**INSTRUCTIONS:**

* If you believe your activity may not meet the definition of “Human Research” subject to IRB oversight, please complete and submit HRP 500 – Research Activity Form prior to developing you protocol.
* If you believe your activity meets the definition of “Human Research” subject to IRB oversight, please complete this protocol “TEMPLATE PROTOCOL (HRP-503” to prepare a document with the information from following sections. Be sure that all study materials are correct and consistent with the information in this protocol.
* Depending on the nature of what you are doing, some sections may not be applicable to your research. If so mark as “NA”. For example, research involving a retrospective chart review may have many sections with NA. For subsections, like 1.x or 8.x, you can delete it if it’s not applicable.
* When you write a protocol, keep an electronic copy. You will need to modify this copy when making changes.
* As you are writing the protocol, remove all instructions in italics so that they are not contained in the final version of your protocol.
* Omit starred (\*) items if this is the activation of a protocol at a new site or sites that will be overseen by a principal investigator who will take separate and full responsibility for that site or those sites. Complete by describing information specific to the site(s). Do not repeat information in the approved protocol that applies to all site(s).

**1**

**PROTOCOL TITLE:**

Human-Robot Interaction (HRI): Trust in Diagnostic Aiding Automation

**PRINCIPAL INVESTIGATOR:**

*Name:* Dr. Joseph Kider

*Department:* Modeling and Simulation

*Telephone Number:* N/A

*Email Address:* jkider@ist.ucf.edu

**SUB INVESTIGATORS:**

*Name:* Blake Nguyen

*Department:* Modeling and Simulation

*Telephone:* (408)-421-8487

*Email Address:* bnguyen@ist.ucf.edu

*Name:* Na’Kiya Russell

*Department:* Modeling and Simulation

*Telephone:* (850)-960-0305

*Email Address:* okruss@Knights.ucf.edu

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# Objectives\*

* 1. The purpose of this research study is to examine the effect of environmental conditions on the participant’s perception of an autonomous robot (diagnostic aiding automation) at varying levels of reliability. An autonomous robot’s reliability has been found to affect trust, but this study will specifically examine participants’ perception of a robot’s capabilities and trustworthiness as a function of the environment in which it operates. The two environments used in this study will include: (1) a mundane environment accessible by humans, and (2) an extreme environment inaccessible by humans. The level of reliability will be set at 50%.
  2. State the hypotheses to be tested.
     + **H1:** It is hypothesized that novice participants in the 50% reliability condition will have lower levels of trust in an autonomous robot than expert participants.
     + **H2:** It is hypothesized that novice participants in both the safe and dangerous environments will have lower levels of trust in an autonomous robot than expert participants.
     + **H3:** It is hypothesized that expert participants with both 50% reliability condition and safe environment will have lower levels of trust in an autonomous robot like novice participants.
     + **H4:** It is hypothesized that expert participants with both 50% reliability condition and dangerous environment will have higher levels of trust in an autonomous robot unlike novice participants.

# Background\*

* + - There is a body of existing research on the relationship between reliability and trust in automation. Previous research focused on human operators of teleoperated robots, or automation which performs a task once done by humans (Parasuraman & Wickens, 2008). As robotic technology advances, future robots will be able to operate autonomously, or perform tasks too dangerous or difficult for humans to accomplish alone (Oleson, Billings, Kocsis, Chen, & Hancock, 2011). Future robots will also be able to interact with humans as a member of a team (Billings et al., 2012). It has been found that human operators choose to rely on automation when trust outweighs self-confidence, and that when the opposite is true, they prefer to perform tasks manually (Lee & Moray, 1994). In the current study, we will manipulate the environment, as well as the reliability level of the robot to test for interaction effects between the two. The purpose of the manipulation of the environment is to investigate how high trust in and reliability on an autonomous robot remains in an environment inhospitable to humans as opposed to an environment in which a human could safely work. The research being done in this area will inform the scientific community on how humans will accept and interact with future robotic teammates.
    - Previous research has also looked into levels of expertise and found that in various disciplines, across multiple fields, there are people who are experts in their field that have a level of knowledge. In contrast, there are people in those filed that do not acquire or lack the level of knowledge of an expert, which are considered novice. There are also several variables that determine the differences across various levels of expertise. In this study, we want to investigate if varying levels of expertise influence how high in trust and reliability on an autonomous agent remains in an environment inhospitable in which a human could safely work.
    - Previous work by Berliner (1988), determined that there are several variables that must be considered when determining the difference between a novice and an expert. Berliner (1988), introduced the idea of “The Development if Expertise In Pedagogy”. This idea is a higher level ideology of the theory of skill learning. The skill learning theory contains five stages of skill development: novice, advanced beginner, competent, proficient, and expert. Berliner (1988) state that some of the variation between each stages depends on the years of experience. For example, Berliner classified novice as students or beginning teachers, while advanced beginners have at least two to three years of experience.
    - Moreover, Berliner (1988) define each of the five stages as follows: novice behavior is “rational, relatively inflexible, and tends to conform to whatever rules and procedures they were told to follow” – novice need task and events to be labeled and learned; advanced beginners (having some experiences) has developed verbal knowledge and strategic knowledge that allows context to guide behavior in terms of decision making; competent performers (more experience) have the ability utilize skills to make conscious choices, prioritize task, and decide on plans; proficient is the stage at which performers trust their intuition or “know-how is more prominent”; expert performer can be described as thinking, acting, and talking in an effortless manner that illustrates the rational and intuitiveness of the previous four stages, along with appropriate response deliveries. Altogether, each stages is meant to build off one another to aid the growth and progression of a performer’s development.
    - In addition to Berliner’s theory of skill learning, Dreyus & Dreyus (1986) described a theoretical framework of the Skill Acquisition Model (SAM). This model allows researcher to document the development of performers as they develop their skills and progress from stage to stage. It is believed this model can be applied to various fields and disciplines where a researcher would like to understand and provide a reference of how to gauge the performer’s performance. However, it will still be important to apply the theory in the research experiment.
    - Furthermore, the conceptions of the concept of prior knowledge plays a significant role in where someone starts in the five stages. According to Meyers (2003), who summarized Kelly’s (1955) theory of personal construct as their definition for prior knowledge. Prior knowledge was described as organizing factors of individuals thought process of new experiences and how these experience integrate organized thought process; which allows individuals to have new references for future events. Experience-based explanations were introduced as a framework for understanding prior knowledge (Meyers 2003, and Ackerson, Flick, & Lederman, 2000). Having some level of understanding of participant or student allows for them to be taught and create methods for developing a plan to help them develop in the skills theory.
    - Nonetheless, not only is prior knowledge level important but also technology use by young adults. According to Gabriel (2009), studies have shown there has been an increased number in toddler exposure to television, technology devices, and other tools. This increase in technology use at an early age has shown to correlate with attention span problems and controlling multiple stimuli. The increase use of the internet, portable devices, and computer game play has significantly changed brain activity between twenty-first century technology users versus millennial technology users. It was also prevalent in the study to look into “digital divide”. Gabriel (2009) stated digital divide is described as those who were born into technology, digital natives, and those who adapted to it later in life, digital immigrants. Marc Prensky, a researcher, was coined for the terms “digital natives” and “digital immigrants”. The idea with coining these terms were to illustrate the generational differences in which account for different technology related experiences. Thus, this generational gap is important to consider when identifying level of expertise or skill due to prior technology knowledge of experience may shape individuals are classified.
    - In conclusion, defining the term expert or novice has been made easy by utilizing the SAM model. The model provides guidance on how to classify individuals when determining between expert and novice. However, it is important to understand variables such as prior knowledge and technology experience can affect the overall status of an individual. Though, these two variables can be worked with if identified properly and protocols are in place for revising the process when outlying variables are encountered.

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# Inclusion and Exclusion Criteria\*

* Participants involved in this study will have to be students who are enrolled in a psychology class at the University of Central Florida and are over the age of 18. Participants will have to demonstrate eligibility (class registration) by signing up for Sona Systems and completing a pre-screening measure provided by Sona Systems (age). This pre-screening measure will screen students for age and gender such that only students who are 18 years old and above will be able to sign up to participate in our study.
* Researchers **will not attempt** to recruit persons identified as being part of a vulnerable population (e.g., children, prisoners, mentally disabled persons).

# Study-Wide Number of Subjects\*

* 1. Based on previous experimentation, and in an effort to ensure that we gather a minimum number of valid cases to serve as adequately usable data, we anticipate a suitable sample size to be to 180 participants.

# Study-Wide Recruitment Methods\*

* 1. **Recruitment Methods**
* Participants will be recruited from the general psychology research pool using SONA Systems. Participants will receive course credit for their participation that can be used for a qualifying undergraduate psychology course.
* Researchers will not specifically identify or contact potential research participants. Rather, the study will be listed as available to be participated in, via UCF’s SONA Systems. Our study will only be visible via SONA systems to potential participants who identify themselves to SONA Systems as being at least 18 years of age. Potential participants who meet this qualification will then be able to view our study as an available option for them to participate.
* If students are unable to participate in our study for reasons such as age, or if they do not wish to take part in our study for other personal reasons, the students will have the opportunity to arrange with their course professors an alternate assignment that will allow them to acquire the necessary course credit needed.
* No advertisements or other materials will be used to recruit study participants.
* We anticipate needing approximately 180 participants to complete this study.
  1. **Participant Compensation**
* Participants will not be compensated monetarily. Rather, they will be offered course credit for their participation. For this study, participants will receive .5 SONA credits to be used for participating psychology courses.
  + - This research will conform to UCF Psychology Department’s policy for granting course credit in return for research participation.

The policy specifically states:

*All face-to-face studies are worth twice as much as online studies. Face-to-face studies must be credited at the rate of 0.5 credits per 30 minutes (rounded up) and online studies must be credited at the rate of 0.25 credits per 30 minutes (rounded up). Thus, if your face-to-face study takes approximately 20 minutes to complete, your study should be set up to award 0.5 points to each participant. If the face-to-face study takes 40 minutes to complete, the study should be set up to award participants 1 point. Likewise, a 20 minute online study would be worth 0.25 points and a 40 minute online study would be worth 0.50 points.*

* If students are unable to participate in our study for reasons such as age, or if they do not wish to take part in our study for other personal reasons, the students will have the opportunity to arrange with their course professors an alternate assignment that will allow them to acquire the necessary course credit needed.

# Multi-Site Research\*

* 1. N/A

# Study Timelines\*

* 1. Describe:
     + The duration of an individual subject’s participation in the study is approximately 30 minutes
     + The researchers anticipate that we will need approximately 6 months to complete data collection and data analysis.
     + Below is the anticipated time to complete each step of this study:

1. Explanation of research/informed consent 5 mins
2. Review robot information 10 mins
3. Questionnaire 10 mins
4. Demographic questionnaire and debriefing 5 mins

# Study Endpoints\*

* 1. N/A
  2. N/A

# Procedures Involved\*

* 1. Describe and explain the study design.
     + This study is a mixed methods repeated measure design with one between subjects variable (2 levels) and two within subjects variables (2 levels each).
  2. Provide a description of all research procedures being performed and when they are performed, including procedures being performed to monitor subjects for safety or minimize risks.

Prior to arrival, participants will have completed a prescreening questionnaire that will help us determine their levels of expertise. Upon arrival, participants will be assigned to their corresponding group (novice or expert).

* + - 1. Participants will review and sign the Informed Consent form and questions or concerns will be addressed by the experimenter.
      2. The experimenter will provide the participant with one two-sided page containing written information and five images. The pages will describe a robot, its purpose (identify human forms based on feature recognition), its capabilities, reliability, and images of environments. Participants in the extreme environment will view images of a fire inside a burning building, and a building made structurally unstable by an earthquake. The safe environments are represented by a picture of an office room with cubicles, and a picture of a stairwell. All participants will be in the 50% reliability condition and will receive information about the robot’s capabilities, indicating that it is successful 50% of the time in correctly identifying humans, and the other 50% of signals are false alarms.
      3. Once the participant has been given ample time (10 minutes) to review and study the material, he or she will be given a questionnaire about the perceived reliability and trustworthiness of the robot (attached)
      4. Once the participant has filled out the dependent measures, he or she will be asked to complete a demographic questionnaire, including demographic questions, as well as questions about prior military experience, and experience with robots.
      5. The participant will then be given a debriefing from (Post-Participation Information form) that discusses information on the purpose of the study, as well as contact information of the researchers. Any questions from the participant will be addressed at this time. When the participant leaves the study location, the experimenter will issue them credit on the SONA system.
  1. Describe:
     + Procedures performed to lessen the probability or magnitude of risks.
     + All drugs and devices used in the research and the purpose of their use, and their regulatory approval status.
     + The source records that will be used to collect data about subjects. (Attach all surveys, scripts, and data collection forms.)
     + N/A
  2. What data will be collected including long-term follow-up.
     + Participant biographical data and questionnaire data.
  3. For HUD uses provide a description of the device, a summary of how you propose to use the device, including a description of any screening procedures, the HUD procedure, and any patient follow-up visits, tests or procedures.
     + N/A

# Data and Specimen Banking\*

* All survey material identification shall be done through a participant id number that cannot be traced back to the participants. In addition, participants will sign up for the study using a Sona ID number that is only known to the participant. This is done to avoid any member of the research team accidentally finding out the identity of the research participants when they grant participation credit to participants via Sona systems. Through this ID number system, researchers granting credit to research participants cannot identify participants or potential participants via their name. Only de-identifiable summary results (e.g., mean ages, age ranges, number of males and females) have the potential to be published in technical research reports.
* The principal and sub-investigators are responsible for collecting and preserving data. Data will be secured in a locked file cabinet and kept for a period of time that is compliant with human subject’s research. In the event that digital data is managed and stored, data will be stored in a secured network drive in which folder access will be restricted to those listed and approved in this protocol.
* No specimens or data will be transported.
* Data shall be managed carefully by monitoring each of the survey items to ensure that they are filled out completely and that the survey items for each participant are combined together. If participants chose not to respond to items, researchers will determine whether certain items are systematically unanswered by study participants and consider removing those items. Participants will not be penalized for choosing not to respond to a question/item. Data will be secured in a locked file cabinet or on a secured network drive in which access is restricted to individuals listed on this protocol and kept for a period of time that is compliant with human subject’s research. In the event that digital data is managed and stored, data will be stored in a secured network drive in which folder access will be restricted to those listed and approved in this protocol.
* Researchers will carefully monitor the data to determine if certain items are systematically unanswered by participants. As this situation could be a case of having “bad items” included in our item pool, we will work to ensure that these items receive additional scrutiny and are removed as necessary.
* Further, if participants are found to be malingering or “Christmas Treeing” items, our research team will take the following steps:
  + Politely tell participants, “It is very important that you try your best during the experiment. If you feel that you cannot give your full effort, I will have to end the experiment early.” Participants will be granted credit for all of the time that they participated in the study.
* The researchers will have the right to ask participants to withdraw from the study if they are disrupting the participation of other participants, being disrespectful to other participants, the research staff, or research equipment, or engage in conduct that is not compliant with the University’s Golden Rule policy. In the event that participants are asked to withdraw, they will be granted credit for all of the time that they participated in the study.

# Data Management\* and Confidentiality

* 1. Describe the data analysis plan, including any statistical procedures.
  + Data analysis plan will include but is not limited to the use of correlation, regression, and ANOVA statistical techniques as well as analyzing data for mean trends or otherwise useful patterns. The independent and dependent variables are listed below in Table 1.

|  |  |
| --- | --- |
| Independent Variables | Dependent Variables |
| Demographic questionnaire:   * Gender/Sex * Video game experience * Virtual reality experience * Military experience (e.g. rank, deployment, time in service, etc.) |  |
| Levels of Expertise:   * Novice level * Expert level | Effects on:   * Perceived reliability * Perceived trustworthiness of the robot |
| Environmental Conditions:   * Safe (mundane) environments * Dangerous (extreme, hostile) environments | Effects on:   * Perceived reliability * Perceived trustworthiness of the robot |
| Quasi-Independent Variable:   * 50% reliability level | Effects on:   * Perceived reliability * Perceived trustworthiness of the robot |

* 1. Provide a power analysis.
     + A power analysis was conducted using the power analysis software, G\*Power (Faul, Erdfelder, Lang, & Buchner, 2007), for an F-test, with a medium effect size (eta squared= 0.25), and an alpha level of 0.05. Based on this analysis, the estimated sample size calculated was N=179.
  2. Describe the steps that will be taken secure the data (e.g., training, authorization of access, password protection, encryption, physical controls, certificates of confidentiality, and separation of identifiers and data) during storage, use, and transmission.
     + During data collection, data will be protected within a password secured computer hard drive. Only the PI’s and co-PI’s will have access to the computer hard drive. After data collection is complete, the data will be saved, stored, and maintained on a password protected hard drive and locked in a secure location in the PI’s laboratory. Only the PI’s and co-PI’s will have access to the password-protected hard drive.
  3. Describe how data or specimens will be handled study-wide:
     + What information will be included in that data or associated with the specimens?
       - All survey material identification shall be done through a participant id number that cannot be traced back to the participants. In addition, participants will sign up for the study using a SONA ID number that is only known to the participant. This is done to avoid any member of the research team accidentally finding out the identity of the research participants when they grant participation credit to participants via SONA systems. Through this ID number system, researchers granting credit to research participants cannot identify participants or potential participants via their name. Only de-identifiable summary results (e.g., mean ages, age ranges, number of males and females) have the potential to be published in technical research reports.
     + Where and how data or specimens will be stored?
       - During data collection, data will be protected within a password secured computer hard drive. Only the PI’s and co-PI’s will have access to the computer hard drive. After data collection is complete, the data will be saved, stored, and maintained on a password protected hard drive and locked in a secure location in the PI’s laboratory. Only the PI’s and co-PI’s will have access to the password-protected hard drive.
     + How long the data or specimens will be stored?
       - Data will be kept for a period of five years and secured in a locked file cabinet that is compliant with human participants research. Digital recorded data (e.g., audio recording, simulation logs) will be stored indefinitely in a secured network drive in which folder access will be restricted to those listed and approved in this protocol.
     + Who will have access to the data or specimens?
       - All sub and co-investigators are responsible for collecting and preserving data. No other personnel or external parties will have access.
     + Who is responsible for receipt or transmission of the data or specimens?
       - All sub and co-investigators are responsible for collecting and preserving data.
     + How data or specimens will be transported?

# No specimens or data will be transported*.*

# Provisions to Monitor the Data to Ensure the Safety of Subjects\*

* 1. The proposed study does not assume more than minimal risk.
  2. The research team will not attempt to recruit participants from vulnerable populations. All volunteers must indicate that they are of legal age (18+ years of age) by answering a prescreening questionnaire via SONA Systems. Our study will not be visible as a participation option to students who do not indicate that they are at least 18 years of age.

# Withdrawal of Subjects\*

* Individuals will be informed that participation in the study is voluntary and that they may withdraw at any time without penalty.
* Researchers believe that the likelihood of participant risk is no greater than minimal risk.
* Participants will be allowed to withdraw from the study at any time should they feel it necessary. Further, they will be credited for the amount of time that they took part in the study prior to choosing to withdraw.
* In addition, participants have the right to leave items or measures unanswered if they feel that answering the items or measures is not in their best interest, could cause unforeseen psychological or physical discomfort, or could compromise the confidentiality of their data. Researchers will not force participants to answer survey items or partake in filling out survey measures if they do not choose to do so.
* Participants may be asked to withdraw from the research without their consent in circumstances in which participants are found to be malingering or “Christmas Treeing” items (After being asked to stop this behavior by the researchers), or if the researchers determine that continuing participation is not in the best interest of the participant (e.g., in the event of tornado warning in the building, participant is falling asleep, etc.). Participants may be withdrawn from the study if they are disrupting the participation of other participants, being disrespectful to other participants, the research staff, or research equipment, or if participants engage in conduct that is not compliant with the University’s Golden Rule policy.
* In the event that participants are asked to withdraw, they will be granted credit for all of the time that they participated in the study.

# Risks to Subjects\*

* 1. There are no anticipated risks to the participants.
  2. If applicable, indicate which procedures may have risks to the subjects that are currently unforeseeable.
     + N/A
  3. If applicable, indicate which procedures may have risks to an embryo or fetus should the subject be or become pregnant.
     + N/A
  4. If applicable, describe risks to others who are not subjects.
     + N/A

# Potential Benefits to Subjects\*

* There are no anticipated benefits to participants. However, emersion in a research environment may be beneficial to some participants who are interested in psychological research.
* No other benefits are offered by the researcher.

# Vulnerable Populations\*

* 1. The proposed protocol does not recruit any sensitive population that receives additional protections under the Code of Federal Regulations 45 CFR 46: Subpart B. More specifically, these populations will be excluded from recruitment.

# Community-Based Participatory Research\*

* 1. N/A

# Sharing of Results with Subjects\*

* Subjects will have the option to inquire about the results of the study by contacting the experimenters.
* Experimenter contact information will be provided to the subjects on the Post-Participation Information form provided upon the completion of the study.

# Setting

* 1. Describe the sites or locations where your research team will conduct the research.
     + Identify where your research team will identify and recruit potential subjects.
       - Participant recruitment will be conducted through UCF’s SONA system.
     + Identify where research procedures will be performed.
       - Research facilities are located on the main campus of the University (PSY 303G) and its adjacent research park (Partnership II building, Rooms 111 and 112). As both facility locations are associated with official university business and activities, we do not anticipate privacy interests to be compromised.

# Resources Available

* 1. Describe the qualifications (e.g., training, experience, oversight) of you and your staff as required to perform their role. When applicable describe their knowledge of the local study sites, culture, and society. Provide enough information to convince the IRB that you have qualified staff for the proposed research.
     + All research staff have completed and received CITI training for the proposed research.
     + All researchers have received adequate training and experience to handle human subject research.
     + Research team headed by Dr. Florian Jentsch.
  2. Describe other resources available to conduct the research: For example, as appropriate:
     + Justify the feasibility of recruiting the required number of suitable subjects within the agreed recruitment period. For example, how many potential subjects do you have access to? What percentage of those potential subjects do you need to recruit?
       - UCF’s SONA system provides access to between 1-3000 undergraduate participants, of which approximately 1% will need to be recruited.
     + Describe the time that you will devote to conducting and completing the research.
       - 6 months have been dedicated to the design and preparation of the experimental procedures, another 2 will be dedicated to development of the simulations and tools utilized in the study, and 6 will be dedicated to the recruitment of participants, collection of data, and analysis of outcomes.
     + Describe your facilities.
       - Research facilities are located on the main campus of the University (PSY 303G) and its adjacent research park (Partnership II building, Rooms 111 and 112).
     + Describe the availability of medical or psychological resources that subjects might need as a result of an anticipated consequences of the human research.
       - Should participants experience symptoms of simulator sickness at a moderate or severe level, they will be withdrawn from the study.
       - In these cases, they will be asked to wait at the experimental site until their symptoms have reduced. Participants will be required to wait a minimum of 10 minutes before their symptoms are re-checked. Once the symptoms have reduced to an appropriate level, participants will be allowed to leave.
       - If participants are to have concerns with the research during participants (e.g., due to the subject matter involving military scenarios with a robot teammate), information on UCF’s Counseling and Psychological Services (CAPS; <http://caps.sdes.ucf.edu/>) will be made available to participants via the informed consent document.
     + Describe your process to ensure that all persons assisting with the research are adequately informed about the protocol, the research procedures, and their duties and functions.
       - Researchers will undergo extensive training regarding the nature of the experimental tasks, the tools involved, and the appropriate administration of the study.

# Prior Approvals

* 1. N/A

# Recruitment Methods

* 1. Participants will be recruited through the psychology department’s sample pool via an online experiment management system (SONA).
  2. Participants will be undergraduate students currently enrolled in a psychology course.
  3. The proposed protocol will be added to the list of studies on the SONA management system upon IRM approval. Potential participants navigate the SONA system’s list of available studies. Each study has a title and brief description of the study.
  4. N/A
  5. N/A

# Local Number of Subjects

* 1. The proposed protocol is a single-site study that intends to recruit 180 participants.
  2. If applicable, distinguish between the number of subjects who are expected to be enrolled and screened, and the number of subjects needed to complete the research procedures (i.e., numbers of subjects excluding screen failures.)
     + N/A

# Provisions to Protect the Privacy Interests of Subjects

* 1. The informed consent clearly outlines the participant’s rights, including that the participant may choose to skip, or not answer any question that he or she does not wish to answer. Moreover, participants may end the study at any time. Therefore, participants’ response to any item and/or general completion of the study is completely by the participants’ volition.
  2. In compliance with the Department of Psychology’s experiment requirements, two experimenters (an active and a passive experimenter) will attend each research time-slot. The active experimenter will be he or she who is responsible for interacting with the participants. The passive experimenter will be in the laboratory but will not interact with the participant. The passive experimenter is intended to exist to help the participants feel at ease with being in a novel environment and experiencing an experiment with which they are unfamiliar. Additionally, before beginning the procedures, participants will be explicitly told that they have the right to withdraw or skip questions at any point during the study. Moreover, upon completion of the study, participants will be debriefed. The informed consent will also indicate that all data will be collected anonymously, with no connection to the participant.
  3. Regarding participant registration, the SONA system used to recruit and manage participant registration maintains the participants’ information (such as name, ID#, and student email address) anonymously, such that researchers do not have direct access to the participants personal information. SONA system generates a unique ID for participants. Researchers use the unique ID to confirm that the participant is attending the correct lab, study, and time-slot, and also use the unique ID to confirm the SONA system credit allotted for attending the study. Regarding the collection of participant data during the study, all data will be collected anonymously, with no connection to the participant. Therefore, no research will have available any identifiable information from participant responses.

# Compensation for Research-Related Injury

* 1. N/A

# Economic Burden to Subjects

* 1. N/A

# Consent Process

* 1. Indicate whether you will you be obtaining consent, and if so describe:
     + Where will the consent process take place?
       - The consent process will take place in the research laboratory location where participants will engage and interact in experimental tasks.
     + Any waiting period available between informing the prospective subject and obtaining the consent.
       - Participants may take as long to consider the content of the consent as they please.
     + Any process to ensure ongoing consent.
       - Participants may leave at any time for any stated or unstated reason.
     + Whether you will be following “SOP: Informed Consent Process for Research (HRP-090).” If not, describe:
       - Once in the research lab, participants will be presented with the Informed Consent form that includes details of the study, information on the rights of research participants, contact information for the research team and institutional review boards (IRB). The informed consent process will be conducted by the research assistants who will be facilitating this study and supervised by the Principal Investigator and Co-Investigator (listed in the Investigators section of this protocol). After reviewing the form, participants will be given the opportunity to ask for clarification on any of the study details and/or ask questions about the research. Once this opportunity has passed and all questions and concerns have been addressed, participants will be asked if they would like to continue with their participation in the study. Participants will indicate their consent by signing their name on the Informed Consent form. If they choose not to participate, they will be thanked for their time and instructed to the exit. Informed Consent will not be attempted in any language other than English. In accordance with the University of Central Florida policy that dictates students demonstrate an adequate level of English language comprehension, researchers will anticipate participants to be able to read and write in English.

**Non-English-Speaking Subjects**

* + - The proposed study will be conducted in English only. Non-English-speaking populations will not be specifically recruited.

**Waiver or Alteration of Consent Process (consent will not be obtained, required information will not be disclosed, or the research involves deception)**

* + - N/A

**Subjects who are not yet adults (infants, children, teenagers)**

* + - Participants will be recruited through the psychology department’s sample pool via an online experiment management system (SONA). The SONA system will be set such that individuals under the age of 18 will not have access to register for the study and SONA timeslots.

**Cognitively Impaired Adults**

* + - Cognitively Impaired Adults are excluded from the study, such that they will not be actively recruited and will be filtered out through the SONA recruitment application.

**Adults Unable to Consent**

* Adults unable to provide consent are excluded from the study, such that they will not be actively recruited and will be filtered out through the SONA recruitment application.

# Process to Document Consent in Writing

* 1. Describe whether you will be following “SOP: Written Documentation of Consent (HRP-091).” If not, describe whether and how consent of the subject will be documented in writing.
* Once in the research lab, participants will be presented with the Informed Consent form that includes details of the study, information on the rights of research participants, contact information for the research team and institutional review boards (IRB). The informed consent process will be conducted by the research assistants who will be facilitating this study and supervised by the Principal Investigator and Co-Investigator (listed in the Investigators section of this protocol). After reviewing the form, participants will be given the opportunity to ask for clarification on any of the study details and/or ask questions about the research. Once this opportunity has passed and all questions and concerns have been addressed, participants will be asked if they would like to continue with their participation in the study. Participants will indicate their consent by signing their name on the Informed Consent form. If they choose not to participate, they will be thanked for their time and instructed to the exit. Informed Consent will not be attempted in any language other than English. In accordance with the University of Central Florida policy that dictates students demonstrate an adequate level of English language comprehension, researchers will anticipate participants to be able to read and write in English.
  1. If your research presents no more than minimal risk of harm to subjects and involves no procedures for which written documentation of consent is normally required outside of the research context, the IRB will generally waive the requirement to obtain written documentation of consent.
  2. (If you will document consent in writing, attach a consent document. If you will obtain consent, but not document consent in writing, attach a consent script. Review “CHECKLIST: Waiver of Written Documentation of Consent (HRP-411)” to ensure that you have provided sufficient information. You may use “TEMPLATE CONSENT DOCUMENT (HRP-502)”to create the consent document or script.)

# Drugs or Devices

* 1. N/A
  2. N/A