



Department of Computer Science

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**Invitation**  
**to participate in a Virtual Reality research study**

Dear Parent,

We are conducting a study observing how and what children learn in a virtual reality environment and we would like to invite your child to participate.

The purpose of this study is to determine what children learn by interacting in a virtual environment. We will be observing their ability to accomplish simple cognitive tasks related to mathematical 'fractions'. In the first part of the study, your child will answer questions about fractions, such as the questions asked in the Key Stage 2 SAT's. This part will have an approximate duration of 20 minutes. Next, your child will participate in a construction activity in virtual reality, for approximately 30 minutes. After completing the activity, your child will be asked to describe his/her experience in a short interview (approximately 10 minutes) and to complete another test with questions related to fractions, similar to the first one (approximately 20 minutes). A description of the activity and a consent form are included below.

Your child will be videotaped during the activity and the interview, for later observation by the researchers. The video and questionnaires will be used for data analysis purposes only and will be kept entirely confidential. If your child is known to have suffered from epilepsy, we regret that we are unable to accept his/her participation in the virtual reality part of the study. However, your child can still participate in the other parts of the study.

The consent form included at the end of this document, authorizes the information your child provides to be used for research purposes only. We would appreciate it if you would complete and return the form at your earliest convenience. Please feel free to contact us with any questions or comments you may have about the project.

Sincerely,

Maria Roussou

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## Introduction

Your child is being invited to take part in a research study, which aims to evaluate how children interact and learn in a virtual environment. Before you and your child decide, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Feel free to ask if there is anything that is not clear or if you would like more information. Take time to decide whether or not you would like your child to take part.

## Procedures

This study broadly looks at aspects of the use of digital environments for learning and education, specifically how the ability to interact in a virtual environment may help learning. It is important that the whole testing procedure is a positive experience. Firstly the entire process will be explained to your child and an opportunity will be given for him/her or you/accompanying caregiver to ask any questions.

Overall the procedures of the study are as follows:

- You will be asked to sign the consent form that comes with this document.
- In the first part of the study, your child will be asked to fill out a questionnaire with math questions similar to those asked in the Key Stage 2 SAT math test.
- Next, your child will take part in an activity in the virtual reality room. The activity will involve the design and “construction” of a space, such as a virtual playground.
- If your child takes part in the virtual reality activity, s/he will have to wear a pair of lightweight plastic glasses (which can be worn over eyeglasses if necessary) and use a handheld device with a joystick and buttons for moving virtual building blocks around. A small microphone may also be attached to your child for recording her/his voice when speaking.
- The task will be explained to your child who will have a chance to practice moving objects around in the virtual space.
- After completing the task, your child will be interviewed about his/her experience and then asked to complete another test with questions related to fractions, similar to the first one.
- The expected duration of participation in the research will be approximately 1½ hours.



An 8-year old girl while interacting in the virtual reality room during an earlier phase of this study.

This study is being conducted as part of a PhD research. The study will take place in central London, at UCL's Department of Computer Science where the immersive virtual reality room is located.

### Principal Investigator

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### Project Researcher and Contact

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See <http://www.cs.ucl.ac.uk/staff/M.Roussou/research/> for more information and images.

## **A note about virtual reality equipment**

### **Risks, Discomforts and Benefits**

It is not anticipated that your child will experience any discomfort from the testing procedures. The activity will resemble play with a construction kit in a computer environment and should not be physically demanding.

When using virtual reality systems, some people sometimes experience some degree of nausea. There have been various reported side effects of using virtual reality equipment, such as "flashbacks." With any type of video equipment there is a possibility that an epileptic episode may be generated. This, for example, has been reported for computer video games. For this reason we regret that *we are unable to accept volunteers who are known to have suffered from epilepsy.*

Testing will be terminated immediately upon the request of your child, yourself or any familiar adult or if your child indicates any discomfort/undue tiredness or if any abnormal responses occur. Participation in this study should be an interesting and enjoyable experience and the results obtained are expected to assist Computer Scientists and Educators in evaluating the effects and potential benefits of interactivity in a virtual learning environment.

### **Confidentiality**

Any information that is shared during the study will be treated with strict confidence and once the study is completed, it will not be possible to identify individuals. Throughout the study only the aforementioned researchers will have access to the information. The data will be collected and stored in accordance with the Data Protection act for 5 years, after which time it will be destroyed.

### **Request for Further Information**

You or your child are encouraged to discuss any concerns regarding the study with the Principle Investigator at any time, and to ask any questions that you might have.

### **Refusal or Withdrawal**

You or your child may refuse to participate in the study and if you do consent to participate then you will be free to withdraw from the study **at any time** without consequence, fear or prejudice. If you or your child decides to withdraw from the study, then please contact the Principal Investigator at the earliest opportunity. In the event of withdrawal, all data pertaining to your child will be destroyed.

### **Comment or Concerns During the Study**

If you have any comments or concerns you should discuss these with the Principal Researcher. If you wish to go further and complain about any aspect of the way you have been approached or treated during the course of the study, you should email the Chair of the UCL Committee for the Ethics of Non-NHS Human Research ([gradschoolhead@ucl.ac.uk](mailto:gradschoolhead@ucl.ac.uk)) or send a letter to: The Graduate School, North Cloisters, Wilkins Building, UCL, Gower Street, London WC1E 6BT who will take the complaint forward as necessary.

*Prior to taking part in the research a copy of this information sheet is given to you to keep and an informed consent form is provided for you to sign.*

*Thank you for considering taking part in this study.*



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Informed Consent Form
for participation in a Virtual Reality study

Please read and answer the following questions carefully:

- Have you read the information sheet about this study? YES/NO
Have you had an opportunity to ask questions about the procedure? YES/NO
Have you received satisfactory answers to all your questions? YES/NO
Have you received enough information about this study? YES/NO
Do you understand that your child is free to withdraw from this study at any time and without giving a reason for withdrawing? YES/NO
Do you understand and accept the risks associated with the use of virtual reality equipment? YES/NO
Do you agree that your child takes part in this study? YES/NO
Do you agree that your child is videotaped? YES/NO
Do you agree that your child is audiotaped? YES/NO

We would like to videotape your child when in the virtual environment. These tapes will be used for data analysis purposes only and will be kept entirely confidential.

Please check:

- I certify that my child does not have epilepsy [ ]
I take responsibility that my child will not be engaging in any kind of complex activity, such as riding a bicycle or roller-blading, within 3 hours after the termination of the study [ ]

Signature(s) Parent/Guardian ..... Date: .....
Name(s) in block letters.....
Name of child in block letters ..... Age of child: .....
Name of school: ..... Year in school: .....

You are voluntarily making a decision on whether or not to consent to your child's participation in this research study. Your signature certifies that you have decided to consent for your child to participate, having read and understood the information presented. Your signature also certifies that you have had an adequate opportunity to discuss this study with the investigator and to ask questions. Your signature certifies that you give your permission for any results from this study to be used in any report or research paper, or verbal presentation, on the understanding that confidentiality will be preserved. You may retain a copy of this consent form for your records.