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Does regularly using computer languages change the way your brain works, in the same way that being bilingual does?

An invitation to take part in a student research project.

You are invited to take part in this project, which aims to find out how learning computer programming affects the way your brain works. There is evidence that people who speak two or more languages perform better at some tasks that involve quickly deciding what to pay attention to and what to ignore. The aim of this study is to find out whether people who regularly use computer programming languages are also better at these tasks.

Why are you doing this study?

This project will form part of my work towards an MSc in Child Development at the Institute of Education in London. It is hoped that the project could provide useful information about how the brain changes as a result of computer programming experience.

Who can take part?

I would like to recruit three groups of programmers:

- 8 – 11 year olds who have been programming regularly for at least 6 months
- 14 – 16 year olds who have been programming regularly for 3 – 6 years
- 21 – 25 year old professional programmers who have been programming for at least 8 years and programme at least 5 days a week.

Unfortunately, if you are bilingual – in that you speak two or more languages most days, for example, a different language at home than at school or work – you can't take part in the study. This is because we already know that the effect we are looking for is found in bilinguals – so if we found it in you, we wouldn't know whether this was because you programme computers or because you are bilingual (or both!).

What will I have to do?

If you agree to be in this study, you will be asked to do the following things:

Before you take part:

- Complete a short questionnaire about your age and your experience of computer programming.

During the experiment

- Complete a short IQ test.
(This is because in we will need to make sure that the people we compare you to have a similar IQ, so that there is a fair comparison)
- Complete three short tasks on a computer. These will all involve responding to what you see

The total time required to complete the study should be approximately 50 minutes. The experiment needs to happen face-to-face, unfortunately we cannot run it online.

Taking part is voluntary

Your participation in this study is entirely voluntary and you may refuse to complete the study at any point during the experiment, or refuse to answer any questions with which you are uncomfortable. You may also stop at any time and ask the researcher any questions you may have.

Taking part is confidential

Your name will never be connected to your results or to your responses on the questionnaires; instead, a number will be used for identification purposes. Information that would make it possible to identify you or any other participant will never be included in any sort of report. The data will be accessible only to those working on the project.

What's in it for me? Are there any risks involved?

You will not be paid for taking part, however we can cover (reasonable) travel expenses where necessary. Participants will help contribute to the body of knowledge on the effects of computer programming on the brain. There are no known risks associated with this research. (I have been checked by the Criminal Record Bureau.)

Where and when will I need to take part?

You will need to attend one 50 minute session, either at a location in central London or at your home. Most sessions will take place in the early evenings or at weekends, but there will also be daytime sessions during the Easter holidays. Please let me know on the sign-up form what would work best for you, I'll see what I can do!

I would like to take part – what do I do now?

If you are interested in taking part, please fill in this form. **If you are under 18, your parent or guardian will need to fill in the form on your behalf. They will also need to sign a consent form to agree that you can participate.**

Contact and questions

If you have any questions, you can ask them now or at any point in the study. Please contact me (Hannah) by email at hwright04@ioe.ac.uk. If you would like to check that I am who I say I am and that I have the correct permissions from the Institute of Education, please contact my supervisor, Professor Andy Tolmie – you can [find his contact details on the Institute of Education website](#).

Thanks for taking the time to read this!

Hannah Wright