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*The University of British Columbia*
*Office of Research Services*
***Behavioural Research Ethics Board***
*Suite 102, 6190 Agronomy Road*
*Vancouver, BC V6T 1Z3*

***H14-01384*** **7-Segment Display Visual Feedback iClicker Experiment (Version 1.0)**

**Principal Investigator: Kellogg S. Booth**

**1. Principal Investigator & Study Team - Human Ethics Application [View Form]**

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| *1.1. Principal Investigator Please select the Principal Investigator (PI) for the study. Once you hit Select, you can enter the PI's name, or enter the first few letters of his or her name and hit Go. You can sort the returned list alphabetically by First name, Last name, or Organization by clicking the appropriate heading.* | Last Name: Booth; First Name: Kellogg S.; Employer.Name: Computer Science; Email: ksbooth@cs.ubc.ca |
| *Enter Principal Investigator Primary Department and also the primary location of the PI's Institution:* | Computer Science, UBC Vancouver |
| *1.2. Primary Contact Provide the name of ONE primary contact person in addition to the PI who will receive ALL correspondence, certificates of approval and notifications from the REB for this study. This primary contact will have online access to read, amend, and track the application.* | Last Name: Beshai; First Name: Peter G.; Rank: Graduate Student |
| *1.3. Co-Investigators List all the Co-Investigators of the study. These members WILL have online access which will allow them to read, amend and track the application. These members will be listed on the certificate of approval (except BC Cancer Agency Research Ethics Board certificates). If this research application is for a graduate degree, enter the graduate student's name in this section.* | Last Name / First Name / Institution/Department / Rank<br>Cormier / Derek M. / UBC/Science/Computer Science / Graduate Student<br>Janzen / Benjamin F. / UBC/Science/Computer Science / Graduate Student<br>Escalona Gonzalez / Francisco J / UBC/Science/Computer Science / Graduate Student |
| *1.4. Additional Study Team Members - Online Access List the additional study team members who WILL have online access to read, amend, and track the application but WILL NOT be listed on the certificate of approval.* | Last Name / First Name / Institution/Department / Rank |
| *1.5. Additional Study Team Members - No Online Access Click Add to list study team members who WILL NOT have online access to the application and will NOT be listed on the certificate of approval.* | Last Name / First Name / Institution / Department / Rank / Job Title / Email Address |
| *Tri Council Policy Statement2 (TCPS2) Tutorial All undergraduate and graduate students and medical residents are required to complete the TCPS2 Tutorial (CORE) before submission. This tutorial provides an essential orientation to Canadian human research ethics guidelines. The Principal Investigator and all Co-Investigators must be familiar with the TCPS2. Indicate completion of the TCPS2 (CORE) tutorial below: 1.6.A. All Undergraduate/Graduate Students:* | Yes |
| *1.6.B. All Medical Residents:* | N/A (no medical residents participating in this study) |
| *Comments:* | N/A |
| *1.7. Project Title Enter the title of this research study as it will appear on the certificate. If applicable, include* | Recognizing Individual Visual Feedback on a Shared |

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| *the protocol number in brackets at the end of the title. If this is a class-based project, see guidance on the right.* | Display using iClickers as Input |
| *1.8. Project Nickname Enter a nickname for this study. What would you like this study to be known as to the Principal Investigator and study team?* | 7-Segment Display Visual Feedback iClicker Experiment |
| **2 Study Dates and Funding Information - Human Ethics Application [View Form]** | |
| *You plan to start collecting data immediately after obtaining ethics and any other required approvals (the start date on the ethics certificate will reflect the approval date),* | yes |
| *You plan to start data collection at a later date i.e., 2 months or more after approvals are obtained. Click the calendar icon below to select the dates (Internet Explorer) or enter the dates manually using the format yyyy-mm-dd. Estimated start date:* | June 4, 2014 |
| *2.1. B. Estimated end date:* | December 31, 2014 |
| *2.2.A. Types of Funds Please select the applicable box(es) below to indicate the type(s) of funding you are receiving to conduct this research. You must then complete section 2.3 and/or section 2.4 for the name of the source of the funds to be listed on the certificate of approval.* | Grant |
| *2.2.B. For Industry Sponsored studies, please provide a sponsor contact.* | |
| *2.2.C. Please enter any applicable information about your funding which is not already shown in Box 2.3 or 2.4 (including funding applied for but not yet received).* | |
| *2.3. Research Funding Application/Award Associated with the Study that was Submitted to the UBC Office of Research Services Please click Add to identify the research funding application/award associated with this study. Selecting Add will list the sources of all research funding applications that have been submitted by the PI (and the person completing this application if different from the PI). If the research funding application/award associated with this study is not listed below, please enter those details in question 2.4.* | UBC Number / Title / Sponsor<br>F09-05644 / Collaboration technology and multi-user interfaces / Natural Sciences and Engineering Research Council of Canada (NSERC)<br>F09-03361 / Graphics, Animation and New Media (GRAND) NCE / Graphics, Animation and New Media (GRAND) - Networks of Centres of Excellence (NCE) |
| *2.4. Research Funding Application/Award Associated with the Study not listed in question 2.3. Please click Add to enter the details for the research funding application/award associated with this study that is not listed in question 2.3. When you press Add you can do a search for your funding award by doing a search in the Sponsor box - over 7000 options are listed* | UBC Number Title Sponsor |
| *2.5.A. Is this a DHHS grant? (To view a list of DHHS funding agencies click on add in 2.5.B below)* | no |
| *2.5.B. If yes, please select the appropriate DHHS funding agency from the selection box, and attach the grant to box 9.8. of the application.* | DHHS Sponsor List: Order: Active: |
| *Attach DHHS Grant Application for each sponsor listed above* | |
| *2.6. Conflict of Interest Do any of the following statements apply to the Principal Investigator, Co-* | |

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| *Investigators and/or their partners/immediate family members? Receive personal benefits in connection with this study over and above the direct cost of conducting this study. For example, being paid by the funder for consulting. (Reminder: receiving a finders fee for each participant enrolled is not allowed). Have a non-financial relationship with the sponsor (such as unpaid consultant, advisor, board member or other non-financial interest). Have direct financial involvement with the sponsor (source of funds) via ownership of stock, stock options, or membership on a Board. Hold patent rights or intellectual property rights linked in any way to this study or its sponsor (source of funds).* | no |
| **4. Study Type - Human Ethics Application [View Form]** | |
| *4.1. UBC Research Ethics Board Indicate which UBC Research Ethics Board you are applying to and the type of study you are applying for:* | UBC Behavioural Research Ethics Board |
| *N/A* | no |
| *4.2.A. Institutions and Sites for Study* | Institution Site<br>UBC Vancouver (excludes UBC Hospital) |
| *4.2.B. Please enter any other locations where the research will be conducted under this Research Ethics Approval (e.g., private physician's office, community centre, school, classroom, participant's home, in the field - provide details).* | N/A |
| **4* Behavioural Study Review Type [View Form]** | |
| *4.3.A. If this proposal is closely linked to any other proposal previously/simultaneously submitted, enter the Research Ethics Board number of that proposal.* | N/A |
| *4.3.B. If applicable, please describe the relationship between this proposal and the previously/simultaneously submitted proposal listed above.* | N/A |
| *4.3.C. Have you received any information or are you aware of any rejection of this study by any Research Ethics Board? If yes, please provide known details and attach any available relevant documentation in question 9.7.* | no |
| *4.4.A. External peer review details:* | N/A |
| *4.4.B. Internal (UBC or hospital) peer review details:* | N/A |
| *4.4.C. If this research proposal has NOT received any independent scientific/methodological peer review, explain why no review has taken place.* | The research is part of a two larger projects that have received peer review (NSERC strategic project grant, NSERC Discovery Grant, and GRAND NCE project funding) but that does not include study-specific peer review. |
| *Participant Vulnerability* | Low |
| *Research Risk* | Low |
| *4.5.B Explain/justify the level of risk and group vulnerability reported above.* | Our subjects are being drawn from the general population so we have no reason to believe they are vulnerable, especially given the nature of our study. The activity in which they will be involved is looking at a screen, interpreting what alphabetic letter is shown, and pressing the corresponding button on a clicker. There are photographs of the faces of celebrities on screen throughout the experiment, but there is nothing |

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| | remarkable about them, and as such, we do not foresee any significant expectation of risk. |
| *4.5.C Does your application fall under minimal risk (i.e., it was assigned an overall risk level of 1 on the minimal risk matrix) and therefore is eligible to be considered for Delegated Review?* | yes |
| *4.6. Harmonized Review of Multi-Jurisdictional Studies Is this study a multi-jurisdictional study that requires review by one or more institutions? (Note: If submitting an amendment for an already approved study, you must respond No to this question)* | no |
| *4.7.A Creation of a Research Database or Registry Does this study involve the creation of a research database or registry for future unspecified research? [if no, skip to 4.8]* | no |
| *4.7.B Is the purpose of this application exclusively to obtain approval for the creation of a research database or registry? [Note: if the creation of the database or registry is part of a bigger project also included in this application, you must answer no below].* | no |
| *4.8. Class-based research and the department level research ethics review process Is this study a minimal risk class-based research project conducted for pedagogical purposes, e.g., a research methods course exercise, or other exercises designed to give students training in conducting and/or presenting research? The activity should not be an undergraduate or graduate thesis/dissertation.* | no |
| *If Yes, please state whether your department has a Departmental Ethics Officer (DEO) and, if so, indicate their name below.* | N/A |
| **5. Summary of Study and Recruitment - Human Ethics Application for Behavioural Study [View Form]** | |
| *5.1.A Provide a short summary of the project written in lay language suitable for non-scientific REB members. DO NOT exceed 100 words and do not cut and paste directly from the study proposal.* | The study examines a novel method of providing private individual feedback to participants using a shared display. Seven-segment displays (similar to those seen on digital watches) are used to display alphabetic letters (A-E) corresponding to buttons pressed on a clicker. We will be varying the time the letters are visible on the display, as well as the location and exposure time of distractor displays. |
| *5.1.B Summarize the research proposal:* | We will conduct a Human-Computer-Interaction (HCI) study to evaluate the effectiveness of a novel method of providing private individual feedback to participants using a shared display. In particular, we are evaluating a technique for showing users which letter was pressed on a clicker (e.g., an i>clicker) when they are represented by an avatar amongst many other avatars on a projected display. We are interested in determining whether or not we can explicitly show the letter to a user without it being possible to be interpreted by somebody who is not already focusing on that user's avatar. Our design makes use of research from visual attention to help achieve this goal.<br><br>In the experiment, the participant is shown a 5-by-5 grid of avatars (faces representing users in a system), with |

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| | their avatar in the middle. A letter from A to E will briefly display on their avatar while simultaneously another avatar (a distractor) also shows a letter. The user then must enter on an i>clicker the letter which showed up on their avatar, followed by the letter that showed up on the distractor. We will vary the amount of time the letter is visible on the participant's avatar, and the time and location of the distractor. Performance (accuracy and time) will be measured. The goal is to determine the optimal time for which a user can interpret their own result, but not that of a distractor at the same time. |
| *5.2. Inclusion Criteria Describe the participants being selected for this study, and list the criteria for their inclusion.* | 1. Members of the UBC community.<br>2. 19 years of age or older.<br>3. Normal or corrected to normal vision.<br>4. Competent to give legal consent and be fully informed.<br>5. No significant motor impairments.<br>6. Not colour blind.<br>7. English speaker capable of understanding instructions for the study. |
| *5.3. Exclusion Criteria Describe which participants will be excluded from participation, if any, and list the criteria for their exclusion.* | No participants will be excluded who meet the criteria in 5.2. |
| *5.4. Recruitment Provide a detailed description of the method of recruitment. For example, describe who will contact prospective participants and by what means this will be done. Ensure that any letters of initial contact or other recruitment materials are attached to this submission on view 9 (section 9.7).* | One of the co-investigators will send e-mails to various student e-mail lists at UBC, advertising the opportunity to participate in the experiment. |
| *5.5. Use of Records If existing records (e.g., health records, course grade sheets or other records/databases) will be used to IDENTIFY potential participants, please describe how permission to access this information, and to collect and use this information, will be obtained.* | N/A |
| *5.6. Summary of Procedures* | Participants will be be recruited by email through publicly available mailing lists. Times convenient for both the individual participant and the experimenter will be negotiated. One participant will be evaluated at a time. Each participant will be evaluated in one 1.5 hour session.<br><br>At the agreed time the participant(s) will be received at the ICICS/CS Usability Labs at UBC. The participant(s) will be given a sheet which explains the project, the techniques being evaluated, the involvement of the participant(s), and the remuneration provided. It will be made clear that the participant(s) can withdraw from the experiment at any time without penalty. The participant(s) will be given a questionnaire asking about prior experience with clickers, as well as basic demographic information.<br><br>In the experiment, the participant is shown on a LCD display a 5-by-5 grid of avatars (faces representing users in a system), with their avatar in the middle. A letter from A to E will briefly display on their avatar while simultaneously another avatar (a distractor) also shows a letter. The user then must enter on an i>clicker the |

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| | letter which showed up on their avatar, followed by the letter that showed up on the distractor.<br><br>The participant will be given an i>clicker and begin a brief warmup session to gain familiarity with the experiment. Once the participant is comfortable with the experiment protocol, the experiment will begin. The trials will be performed in three blocks (of approximately 10-20 minutes each) with 3 minute breaks in between each block. At the end of each block, the participant will be given a brief questionnaire asking for subjective feedback about their experience in the preceding block.<br><br>At the end of the experiment, the participant will be given a questionnaire asking for their subjective opinions on the display method used. |
| *5.7. Checklist for Research Methods  Are any of the following procedures or methods involved in this study? Check all that apply.* | None of these Methods |
| **6. Participant Information and Consent Process - Human Ethics Application for Behavioural Study [View Form]** | |
| *6.1. Time to Participate  How much time will a participant be asked to dedicate to the project?* | This is not a medical study. There is no "normal care" time required.<br><br>For this experiment, each participant will participate in a single session lasting approximately 1.5 hours. |
| *6.2. Risks  Describe what is known about the risks of the proposed research for participants.* | There are no anticipated risks in the proposed research. |
| *6.3. Benefits  Describe any potential benefits to the participant that could arise from his or her participation in the proposed research.* | Participants may benefit from exposure to novel and interesting individual feedback techniques, but there is no intrinsic benefit anticipated. |
| *6.4. Impacts on Community  If your research involves an identified group or 'community', outline the likely impacts of the research on the community.* | N/A |
| *6.5. Reimbursement  Describe any reimbursement for expenses (e.g., meals, parking, medications) or payments/gifts-in-kind (e.g., honoraria, gifts, prizes, credits) to be offered to the participants. Provide full details of the amounts, payment schedules, and value of gifts-in-kind.* | Participants will be paid $20 for a single session lasting approximately 1.5 hours. |
| *6.6. Obtaining Consent  Specify how potential participants will be invited to take part in the study. Include details of where the consent will be obtained and documented, and under what circumstances.* | The co-investigator will email consent forms to each potential subject after the subject has expressed interest in the study, always at least 24 hours before the first session. At the beginning of the first session any questions a participant has related to the consent form will be answered by the co-investigator, and the participant will be invited to sign the consent form and participate. The signing of the consent form will occur at the experimental location in the ICICS/CS building at UBC. |
| *6.6.A. Waiver of Consent  If you are asking for a waiver or an alteration of the requirement for participant informed consent please justify the waiver or alteration and confirm that the study meets the criteria on the right. Please address each criterion individually.* | N/A |
| *6.7. Time to Decide  How long after being provided with detailed information about the study will the participant* | The subject will have received the consent form via email |

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| *have to decide whether or not to participate? Provide your rationale for the amount of time given.* | more than 24 hours before the first session, when the decision to participate is being made. |
| *6.8. Capacity to Consent Will every participant have the capacity to give fully informed consent on his/her own behalf? Please click Select to complete the question and view further details.* | Will the participant have the capacity to give fully informed consent? Details of the nature of the incapacity If not, who will consent on his/her behalf? If not, will he/she be able to give assent to participate? If Yes, explain how assent will be sought.<br>Yes [Details] |
| *6.9. Renewal of Consent Describe any situation in which the renewal of consent for this research might be appropriate, and how this would take place.* | N/A |
| *6.10. Provisions for Consent What provisions are planned for participants, or those consenting on a participant's behalf, to have special assistance, if needed, during the consent process (e.g., consent forms in Braille, or in languages other than English).* | We are not expecting to include non-English speakers or those with impaired sight because of the nature of the study. |
| *6.11. Restrictions on Disclosure Describe any restrictions regarding the disclosure of information to research participants (during or at the end of the study) that the funder/sponsor has placed on investigators, including those related to the publication of results.* | N/A |
| **7. Number of Participants - Human Ethics Application for Behavioural Study [View Form]** | |
| *7.1. External Approvals External approvals for research involving other institutions and other jurisdictions: Provide written proof of agency approval for projects carried out at other institutions and, when applicable, other jurisdictions. Indicate external approvals below: A. Other Institutions:* | no |
| *B. Please select Add to enter the name of the institution and if you have already received approval attach the approval letter.* | Name of Institution |
| *C. Other Jurisdiction or Country (if answer is No go to 7.1.G):* | no |
| *D. Please select Add to enter the name of the jurisdiction or country and if you have already received approval attach the approval letter.* | Name of Jurisdiction or Country |
| *E. Has a Request for Ethics Approval been submitted to the institution or responsible authority in the other jurisdiction or country? (Send a copy to the Research Ethics Office when approval is obtained).* | no |
| *F. If a Request for Approval has not been submitted, provide the reasons below:* | N/A |
| *G. Does this research focus on aboriginal peoples, communities or organizations?* | no |
| *If Yes, ensure that you are familiar with the guidance documents linked on the right. Also attach a copy of the research agreement with the community (if available) in question 9.7. Please describe the community consent process. If no community consent is being sought, please justify.* | N/A |

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| *H. Registration for Publication of Clinical Trials. Does this study fall within the clinical/intervention trial definition stated on the right (in the guidelines)?* | no |
| *If 'Yes', click 'Add' to enter the following information. (Please note that registration by UBC ORS administration requires the prior ethical approval of the study. In that case, registration information should be added when it becomes available).* | Has it been registered? / Indicate the Authorized Registry used: / Enter your Clinical Trial unique identifier: |
| *7.2. Number of Participants A. How many participants will take part in the entire study (i.e., the entire study, world-wide)?* | 24 |
| *B. How many participants will take part at institutions covered by this Research Ethics Approval (i.e., only at the institutions covered by this approval)?* | 24 |
| *7.3. Researcher Qualifications Who will actually conduct the study and what are their qualifications to conduct this kind of research? (e.g., describe relevant training, experience, degrees, and/or courses).* | The co-investigators will conduct the study. They are Master's students, and have taken courses on human-computer interaction and research methods where they received training on proper research techniques and the ethical treatment of participants. |
| **8. Confidentiality - Human Ethics Application for Behavioural Study [View Form]** | |
| *8.1. Security of Data During the Course of the Study How will data be stored? (E.g., computerized files, hard copy, videotape, audio recordings, personal electronic communications device, other.) How will security of the data be maintained? (For example, study documents must be kept in a secure locked location and computer files should be password protected and encrypted, data should not be stored or downloaded onto an unsecured computer, back up files should be stored appropriately.) If any data or images are to be kept on the Web, what precautions have been taken to prevent them being copied?* | No names or any other identifying information will be recorded with the data. Subjects will be identified by numbers only. A master list connecting subject number with contact information will be kept in a locked cabinet in the principal investigator's office until December 31, 2016 (his retirement date) after which arrangements will be made with the Department of Computer Science for subsequent secure storage. No audio or video recordings will be made. |
| *8.2. Access to Data Who will have access to the data (e.g., co-investigators, students or translators)? How will all of those who have access to the data be made aware of their responsibilities concerning privacy and confidentiality issues?* | The co-investigators and principal investigator will have access to the data. All have performed studies with human participants in the past and are aware of privacy issues. |
| *8.3. Protection of Personal Information Describe how the identity of research participants will be protected both during and after the research study, including how participants will be identified on data collection forms.* | Subjects will be identified by subject number only in all data that is collected. A list of subjects mapping to subject number will be kept separate from other data and will not be used except to process subject payments and verify participation. |
| *8.4. Transfer of Data Will any data that identify individuals be transferred (available) to persons or agencies outside of the University?* | no |
| *If YES, describe in detail what identifiable information is released, to whom, how the data will be transferred, how and where it will be stored and what safeguards will be used to protect the identity of participants and the privacy of their data. Attach the data transfer agreement if applicable.* | N/A |
| *8.5. Retention and Destruction of Data UBC policy requires that data be kept for at least 5 years within a UBC facility. If you intend to destroy the data at the end of the storage period describe how this will be done to ensure confidentiality (e.g., tapes should be* | The master list of contact information will be kept for 5 years in a locked cabinet in the principal investigator's office until December 31, 2016 (his retirement date) |

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| *demagnetized, paper copies shredded). UBC has no explicit requirement for shredding of data at the end of this period and it may be kept indefinitely. Please note that the responsibility for the security of the data rests with the Principal Investigator.* | after which arrangements will be made with the Department of Computer Science for subsequent secure storage. It will be destroyed after that. |
| *8.6. Future Use of Data Are there any plans for future use of either data or audio/video recordings? Provide details, including who will have access and for what purposes, below.* | No |
| *8.7. Feedback to Participants Are there any plans for feedback on the findings or results of the research to the participant? Provide details below.* | No |
| **9. Documentation - Human Ethics Application for Behavioural Study [View Form]** | |
| *9.1. Research Proposal Examples of types of proposals are listed on the right. Click Add to enter the required information and attach the documents.* | Document Name Version Date Password (if applicable) |
| *9.2. Documentation of Consent Examples of types of consent documents are listed on the right. Click Add to enter the required information and attach the documents.* | Document Name / Version / Date / Password (if applicable)<br>Consent Form / ver 1.1 / June 3, 2014 / [View] |
| *9.3. Documentation of Assent Examples of types of assent documents are listed on the right. Click Add to enter the required information and attach the documents.* | Document Name Version Date Password (if applicable) |
| *9.4. Advertisement to Recruit Participants Examples are listed on the right. Click Add to enter the required information and attach the documents.* | Document Name / Version / Date / Password (if applicable)<br>Email Recruitment / 1.1 / June 3, 2014 / [View] |
| *9.5. Questionnaire, Questionnaire Consent Cover Letter, Tests, Interview Scripts, etc. Please click Add to enter the required information and attach the documents.* | Document Name / Version / Date / Password (if applicable)<br>Post-Block Questionnaire / 1.0 / May 25, 2014 / [View]<br>Pre-Experiment Questionnaire / 1.0 / May 25, 2014 / [View]<br>Post-Experiment Questionnaire / 1.0 / May 25, 2014 / [View] |
| *9.6. Letter of Initial Contact Please click Add to enter the required information and attach the forms.* | Document Name Version Date Password (if applicable) |
| *9.7. Other Documents A. Other documents: Examples of other types of documents are listed on the right. Click Add to enter the required information and attach the documents.* | Document Name Version Date Password (if applicable) |
| *B. If a Web site is part of this study, enter the URL below. Since URL's may change over time or become non-existent, you must also attach a copy of the documentation contained on the web site to one of the sections above or provide an explanation.* | N/A |
| **10. Fee for Service - Human Ethics Application for Behavioural Study [View Form]** | |
| *Mechanism for Submitting Fee. Please indicate which of the following method of payment will be used for this application:* | |

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| *Contact information regarding where to send the invoice.* | N/A |

**12. Save Application - Human Ethics Application** [View Form]

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