University of Richmond
Application for Regular or Full IRB Proposal

1. **Date of submission (M/D/YYYY) 4/2/2014**
2. **Title of the research proposal: Mindsets matter: An interdisciplinary approach for increasing female involvement and achievement in STEM: Renewal**
3. **Principal Investigator:** ☒ Faculty ☐ Student ☐ Other

Name	Phone Number	Email Address
Jeni Burnette	804.289.8113	jburnet2@richmond.edu

4. **Potential Conflict of Interest**

Is there a potential conflict of interest for the Principal Investigator or key research personnel? (Applicable only if the researcher has a financial conflict of interest). See http://www.hhs.gov/ohrp/archive/humansubjects/finreltn/fguid.pdf for federal guidance on this matter.)

Yes ☐
No ☒

If yes, supply details:

5. **Names of all researchers engaged in the study.**
   a. If a faculty member intends to involve students in the execution of a research project, the names of the students should be included. If several students are participating in a research project, they should all be listed. The University of Richmond requires that all researchers working with human subjects take online training courses provided by the Collaborative Institutional Training Initiative (CITI). See the IRB website section on "Researcher Training Requirements" for registration instructions. The researcher listed first on the form should be the Principal Investigator.

Name	Position	Email Address	Date of CITI Training Completion (MM/DD/YY)
Jeni Burnette	Faculty	jburnet2@richmond.edu	7/14/11
Crystal Hoyt	Faculty	choyt@richmond.edu	5/18/11
Barry Lawson	Faculty	blawson@richmond.edu	5/29/13
Rachel Forsyth	Student		
Julianne Gomez	Student		
Liz Martinez	Student		

b. If more than 6 researchers are engaged in the study, list additional researchers and their email addresses here.

Amy Shick, student; Sam Ostoich, student; Erin Gibbons, student

6. **Department or program in which the research is based (e.g., Psychology). If research is for a course, list the course number here (e.g., Psyc 361).**

Psychology, leadership studies, and computer science

7. **Approval of the advising faculty member (if student research).**

If a proposal is submitted electronically by a student, it will be forwarded to the faculty advisor by the Chair of the IRB. The faculty advisor should then reply with a statement of endorsement such as "I am the faculty advisor for this research proposal I have reviewed the proposal and approved its submission to the IRB." If the faculty advisor has not approved the proposal for submission to the IRB, he or she should inform the IRB Chair.

The student researcher will be informed and the proposal will be held until the faculty advisor's approval is obtained. Enter the name and email address of the faculty advisor: N/A

8. Qualifications of Principal Investigator

Brief information on the researcher, as it relates to the research proposal (e.g. demonstrating the competence of the researcher to complete the research).

Jeni Burnette and colleagues (Burnette et al., 2012) have presented evidence to support links between implicit theories and goal achievement in a recently published meta-analysis in Psychological Bulletin. Although this research summarized findings from achievement domains that did not include computer science, the theoretical parallels are straightforward: Both rely on the idea that implicit theories, specifically growth mindsets, are critical for adaptive self-regulatory processes and outcomes and may play a protective function in times of threat (e.g., identity threat). Additionally, Jeni Burnette has successfully extended implicit theories to the domain of weight management including developing a new scale within this domain (Burnette, 2010) and a successful mindset intervention within the context of weight management (e.g., Burnette & Finkel, 2012).

9. Study Abstract

A brief summary of the study. (Approximately 200 words.)

This research draws from multiple perspectives and employs a multi-method interdisciplinary approach in an effort to offer a new theoretically driven intervention for increasing achievement of underrepresented groups in STEM. We suggest that the reason (why) identity threat is detrimental to performance of underrepresented groups in STEM fields is because it causes them to question their sense of belonging. And, we suggest that one way (how) to help underrepresented groups cope more successfully with the pervasive "threat in the air" is to teach them a growth mindset. More specifically, we develop and test a growth mindset intervention designed to improve performance of women in computer science. In examining why identity threat undermines performance of females in STEM fields and how we can overcome it, our goals are threefold. First, in Study 1, we seek to develop scales of relevant constructs within the computer science domain. Second, in Study 2, we begin to explore how pedagogical practices encourage different mindsets. Third, building on the first two studies, in Study 3, we take an interdisciplinary approach to encouraging growth mindsets by merging psychology, pedagogy and virtual technologies research. Additionally, we seek to provide causal evidence for our overall process model in Study 2 and 3.

10. Literature Review

A literature review as it relates to the research benefits and goals of the study. The literature review will generally communicate the role of this study in the broader field of knowledge in which the research is being performed. The IRB uses this information in its assessment of benefits and risks. Recommended length 500 words or less, plus references.

To address national priorities, we have witnessed a proliferation of research and programs aimed at increasing interest and achievement in the science, technology, engineering, and mathematics fields (STEM; Business Higher Education Forum, 2010; STEMconnector, 2012). Many of these efforts to increase the academic achievement and career success in STEM have been targeted at women and minorities in an attempt to remedy their persistent underrepresentation in the STEM pipeline (Syed & Chemers, 2011). In STEM, women and minorities often find themselves threatened by the possibility of confirming negative stereotypes associated with their gender or

race/ethnicity. This phenomenon, termed "identity threat," can undermine performance (Steele, Spencer, & Aronson, 2002). In our proposed research, we take a novel interdisciplinary approach to increasing the performance of women and minorities in STEM by merging psychological perspectives with STEM pedagogy and virtual technologies research. Specifically, we suggest that an underutilized but valuable perspective for understanding ways to overcome identity threat is an implicit theory approach (for a review see Molden & Dweck, 2006). This theoretical perspective examines the extent to which individuals believe that their ability in a domain can be developed. These beliefs or mindsets vary from fixed mindsets (believing abilities are unchangeable) to growth mindsets (believing abilities can be cultivated). Research has found that these mindsets create meaning systems that influence expectations, motivation and success across a wide variety of domains from academics (Hong, Chiu, Dweck, Lin, & Wan, 1999), to negotiations (Kray & Haselhuhn, 2007), to weight maintenance (Burnette, 2010). Individuals with growth, relative to fixed mindsets, tend to remain confident and persevere when challenges arise and ultimately perform better (for a review see Burnette, O'Boyle, VanEpps, Pollack, & Finkel, 2012). We seek to extend existing work by merging an identity threat approach with an implicit theory perspective to examine how the fixed vs. growth mindset a person holds regarding their ability in STEM fields impacts achievement in these fields. More specifically, we examine underrepresentation of females in computer science.

The primary contribution of the current work is twofold. First, we develop and test a theoretically driven process model that can provide a better understanding of the role of growth mindsets in encouraging participation and achievement of underrepresented individuals in STEM fields. Second, our interdisciplinary intervention for encouraging a growth mindset combines (a) psychological theory regarding student feedback and mindset development, (b) pedagogical research on strategies that can be integrated throughout STEM instruction to help students handle challenging tasks and (c) virtual technologies that allow individuals to alter contexts making them particularly promising as tools for training mindsets (Bailenson et al., 2008; Blascovich, Loomis, Beall, Swinth, Hoyt, & Bailenson, 2002). To our knowledge, no implicit theory interventions have drawn on the potential powerful tool of virtual reality for teaching a growth mindset to buffer against the deleterious effects of identity threat. This platform is especially powerful both because it is an engaging and enjoyable medium (Baranowski, Buday, Thompson, & Baranowski, 2008) and because of the many methodological advantages it offers including allowing exact control over participants' virtual representations and performing extremely difficult or otherwise impossible manipulations (Blascovich et al., 2002).

In our research, we examine our proposed process model and explore our newly developed intervention in the domain of computer science with the goal of increasing interest and achievement of females. In the current work, we offer a mediated moderation model to explain (a) why identity threat predicts poorer performance in STEM fields and more importantly (b) how we can reduce the deleterious effects of identity threat. First, we suggest that identity threat makes females question their sense of belonging in STEM fields. Second, we suggest that these doubts about belonging lead females to underperform. Third, we focus our attention on ways to buffer against these deleterious effects by merging identity threat research with an implicit theory perspective. In investigating this context, we integrate theoretically rich psychological perspectives (i.e., identity threat and implicit theory perspectives) with pedagogical and virtual

technologies research to explore ways to reduce the effect of identity threat on females' performance in the STEM field of computer science.

References

Bailenson, J. N., Yee, N., Blascovich, J., Beall, A. C., Lundblad, N., & Jin, M. (2008). The use of immersive virtual reality in the learning sciences: Digital transformations of teachers, students, and social context. The Journal of the Learning Sciences, 17(1), 102-141. doi:10.1080/10508400701793141

Baranowski, T., Buday, R., Thompson, D.J., Baranowski, J. 2008. Playing for real, video games and stories for health-related behavior change. American Journal of Preventive Medicine. 34(1),74-82. doi: 10.1016/j.amepre.2007.09.027

Blascovich, J., Loomis, J., Beall, A. C., Swinth, K. R., Hoyt, C. L., & Bailenson, J. N. (2002). Immersive virtual environment technology as a methodological tool for social psychology. Psychological Inquiry, 13(2), 103-124. doi: 10.1207/S15327965PLI1302_01

Burnette, J. L. (2010). Implicit theories of body weight: Entity beliefs can weigh you down. Personality and Social Psychology Bulletin, 36(3), 410-422. doi:10.1177/0146167209359768

Burnette, J. L., O'Boyle, E. H., VanEpps, E. M., Pollack, J. M., & Finkel, E. J. (2012). Mind-sets matter: A meta-analytic review of implicit theories and self-regulation. Psychological Bulletin, Advance online publication. doi:10.1037/a0029531

Hong, Y., Chiu, C., Dweck, C. S., Lin, D. M., & Wan, W. (1999). Implicit theories, attributions, and coping: A meaning system approach. Journal of Personality and Social Psychology, 77(3), 588-599. doi:10.1037/0022-3514.77.3.588

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Molden, D. C., & Dweck, C. S. (2006). Finding "meaning" in psychology: A lay theories approach to self-regulation, social perception, and social development. American Psychologist, 61, 203. doi:10.1037/0003-066X.61.3.192

Steele, C. M., Spencer, S. J., & Aronson, J. (2002). Contending with group image: The psychology of stereotype and social identity threat. Advances in Experimental Social Psychology, 34, 379-440. doi:10.1016/S0065-2601(02)80009-0

Syed, M., & Chemers, M. M. (2011). Ethnic minorities and women in STEM: Casting a wide net to address a persistent social problem. Journal of Social Issues, 67(3), 435-441. doi:10.1111/j.1540-4560.2011.01708.x

11. Detailed information on the study proposal

a. Study hypothesis or objective. What is the purpose of the study?

Study 1: In this initial study, we seek to develop and validate new implicit theory and belongingness measures within the context of computer science. We will draw from past research to adapt existing scales to the specific context of computer science. For example, the implicit theory adaptation is as simple as changing the implicit theory of intelligence scale from "You have a certain amount of intelligence, and you really can't do much to change it." to "You have a certain amount of computer science ability, and you really can't do much to change it." Although prior work has examined implicit theories in

computer science, this work used the more general assessment of implicit theories of intelligence (e.g., Simon et al., 2008). We suggest that it is critical that these assessments be as domain specific as possible. In addition to an implicit theory of computer science assessment, we will also develop a sense of belonging to computer science scale. For this assessment, we will draw from recent work within the context of math (e.g., Good et al., 2012) but we will focus on social belonging based on identity threat research outlining the importance of quality social relations within academic and professional domains (Cohen & Garcia, 2008; Walton & Cohen, 2007). In summary, the primary goal of this study is to validate the newly developed scales, including establishing adequate reliability as well as convergent and discriminant validity.

Study 2: Study 2 examines the causal role of identity threat in predicting reduced belonging and performance. We propose manipulating identity threat by exposing female participants to cues in the physical environment that are either stereotypical, or not, of computer science. For example, a recent study found that merely exposing females to stereotypical computer science environments (e.g., Star Trek poster) reduced their interest in computer science (Cheryan, et al., 2009). In addition, we examine the causal role of growth mindsets. We propose a novel approach to manipulating mindsets that integrates STEM pedagogical research with past implicit theory research. Specifically, we seek to develop a new and ecologically valid manipulation of growth mindsets of computer science that can be incorporated into feedback to students across STEM disciplines. In summary, the primary goal of this study is to test new methods for encouraging growth mindsets drawing on implicit theory research and STEM pedagogical strategies.

Study 3: Study 3 extends Study 2 by examining an intervention designed to foster a growth mindset with the goal of buffering women against the potential deleterious effects of identity threat. Specifically, we seek to increase sense of belonging and ultimately performance of students, especially females, in an introductory computer science class. We expect that merely being a female in a predominantly male environment that is diagnostic, such as the pressure to perform well in class, will be enough to cause identity threat for females. Indeed, a long line of research supports this contention demonstrating that when gender is salient, such as being a woman in a male dominant environment, identity threat is heightened (e.g., Steele et al., 2002). In developing the intervention, we propose a novel approach to train and encourage growth mindsets regarding abilities in STEM fields. We suggest this interdisciplinary approach makes this intervention a particularly promising tool for training mindsets. In summary, the primary goal of this study is to develop a novel approach to training growth mindsets and explore if this intervention can help buffer against the deleterious effects of identity threat for females in STEM fields.

b. *What is the overall benefit of the study?*

In this research, we contribute to existing work by developing and testing a theoretically driven process model that can provide a better understanding of the role of growth mindsets in encouraging participation and achievement of underrepresented individuals

in STEM fields. More specifically, drawing from multiple perspectives, we will develop an intervention to encourage a growth mindset in order to buffer females against the potential deleterious effects of identity threat in computer science. A worsening gender gap pervades computing fields both in number of related undergraduate degrees awarded and in employment (National Science Foundation, 2012), with one recent survey indicating fewer than 12% of computer science degrees are awarded to women (Computing Research Association, 2011). In the current project, we will address this evident gender gap using an implicit theory perspective (Dweck, 2000) in conjunction with STEM pedagogy and virtual technologies research. We expect results to show that our newly developed intervention is an effective means for encouraging students to hold growth mindsets and that such mindsets increase sense of belonging and ultimately performance for females in STEM fields. Results will have important implications for a broad array of fields including computer science, education, communication research, and psychology. Furthermore, the theoretical grounding, overall process model and interdisciplinary approach allow for extensions to multiple STEM fields. Additionally, the possibilities for self-representations in virtual reality are numerous and scholars are just beginning to understand the potential implications of incorporating these new technologies into interventions aimed at changing human behavior. We will contribute to this emerging literature by illustrating how virtual technology can be a powerful tool for training growth mindsets, thereby helping individuals cope with identity threat in a broad array of STEM settings.

c. ***List the benefits and risks of the study <u>to study participants</u>.*** *(Note that this section must address both benefits and risks. If the researcher knows of no risks, a phrase similar to the following may be used "no more than minimal risks to subjects are anticipated". If the researcher knows of risks, they should be detailed here. See "Examples" at "Full Proposals" under the "Submitting Proposals" section of the IRB website.) Benefits should focus on benefits to the subjects. If there are no direct benefits to subjects, simply state that "there are no direct benefits to study participants".*

The project involves no more than minimal risk to any participant. Steps will be taken to ensure that all information gathered will be held in strictest confidence. There are no direct benefits to participants, other than helping with scientific research.

d. ***Study Procedures.*** *(How will the study be carried out? This section will likely be the largest part of the proposal).*

i. *Description of procedures.*

STUDY 1:

Participants and procedure. Participants will be 400 undergraduate students (women = 200) recruited from Bucknell which has a nice mix of liberal art and STEM-oriented students. In addition, we will recruit from Stanford University and Virginia Commonwealth University. Students often identify as either a "techie" or a "fuzzy" and we hope to capture both of these types of students to gain more information about individual differences in implicit theories of computer science. Participants will be recruited through introductory first-year seminars, other inroductory classes, and ongoing studies and will be paid $10 for their time. Because students need to be paid online (there is no laboratory portion), we will pay students with Amazon gift cards that are sent via email. All surveys will be administered online and will take

approximately 30 minutes. We expect students to be motivated to participate considering the compensation to time ratio. Participants will complete questionnaires assessing an array of variables including identity threat, implicit theory of computer science, sense of belonging to computer science, and additional variables that will allow us to examine validity of the newly developed measures. Participants will complete all measures on qualtrics, an online platform. The investigators at the University of Richmond will develop measures, post the questionnairs and analyze all responses. Bucknell's involvement is merely recruitment.

STUDY 2:
Participants and procedure. Participants will be 160 females who receive class credit for participation or are paid $10 for their time. We will recruit through spiderbytes, classroom announcements, introductory psychology (e.g., SONA), and craigslist.

Participants will come to the laboratory and will be randomly assigned to the identity threat or no threat condition. Drawing on past work (Cheryan, et al., 2009), we manipulate identity threat by having participants take part in the study in an environment stereotypically associated with computer science or not. That is, half of the participants will be exposed to a stereotypical computer science environment riddled with objects such as a Star Trek poster, comics, video game boxes, soda cans, junk food, electronics, computer parts, software, and technical books and magazines. In contrast, the other half of the participants will be exposed to a neutral environment riddles with objects such as a nature poster, art, water bottles, healthy snacks, coffee mugs, general interest books and magazines.

Participants will work on a challenging and ambiguous computer science task, on which they will receive failure feedback. Then, all participants will be directed to a wiki that contains hints and examples to help them with future computer science exercises. At this point, students will be randomly assigned to one of three conditions. In the control condition, students will receive just the wiki with no message. In the growth mindset condition, students will receive a message that stresses the role of effort in promoting computer science ability and provides strategy-oriented feedback; feedback that has been shown to encourage growth mindsets. In the fixed mindset condition, students will receive a message that stresses ability and talent and provides comfort-oriented feedback; feedback that has been shown to encourage fixed mindsets (Mueller & Dweck 1998; Rattan et al., 2012). Past work has successfully used the propsoed procedures.

Students are then informed that we are interested in getting some information about them including personality and demographic information before they work on additional tasks. We will then assess students' implicit theory of computer science, their sense of belonging and other measures to help disguise the true nature of the study and to be used as control variables (e.g., number of computer science classes taken). We will then give participants additional computer science tasks and score these as a measure of performance.

In summary, to provide causal evidence for the proposed links, we manipulate identity threat and implicit theories and then assess sense of belonging and performance.

STUDY 3:
Participants and procedure. In Phase 1 of this study, we will first develop the materials for each intervention session by adapting previous successful implicit theory interventions in academics and weight-loss and merging this work with STEM pedagogy and virtual technology research. In the current research, we propose developing five 15-minute sessions targeting a growth mindset of computer science. Each of the sessions will present the growth mindset of computer science using four complementary strategies: student feedback, virtual experience, explanation, and self-application. This study builds on the wikis developed in Study 2.

First, as in Study 2, the feedback will praise effort and offer specific process-oriented strategies for handling difficult computing tasks, two techniques that encourage growth mindsets and learning. Second, participants will perform various computer science tasks within an online virtual environment. They will be represented in the virtual environment by avatars that look like them and these representations will morph from their original representation of the participant self into a computer scientist-self as the participant demonstrates enhanced computer science competencies. We will do pilot research to test how various changes in avatar appearance, such as donning a lab coat or holding a laptop computer, prime computer science features. Third, the explanatory component of the session will discuss how computer science ability can be changed and will provide concrete examples. This will ensure that the growth mindset message is explicit and the connection with the virtual reality experience is clear. Fourth, the self-application component will ask participants to apply what they have learned to their own lives. For example, they will be asked to write themselves a note, text message, or email in which they remind themselves that they can change their computer science ability. These self-application strategies have been used successfully in our past interventions to encourage lasting changes in beliefs (e.g., Blackwell et al., 2007; Burnette & Finkel, 2012).

The goal is to promote a growth mindset of computer science ability, which we expect can help buffer females against the deleterious effects of identity threat on sense of belonging and performance. After developing these five sessions, we will conduct two pilot test groups with 20 students (10 female, 10 male) to examine initial feasibility and to guide modifications. Via interviews and self-report surveys, we will obtain data about usability, likeability, age appropriateness, and perceptions of effectiveness of the games at changing mindsets. A detailed log of comments made by the pilot test groups and potential technological issues encountered during this phase will be maintained. Participants will receive $10

for participation. The research team will then meet to discuss modifications based on this pilot.

In Phase 2 of this study, we will test the intervention in introductory computer science classrooms across two semesters at a range of liberal arts universities (e.g., University of Richmond, Bucknell). Again, as in Study 1, all processes are completed online. Thus, all other University's involvement is merely for recruitment purposes. Professors will be blind to condition. Based on recent enrollment data, we hope to have approximately 350 students, including 100 women. Because all sessions are online and not administered during class time, we are able to randomly assign at the individual level, thereby avoiding potential confounds related to specific classes (e.g., time of day, professor). However, we will control for any potential class-related differences in analyses.

Specifically, students will be randomly assigned to either a growth mindset condition or a control condition. These conditions will be matched in terms of time spent on materials and content of the intervention materials (e.g., both conditions will receive wikis with general information on working on computer science tasks and will be involved in virtual technology learning environments). In the control condition, students will receive examples and study tips and will engage in virtual reality gaming activities. There will be no mention of the nature of computer science ability, the importance of effort or anything else that conveys a growth mindset. In the growth mindset condition, we will focus on the changeable nature of students' ability through the four methods (i.e., student feedback, virtual experience, explanation, and self-application) outlined above.

All intervention materials will be delivered through a research assistant via online procedures. The research assistant will maintain the wikis and will be instructed not to have any non-scripted interactions with students. We propose assessing constructs at the start of the semester and end of the semester. Specifically, we will assess self-reported identity threat, implicit theory of computer science and sense of belonging. We will use final grades as our performance outcomes. We will use non-identifying numbers in order to avoid linking student grades to student names.

ii. Description of the subject populations. (Special populations, such as minors (anyone under 18), non-English speaking, etc. may require additional information.)

1. *Approximate anticipated number of subjects to be recruited for the study.*
   See above.
2. *Rationale for inclusion or exclusion of subjects.*
   See above.
3. *Recruitment procedures. Check all that apply. If any email messages, posters, or class announcements will be used to recruit participants, provide the IRB with a verbatim copy of the message as an attachment to the proposal.*

☒ Email ☒ Spider Bytes ☐ Poster ☒ Class announcement
☐ Newspaper Ad ☐ Telephone ☒ Other Craigslist

iii. *Participant compensation, if any.*
See above.

iv. *Discussion of investigators' interaction with subjects.*
See above

v. *Provisions for confidentiality and/or anonymity of subjects. "Confidentiality" refers to the process by which a research will keep a subject's identity from becoming known. "Anonymity" refers to a subject population where the identities of subjects cannot be ascertained by anyone, including the researcher. This section should include a data protection plan that details how data will be stored and when and how the data will be disposed of.*
The current work will use three primary methods of data collection: online resources, laboratory experiments, and classroom interventions. In Study 1, we will collect online survey data using qualtrics (which is secure) and propose recruiting 400 student participants. In Study 2, we propose recruiting 150 students and again collecting assessments using qualtrics. This study will be run in the laboratory. In Study 3, the intervention, we plan on recruiting 350 students in introductory computer science classes who will be directed to an online wiki and data will again be collected using qualtrics. All data will be used at the aggregate level and will not have identifying information about participants. For Study 3, in order to match student grades with measures, we will use a non-identifying identification number. Data will be used for research and possible publication. Participants will be identified only through a subject number. Participants will be asked to provide their age, ethnicity, and gender. When being paid, and in Study 3 in order to send out the information, participants will need to provide their name and email address. All identifying information and payment forms will be kept in a locked drawer or on a password protected computer and this information will be kept separate from questionnaires.

vi. *Will sensitive information be collected, such as information regarding sexual behavior, drug use, or any information that if revealed could result in legal, reputational or employment problems for a subject?*
☒ No
☐ Yes
If yes, explain how you will give special consideration to the collection and storage of these data.

vii. *Discussion of how the informed consent of subjects will be obtained. (Be sure to provide copies of your consent forms with your proposal. See below for details.)*
Participants will complete online consent forms. We chose online for all three studies, including the laboratory study and intervention as it reduces the number of documents with identifying information and the work is minimal risk. Please see attached consent forms.

Regarding the consent, we respectfully request a waiver of full consent for Study 2. We provide the following information pursuant to this.

-We propose that this research involves no more than minimal risk to the participants. We use proceduress commonly employed in the study of attitudes and social psychology and ones used successfully by the primary investigator at the University of Richmond and in community-based interventions .
-A waiver of full disclosure will not adversely affect the rights and welfare of the participants.
-The research could not practicably be carried out without the waiver of full consent as the manipulations would be made ineffective.
-All participants will receive additional pertinent information after participation, during the debriefing that can enable them to more fully understand the purpose (and reasons for minimal deception).

viii. *Consent procedure for Internet questionnaires.* Generally, internet consent can be obtained by describing the study, its risks, etc. and including a statement similar to the following on the consent form: "I have read and understand the study description and by clicking below and completing the survey, I am indicating my agreement to participate in the study and I attest that I am over 18 years of age." *Generally, the IRB will only approve internet consent for minimal risk proposals. Please see attached consent forms*

e. ***Discussion of how study results will be disseminated.*** *For example, will the results be submitted for publication? Will results be used in the University of Richmond Student Symposium? Posted on the web? Specify use of results in the following space.* These data will be disseminated widely through both publications and presentations. As the proposed work is preliminary and exploratory, we will meet as a research team to discuss how to best share data and more importantly how to make the intervention accessible for educational purposes if it proves to be effective. We have allowed for the ultimate sharing of (anonymized) data in our informed consent process and data collection procedures.

Other documents to be included:

12. Consent forms (see IRB website for examples of consent forms).

NOTE: Consent forms should be submitted as separate documents to preserve their formatting.

- *Consent forms for adult subjects (persons 18 and over). For persons under 18 years of age, a parental consent form and a subject assent form are required.*
- *Consent forms should be both comprehensive and precise. For most student research, consent forms should be one page. Consent forms should include the following sections:*
  - *i.* ***The name of the study.*** *The name of the study should be at the top of the consent form. It should be the same as the title of the proposal in Item 2.*
  - *ii.* ***Project description and purpose.*** *This section should include a brief project description, information on the purpose of the study, and an estimate of the time that it will take for a subject to participate (e.g. "the survey will take 20 minutes to complete."*

iii. ***Benefits and risks to subjects.*** *Consider whether or not there are "no more than minimal risks" to subjects. If there are "no direct benefits to subjects" state this. It is important that all known risks be made known to subjects.*

iv. ***Information on principal investigator****. This section should include brief information on the PI, including contact information. Students should include the name of and contact information for the faculty advisor.*

v. ***A "voluntary participation" section****. This section should inform subjects that their participation is voluntary; that they can withdraw their consent at any time, and they can decline to answer any question(s) they may not wish to answer.*

vi. ***Information on the use of the information and data collected.*** *This section should include whether or not the information will be submitted for publication, posted on the internet, and/or used in any other public forum.*

vii. ***Confidentiality (or anonymity) provisions****. Subjects must be informed of any confidentiality or anonymity provisions of the study. Remember that "anonymity" means that even the researcher does not know the identity of the respondent.*

viii. ***Participants' rights section****. This section should inform subjects that they have the right to contact the University of Richmond IRB if they have any questions on their rights as participants. Include IRB contact information (email and phone).*

ix. ***Documentation of participants' consent.*** *Usually, the signature of the subjects should be acquired, as well as an attestation that the subject is over 18 years of age. See the UR IRB website for examples of how to handle consent for internet-based surveys and forms.*

13. **Copies of any surveys, questionnaires, or interview protocols to be used in the research, including Internet questionnaires.** Surveys and other data collection instruments should be submitted as a separate document(s) to preserve their formatting. Normally, this form and accompanying documents such as a survey, the consent form, and recruiting materials will be submitted to the UR IRB Chair via email (rjonas@richmond.edu) along with a brief explanatory cover statement.

14. Copies of debriefing information (if needed).

Debriefings may be used to explain the purpose of the study, give further instruction, address potential participant questions, or provide information on services that may be available to subjects. Studies involving deception must include a debriefing strategy that leaves research subjects in the same condition that they were in prior to participating in the study. *Note that studies involving deception cannot be reviewed using the expedited process. Submit copies of debriefing materials as attachments to the proposal.*

15. **Copies of recruiting information (if applicable), including posters, emails and other relevant materials that will be used.** *Submit copies of recruiting materials as attachments to the proposal.*

16. Completion of CITI training.

The University of Richmond requires that all researchers working with human subjects take online training courses provided by the Collaborative Institutional Training Initiative (CITI). See the IRB website section on "Researcher Training Requirements" for registration instructions. The form may be submitted prior to the completion of CITI training by all participants but final approval will not be given until at least the Principal Investigator has completed required training.

17. Information on grants associated with the research, if applicable.
18. Other materials as may be appropriate.

COMPLETE THE FOLLOWING SECTION ONLY IF THIS IS A RENEWAL OF A PREVIOUSLY APPROVED IRB

Submit a renewal proposal as a pdf document with changed dates and other modifications highlighted in yellow (see instructions at the end of this form). A renewal must be submitted prior to the expiration of the approval or exemption period and should allow time for review. (Generally allow two weeks prior to the expiration date). Federal regulations and UR policy both allow for a maximum approval period of no more than one year. *If a renewal is submitted after the expiration date, a new proposal must be submitted.*

1. What was the date of the previous IRB approval (MM/DD/YY)?

2. How many participants have participated in this study?

Number consented in last IRB period	Number of withdrawals in the last IRB period	Total completed in the last IRB period
285	0	

3. Were there any unanticipated or adverse effects reported by participants?

☒ No
☐ Yes

If you answered Yes above, provide a detailed explanation of the unanticipated/adverse effect, including how many participants were affected.

4. Is the subject population unchanged?

☒ Yes
☐ No

If you answered No above, provide a detailed explanations of the changes.

5. Is the substance of the proposal changed in any way?

☐ No
☒ Yes

If you answered Yes above, provide an explanation of each change in the proposal in the email that accompanies the renewal and submit a pdf of the renewal application with all changes highlighted in yellow (see instructions below).

Submit an electronic version of this form AND all attachments directly to the IRB Chair by email at rjonas@richmond.edu

INSTRUCTIONS FOR CREATING A PDF DOCUMENT WITH HIGHLIGHTS:
After using WORD to modify the proposal for renewal, you will need to highlight any modifications, including the dates, in yellow. Text in the IRB form cannot be highlighted using WORD. You must first save the document as a pdf and use Adobe Acrobat Pro to highlight your changes.

1. From the WORD FILE menu, choose *Save As* . In the new popup window, select a name and location, and then choose *PDF* from the FORMAT dropdown menu. Press *Save.*

2. Open the document in Adobe Acrobat Pro.

Select the text highlight tool from the menu bar  . You can also find this tool in the *Comments and Markup* submenu in the *TOOLS* menu on the main menu bar. Once the tool is selected, simply drag the cursor over the text you wish to highlight. If you wish to undo the highlight, click on the highlighted text and press the delete button on your keyboard. Save the highlighted document.