

What are the possible risks of taking part?

This study involves an online survey presented and a set of brain games. There are no risks associated with taking part besides those associated with spending time on the computer.

The study includes sensitive topics like wellbeing and mental health. If you or your child are worried about any of the issues raised, or distressed by any of the questions, we provide information on where to get support:

"If you are worried about any of the topics in the questionnaire, you can get help. Speak to your parent, an adult you trust, or a professional like a teacher or GP. You can also contact these organisations:

- **Childline:** For advice and support on bullying, abuse, safety, feelings, relationships, school, and other topics. Phone 0800 1111 (free, 24/7) or visit www.childline.org.uk for advice or one-to-one online chat support.

- **internetmatters:** For advice on online safety, including cyberbullying, inappropriate content, and other topics, visit www.internetmatters.org
- **Samaritans:** Phone 116 123 (free, 24/7) for confidential emotional support.
- **Talk to Frank:** Phone 0300 123 6600 or text 82111 for advice on drugs, alcohol, or vaping.”

If you or your child want to pause or leave the study, you can do this at any time during the study - see the section, ‘What if I change my mind about taking part?’

What are the possible benefits of taking part?

We cannot promise that participation would directly benefit you or your child. Taking part could help children, parents, schools, and governments understand the effects of mobile phones and other technologies on children.

At the end of the brain games, your child will have the option to see some fun, personalised feedback. This will show which type of test they did best in, and what this might mean about their strengths. It will also show some statements based on their answers to the personality and technology use questions. The feedback report is for entertainment only, and highlights different strengths that come from the ways people differ. They might enjoy seeing how the feedback changes over the study.

They only get the feedback if they request it. The feedback does not define how they will do in school or other areas of life. The study can’t diagnose learning differences or medical conditions. If you are concerned about this, speak to a professional such as a schoolteacher or GP.

Data handling and confidentiality

Kings College London is the Sponsor of this research and is responsible for looking after the information gathered.

We will need to use information from your child for this research project. The research team and authorised administrative staff will use this information to do the research or to check your records to make sure that the research is being done properly.

If your child took part in the REACT study, we will use the information they gave in that study in this study by linking them up. Information will be stored and linked up in the secure computers in Imperial College London.

Data will be processed in compliance with UK data protection laws, including the UK GDPR and the Data Protection Act 2018.

Categories of Personal Data	The online survey platform will collect personal information such as demographic information (age, ethnicity, education), and information about disability and health status. Each participant’s data will be stored securely. Identifying information such as email address and name will be stored separately to personal and other data, which will be labelled by an identifier
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	code. Access to these codes will be limited to the principal investigator and approved team members. For previous participants in REACT, identifier codes will be used to link to responses you provided as part of your participation in the REACT study, which contain personal data such as age, ethnicity, and health status.
Data Storage	In brief, data will be collected by the survey platform, Cognitron (H2CD Ltd). Following collection, data will be held on secure servers at Imperial College London for processing and linkage to data collected during the REACT study. Imperial College London has regular internal and external audits of their information security controls and working practices and are accredited to the International Standard for Information Security, ISO 27001. During collection, data will be stored on a remote web server (www.cognitron.co.uk), hosted in the EU using Amazon Web Services (specifically, the London-based eu-west-2 datacentre). Names and email addresses, passwords for the study website, and anonymous codes, will be stored separately from personal data, survey data, and test scores, in a database 'key'. The database is encrypted and password protected. The servers are behind a firewall in the secure Amazon cloud computing facility described above. These measures represent a high-level of data security that are the standard for any website that requires users to login and enter potentially sensitive information. Approved study investigators will be the only users who can access data, and they will require two-factor authentication to download datasets. No direct access to the database (MySQL) will be granted to any computer outside the King's College Network or the private network within the Amazon Web Services environment controlled by King's College Investigators. All data will be transferred under encryption using industry-standard HTTPS protocols.
Data Sharing	Fully anonymised data will be shared with members of the lab for the purpose of analysis. So that the maximum information can be obtained from your participation in this study, we may also make deidentified data available to other researchers in the UK and overseas. Researchers who wish to access the data from this study and/or to contact participants about future research will have to apply for approval from study investigators. Where this information contains your personal data, it will be transferred in accordance with data protection legislation. For the purposes referred to in this participant information sheet and relying on the bases for processing as set out above, your personal data may be shared with certain third parties: Other Imperial College London employees, agents, contractors, and service providers (for example, suppliers of printing and mailing services, or suppliers who help us carry out any of the activities described above). Third-party service providers are required to enter into data processing agreements with Imperial College London, who will only permit them to process your personal data for specified purposes and in accordance with the policies of the REACT study and they are required to delete the data when no longer needed to provide the service.
Data Retention	Once we have finished the study, we will keep some of the data so we can check the results. Research data will be retained for a period of 20 years.
Anonymity in Research Outputs	Participants will be fully anonymous in research outputs such as reports.
Archiving/Future Use	Upon study completion, there will be an open-access anonymised data release (for example alongside the research paper, or in a data repository).

Further information on how King's processes research data can be found at:

<https://www.kcl.ac.uk/research/support/research-ethics/kings-college-london-statement-on-use-of-personal-data-in-research>

Please contact the research team if you require further information on data processing or a printed version of the webpage link above.

What if I change my mind about taking part?

You and your child are free to stop or leave the study at any point until 1st September 2029, without giving a reason. Withdrawing from the project will not affect you or your child in any way.

If you or your child choose to withdraw from the project we will not keep the information you or they provided. After 1st September 2029, the study will be completed, so withdrawing your data will not be possible as it will be anonymised and archived.

How is the project being funded?

This project is being funded by a grant awarded by the Huo Family Foundation to investigate the effects of technology use on young people's cognitive ability.

What will happen to the results of the project?

The results of the project will be summarised in open-source research papers and press releases. The anonymised data will be published in an open-source repository once the study is completed.

Who should I contact for further information?

If you have any questions or require more information about this project, please contact me using the following contact details: maria.balaet@kcl.ac.uk

What if I have further questions, or if something goes wrong?

If this project has harmed you in any way, or if you wish to make a complaint about the conduct of the project you can contact King's College London using the details below for further advice and information:

The Chair, Health Faculties Research Ethics Subcommittee, rec@kcl.ac.uk

Thank you for reading this information sheet and for considering taking part in this research.