

# Appendix B

## CONSENT TO PARTICIPATE IN A RESEARCH STUDY

Your permission is being asked to allow your child/ward to participate in a research study, entitled

***Analysis and Visualization of EEG and Mouse-Click Data towards Understanding the Affective Learning Behavior of Academic Achievers***

Please read the information below together with your child/ward, and please do not hesitate to ask any question about anything that may not be clear to you, before deciding whether or not to allow your child/ward to participate in the study.

The study is conducted by Judith J. Azcarraga as part of her work towards a PhD in Computer Science at DLSU.

### **PURPOSE OF THE STUDY**

The study aims to analyze and predict academic-related emotions of academic achievers based on their brainwaves signals and mouse-click behaviour while doing a specific learning task using some learning software.

### **BASIS FOR PARTICIPATION IN THE STUDY**

Being a student of the Philippine Science High School, your child/ward has a proven record of outstanding academic achievement and is therefore a target participant (subject) of the study.

### **PARTICIPATION AND WITHDRAWAL**

The participation of your child/ward is completely voluntary. Even if you decide to grant permission for your child/ward to participate in the study, you may still subsequently withdraw from it at any time without penalty or consequences of any kind.

### **EXPERIMENTAL PROCEDURE**

Each session will last for about 45 minutes. If you allow your child/ward to participate in this study, this would imply the following:

- 1) Your child will be asked to solve mathematical problems using two different Math Tutoring Systems. The problems are of different difficulty levels to be able to induce various emotions from the participants.
- 2) During the experiment, an Emotiv electroencephalogram (EEG) sensor will be attached to the head of your child/ward and a camera will be used to capture his/her facial expressions.
- 3) Your child/ward will be asked about his/her emotions during the course of the experiment, i.e. whether he/she feels *interested, bored, confused* or *frustrated*.
- 4) The personality profile of your child/ward, through a test administered by the Guidance Office of PSHS, would also be used as part of the information collected from each participant.

### **POTENTIAL RISKS AND DISCOMFORT (IF ANY)**

Emotiv EEG sensors are commercial products marketed worldwide that are typically used for modern computer games, instead of a gamepad, keyboard, or joystick. These sensors are safe to use since they just read brainwaves signals and then send these signals to a computer thru a USB connection. They are not connected to any electrical outlet while attached to the head of the user.

These sensors do not emit any radiation nor any magnetic signals that will harm the user.

These sensor devices have been used in a number of University research laboratories in the US and Japan.

In case your child finds the EEG sensor uncomfortable to use, or for any reason whatsoever that he/she would like to stop the session, the experiment will be halted immediately.

### **POTENTIAL SOCIAL AND PERSONAL BENEFITS**

Since the study will help analyze and detect learner emotions while engaged in a learning activity based on brainwaves signals and mouse-click behavior, the results of the study would provide useful baseline data for

designers of future computer-based learning systems. We expect more and more of such learning software in the future, and bright children like your child/ward would benefit the most when they engage in self-regulated learning.

In addition, your child/ward may learn something about themselves particularly in the awareness of their emotions during the learning process. For example, they would understand better the types of software features that make them learn better, and perhaps those features that tend to bore them.

## **CONFIDENTIALITY**

Any information that is obtained in connection with this study and that can be identified to be those of your child/ward will remain confidential and will be disclosed only with your permission or as required by law.

The video recordings of your child's (ward's) facial expression during the learning session will be used solely for experimental purposes, and after the data collection is over, they will be stored in a private archive.

Portions of these video-recordings may be published and/or presented in scientific journals and/or scientific conference proceedings, but will never be published in a non-scientific venue. Further, no information, such as name, address, or other private information, will be included in these publications.

Apart from this possible usage, such data will only be viewed/used for experimental purposes. At any time during or after the experiment, you may request to review or edit the tapes and/or request that your files be destroyed.

## **SIGNATURE OF VOLUNTARY AND INFORMED CONSENT**

Please sign below to signify that you understood the procedures described above and that you agree to allow your child/ward to participate in the study.

_____ Name of Child/Ward and Signature	_____ Date
_____ Name of Parent/Guardian and Signature	_____ Date

## **SIGNATURE OF INVESTIGATOR**

I attest that, based on my judgment, the Parent/Guardian is voluntarily and knowingly giving informed consent and possesses the legal capacity to give informed consent to allow his/her child/ward to participate in this research study.

I further attest that, based on my judgment, the child/ward, being the subject of the study, is voluntarily and knowingly giving informed consent to participate in this research study.

_____ JUDITH J. AZCARRAGA	_____ Date
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## **IDENTIFICATION OF INVESTIGATOR**

If you have any questions or concerns about the research, please email or contact:

JUDITH J. AZCARRAGA  
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This consent form is based on the research ethics protocol of DLSU and is patterned after the consent form used by the Committee on the Use of Humans as Experimental Subjects at the Massachusetts Institute of Technology