APPLICATION TO USE HUMAN RESEARCH SUBJECTS

Purdue University
Institutional Review Board

1. Project Title: Writing in Botany Majors

2. Full Review ☐ Expedited Review ☐

3. Anticipated Funding Source: None

4. Principal Investigators *[See Policy on Eligibility to serve as a Principal Investigator for Research Involving Human Subjects]*:

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6. Consultants *[See Education Policy for Conducting Human Subjects Research]*:
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7. The principal investigators agree to carry out the proposed project as stated in the application and to promptly report to the Institutional Review Board any proposed changes and/or unanticipated problems involving risks to subjects or others participating in the approved project in accordance with the HRPP Guideline 207 Researcher Responsibilities, Purdue Research Foundation-Purdue University Statement of Principles and the Confidentiality Statement. The principal investigator has received a copy of the Federal-Wide Assurance (FWA) and has access to copies of 45 CFR 46 and the Belmont Report. The principal investigator agrees to inform the Institutional Review Board and complete all necessary reports should the principal investigator terminate University association.

Gretta Michael — 11/15/15
Principal Investigator Signature — Date

8. The Department Head (or authorized agent) has read and approved the application. S/he affirms that the use of human subjects in this project is relevant to answer the research question being asked and has scientific or scholarly merit. Additionally s/he agrees to maintain research records in accordance with the IRB's research records retention requirement should the principal investigator terminate association with the University.

_____ _____
Department Head *(printed)* Department Name

_____ _____

Department Head Signature Date

[redacted]

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9. This project will be conducted at the following location(s): (please indicate city & state)
   - ☐ Purdue West Lafayette Campus
   - ☐ Purdue Regional Campus (Specify): _____
   - ☐ Other (Specify): _____

10. If this project will involve potentially vulnerable subject populations, please check all that apply.
   - ☐ Minors under age 18
   - ☐ Pregnant Women
   - ☐ Fetus/fetal tissue
   - ☐ Prisoners Or Incarcerated Individuals
   - ☐ University Students (PSYC Dept. subject pool ___)
   - ☐ Elderly Persons
   - ☐ Economically/Educationally Disadvantaged Persons
   - ☐ Mentally/Emotionally/Developmentally Disabled Persons
   - ☐ Minority Groups and/or Non-English Speakers
   - ☐ Intervention(s) that include medical or psychological treatment

11. Indicate the anticipated maximum number of subjects to be enrolled in this protocol as justified by the hypothesis and study procedures: 15

12. This project involves the use of an **Investigational New Drug** (IND) or an **Approved Drug For An Unapproved Use**.
   ☐ YES ☐ NO
   Drug name, IND number and company: _____

13. This project involves the use of an **Investigational Medical Device** or an **Approved Medical Device For An Unapproved Use**.
   ☐ YES ☐ NO
   Device name, IDE number and company: _____

14. The project involves the use of **Radiation or Radioisotopes**:
   ☐ YES ☐ NO

15. Does this project call for: (check-mark all that apply to this study)
   - ☐ Use of Voice, Video, Digital, or Image Recordings?
   - ☐ Subject Compensation? Please indicate the maximum payment amount to subjects. $_____
     Purdue's Human Subjects Payment Policy Participant Payment Disclosure Form
   - ☐ VO2 Max Exercise?
   - ☐ More Than Minimal Risk?
   - ☐ Waiver of Informed Consent?
   - ☐ Extra Costs To Subjects?
   - ☐ The Use of Blood? Total Amount of Blood _____ Over Time Period (days) _____
   - ☐ The Use of rDNA or Biohazardous materials?
   - ☐ The Use of Human Tissue or Cell Lines?
   - ☐ The Use of Other Fluids that Could Mask the Presence of Blood (Including Urine and Feces)?
   - ☐ The Use of Protected Health Information (Obtained from Healthcare Practitioners or Institutions)?
   - ☐ The Use of academic records?

16. Does investigator or key personnel have a potential financial or other conflict of interest in this study?

☐ YES ☐ NO

APPLICATION NARRATIVE

A. PROPOSED RESEARCH RATIONALE

- Describe why you are conducting the study. Identify the research question being asked.
    - We are conducting this study to gain insight and understanding on how students are using the writing skills they have learned in the past. Students that are studying botany have different writing assignments than those studying humanities.We want to know what kinds of writing Botany students participate in, and how have they implemented writing skills previously acquired in both secondary education as well as previous college courses. How are students within Botany majors utilizing their writing skills. For this study, we are loosely defining "writing skills" as their processes, formatting, and techniques.

- What does the previous research indicate that necessitates this type of research? Identify common gaps, and results of previous research that lead you to your new questions.
    - Some previous research indicated that students within science majors are not building upon their writing skills while they are in college. According to Bok, "at most colleges, humanities concentrators complete many more papers than their classmates majoring in sciences.As undergraduates themselves confirm, nothing improves writing more than constant practice." (89-90, 2006) It is important to identify this gap because employers are expecting college graduates to come out of school prepared for the work force, but are not well prepared because their writing skills are not well developed.
      Another article that stresses how important learning writing is for science majors was written by Maria Gigante. She discusses the need for scientists to provide better communication from the scientific community to the rest of the world--us laymen who don't understand all of the elaborate terms scientists often use amongst themselves. Gigante tells us that because of their "unwillingness or ability…to contribute to this effort [scientists place] the burden of communication on science journalists, and there are not enough journalists to address and accommodate the immense amount of scientific research published every month in scientific journals" (77).
    - Some other previous research shows that college freshmen are entering college not fully prepared to write in college. The main issue, however, comes when they are in an introductory writing course. The influx of new students makes it difficult for professors to teach these courses. The students are taking the introductory course because they have to, but might not be gaining a lot of knowledge to write well for college. (Bok, pg. 85, 2006) This poses a problem for Botany majors because they take the introductory English courses, but if they are not getting the proper training to write well for college then the chances to improve are small. We are interested in knowing what kinds of writing Botany majors do in their courses and if they are improving in order to be well prepared to write outside of school, in future careers.
      Gigante's article is suggesting that once a student embarks on a science major, they don't use their previously learned writing skills. She is advocating for more support within the major to continue the use of those writing skills and I think she does a really good job of outlying the importance of clearly communicating new and old scientific ideas. Every student has learned some level of composition during their time in high school and are required to complete additional courses dedicated to these skills throughout their college career. If science majors (specifically Botany majors for our study) lack the necessary means to communicate their findings to the public, then their research will be for naught.

- This should be a mixed-methods study. Please list what quantitative paradigm you are using and why. Also, discuss the qualitative research design that most closely aligns with your study—you should be able to discuss your study in terms of the qualitative research method. (review the readings).

- The different research methods we will conduct for this study will be surveys and interviews. We can gain information from many participants through a survey. We are looking to conduct an exploratory research survey because we do not know the kinds of writing skills students have learned in the past in their Botany courses and want to know more about it. As Heppener et al. say, "[e]xplanatory research is often conducted when little is known about a phenomenon, and the researcher wants to learn more about it" (202). The good thing about surveys is that "the researcher does not manipulate an independent variable, so the researcher is not concerned with manipulation checks" (Heppener et al. 204). However, because we do not want to weigh our participants down with lengthy survey questions, we cannot get detailed information of perceptions through a survey, therefore we will also be doing interviews. Our paradigm will be a postpositivist one. According to Teddlie and Tashakkori, this means that we "acknowledge that [our] value systems play an important role in how [we] conduct research and interpret [our] data" (5).

  Our surveys will ask questions relating to demographic information, and what types of skills students think they utilize while writing within their Botany major, such as:
  - What kinds of writing do you do within your major?
  - What year are you in school? and other demographic data

  Our interviews will be semi-structured. This means that they will include both closed questions and open questions. Because our surveys, will have already covered most things we want to know in the realm of closed questions, we will probably lean more towards open-ended questions. These "help elicit your informant's perspective and allow for a more conversational exchange" (Sunstein and Strater 221) We will aim to ask more in-depth questions about the results we got back from our surveys and also ask more qualitative questions such as:
  - Could you elaborate the various writing assignments you do for your classes?
  - How do you feel about how your previous English courses prepared you for the writing you do within your major?
- Phenomenological studies involve interviews, but we need to practice bracketing and take out our own perceptions out of the interviews (Nieswiadomy 172-3). As English majors, we have experience with writing, but knowledge of writing within the science community is unknown. We can have our own perceptions, but we should listen and talk about how their past writing skills in classes in order to gain understanding.

B.1 SPECIFIC PROCEDURES TO BE FOLLOWED/ JUSTIFICATION OF METHODS

- Describe in a step-by-step manner what you will require subjects to do in this study.
  - Our study will be based on voluntary response. Students participating in the botany club will be sent an email including a request to take a survey. Along with this, we will have Botany TAs make an announcement and hand out flyers regarding the study. We hope to gain a list of student emails through connections to students within the Botany club and talking to participants in person. We will then request a few subjects for a face-to-face interview in order to gain insight on their perceptions of writing and how they are utilizing past writing skills in their studies.
- Describe how you will build your protocols in a step-by-step manner. And why they need to be built this way. Review the readings for this portion.

  1. Begin with research question: How are students within Botany majors utilizing their writing skills within their major?
  2. Fill out and complete IRB for research approval.
  3. Create draft for survey questions. After approval, begin to brainstorm ideas as to what we are studying specifically in order to create research questions.
  5. Complete research questions and finalize survey
  6. Send survey to as many students within Botany majors as we can and wait for results.
  7. As we are waiting for results, request interviews.
  8. Schedule and conduct interviews.

9. Analyze survey data and create clusters from data.
10. Put interview transcripts into NVivo and analyze data.
11. Take the data from the interviews and begin looking for themes. These themes include writing assignments given for classes, how they approached the writing assignments, how they felt about feedback, how they will use the feedback, etc.
12. After clusters are created, compare and contrast clusters and begin writing the report.

- Identify all data you will collect.
  - Quantitative data will be collected through surveys. Qualitative data will be collected from certain open answer survey questions, as well as data answers collected from the interviews. We will ask questions regarding their writing in Botany courses, how they feel about feedback, and what they do with the feedback on various writing assignments. Refer to section L for more information.We can also collect qualitative data by analyzing the rubric of their required writing assignment that we collect. Quantitative data might also be noticed if we find a common numeric theme in common assignments.
- List all technologies that you will use.
  - We will be using Qualtrics to create and host the site for our surveys. We will use NVivo for our interviews. With NVivo, we will be able to take the qualitative data collected and have the technology analyze the data. This way we are able to create clusters easier through this technology. We will also be using audio recorders to record the interview with the participant to transcribe later. We will also use our laptops to take notes during interviews.
- List how you will analyze this data. Review the readings from the early part of the semester.
  - We will work to find the commonalities in the answers and place them into small clusters. According to Dr. Andy Field, clusters are created by grouping together "variables that look as though they explain the same variance" (1). He later goes into more detail and explains the steps to creating clusters (4). We will follow his steps to determine what clusters to create, and what data to include in each cluster. For example, if multiple students feel that they are turning in quality writing assignments that are deserving of a good grade, but are receiving feedback that indicates otherwise, we would cluster them into a category titled "False Confidence Writers." We will also be observing artifacts such as writing assignments and rubrics from the writing assignments being analyzed that show the requirements for those specific assignments. According to Spinuzzi, artifacts can give us insights into unfamiliar culture. (*Topsight*, pg. 115) It would be very helpful to get numerous artifacts from past and present assignments to see if the students improved their writing over time and steps they took for that to happen, or even gaining understanding if the opposite happened. Spinuzzi encourages to look for traces of changes in artifacts. (pg. 120) We would also like to have some writing samples from students to see the kinds of language used within their writing and how they could be different from course-to-course or course levels.

- List all of the organizational levels in your study that you are hoping to study and what you will collect at each (this can be rolled into a previous question to reduce redundancy).
  - We are studying the students' objective of writing within their major. The level of study this falls under according to Spinuzzi's writing would be the micro-level. (*Topsight,* pg. 168) This level of study involves individuals habits, therefore the habits students have when completing writing assignments and the content written. Are their professors grading their papers based on spelling and grammar or getting the correct answer within the writing? We are interested in knowing the rules students take when they receive a writing assignment. Finally, the division of labor is important. How do their professors communicate the assignment to them and how do the teacher's revisions communicate back to the students? These types of data will be collected mostly through interviews and observation methods because we can get different perspectives on writing from participants.

B.2 METHODOLOGICAL CONCERNS

- Kirsch and Ritchie inform your study?
    - Some students might feel insecure about their writing skills and this could cause them to give surfaced answer or unwilling to give us past written assignments. We would like to get in-depth information and perceptions from the interviews, but if a participant is not feeling comfortable to answer a question, this could be an issue. Kirsch and Ritchie talked about the ethical issues we face as researchers obtaining information that our participants do not want others to know about. (pg. 17) For example, if a student gives us information about a writing assignment and informs us of how they completed the assignment through plagiarism or had someone write it for them, then we as researchers could face the ethical dilemma of whether we report or keep that information. We will give each participant an inform consent. We will make sure to maintain the confidentiality for each subject studied. The surveys will remain anonymous; therefore we hope they will give honest answers when the surveys are taken. We will assure the interviewees that the data collected for our study will keep their names anonymous. Our hope that the subjects' knowledge of the confidentiality will encourage them to give upfront and honest answers.
- How do Sullivan and Porter contribute to your understanding of your process for conducting this research?
    - We will be using a mixed methods approach to our study. Teddlie and Tashakkori define mixed methods study as "a type of research design in which QUAL (qualitative data) and QUAN (quantitative data) approaches are used in types of questions, procedures, and/or inferences. (Teddlie and Tashakkori, pg. 7) Through the method of surveys, we can gain information from many students, while we can gain specific perspective from students through interviews. We will be able to ask different types of questions within each method. Questions in surveys can be general for large amounts of participants and questions can be more specific within interviews. Through implementing these various methods will help us gain understand of Botany major's writing and revision methods as well as the writing skills needed to complete their assignments.

C. SUBJECTS TO BE INCLUDED

Describe:

- The inclusion criteria for the subject populations including gender, age ranges, ethnic background, health status and any other applicable information. Provide a rationale for targeting those populations.
    - We will be focusing our research on a large population. The only inclusion criteria is that they must be an undergraduate at Purdue University within a Botany major. Participants can be of any gender, ethnic background, and health status. This is the population that is pertinent to our research question.
- The exclusion criteria for subjects.
    - The only participants who will be excluded from our research, other than those who choose not to participate are those who are not undergraduate students at Purdue University who are studying within a Botany major.
- Explain the rationale for the involvement of any special populations including prisoners
    - We are only using Purdue University students.
- Provide the maximum number of subjects you seek approval to enroll from all of the subject populations you intend to use and justify the sample size. You will not be approved to enroll a number greater than this. If at a later time it becomes apparent you need to increase your sample size, you will need to submit a Revision Request.
    - The maximum number of participants we anticipate working with is fifteen (15). I chose this number because it gives us enough participants to find patterns in our data, but also allows us to keep a realistic number of students who would be willing to sacrifice their time to us.

- **For NIH funded protocols**: If you do not include women, minorities and children in your subject pool, you must include a justification for their exclusion. The justification must meet the exclusionary criteria established by the NIH.
    - We will be excluding children from our research because we are solely focusing on the undergraduate age range. Women are acceptable participants as much as men are for our study.

D. RECRUITMENT OF SUBJECTS AND OBTAINING INFORMED CONSENT

- Describe your recruitment process in a step-by-step manner. The IRB needs to know all the steps you will take to recruit subjects in order to ensure subjects are properly informed and are participating in a voluntary manner. An incomplete description will cause a delay in the approval of your protocol application.
    - In order to recruit students to participate in our study we will use a few different methods
        - Go to Lilly at different times during the day/week and ask the students working in the computer lab (Lilly 1426) (it is only for Botany majors--no other students have computer access) if they would like to participate
        - Get an email list for Botany majors and send out a brief summary of our study
        - Talk to advisers and/or professors in the botany department and ask to make announcements before class begins to quickly tell the students about our study

E. PROCEDURES FOR PAYMENT OF SUBJECTS

- Describe any compensation that subjects will receive. Please note that Purdue University Business Services policies might affect how you can compensate subjects. Please contact your department's business office to ensure your compensation procedures are allowable by these policies.
    - There will be no compensation for subjects

F. CONFIDENTIALITY

- Describe what steps you will take to maintain the confidentiality of subjects.
    - In order to maintain the confidentiality of our subjects, we will not include any identifying information in our final reports. Along with this, any information that they ask to be kept "off the record" will not be included in our final report.
- Describe how research records, data, specimens, etc. will be stored and for how long. The IRB generally recommends locked storage, such as a cabinet, for identifiable information. Please note, consent forms signed by subjects, parents and/or legally authorized representatives ARE considered research records.
    - The records and data collected from this research study will be kept until December 20, 2015 at the latest. information will be kept on password encrypted computers. Paper information will be transcribed into these computers, and then destroyed so that the only place containing sensitive information is the encrypted computers, which we, the researchers, will have access to.
- Describe if the research records, data, specimens, etc. will be de-identified and/or destroyed at a certain time. If records, data, specimens, etc. will be de-identified, address if a code key will be maintained and when, if ever, it will be destroyed. Additionally, address if they may be used for future research purposes.
    - All sensitive information will be kept only until December 20, 2015. Any sensitive information acquired before that date will be destroyed by shredding after it has been examined an transcribed. Some of the results for this study may be kept, but de-identified, for future use.

G. POTENTIAL RISKS TO SUBJECTS

- There are always risks associated with research. If the research is minimal risk, which is no greater than everyday activities, then please describe this fact.
    - Risk is highly minimal
- Describe the risks to participants and steps that will be taken to minimize those risks. Risks can be physical, psychological, economic, social, legal, etc.

- We see very minimal risks to our participants--we will utilizing no more than 30 minutes of their time; the only issue would be them sharing their work and feedback with us which may cause a little discomfort on their part if they didn't do well on the assignment.
- Where appropriate, describe alternative procedures or treatments that might be advantageous to the participants.
  - There will be no treatments or procedures implemented on participants
- Describe provisions for ensuring necessary medical or professional intervention in the event of adverse effects to participants or additional resources for participants.
  - No medical or professional intervention will be necessary throughout our research

H. BENEFITS TO BE GAINED BY THE INDIVIDUAL AND/OR SOCIETY

- Describe the possible direct benefits to the subjects. If there are no direct benefits, please state this fact.
  - We want students to build writing skills while they are in school and this will help them in the future. Employers look for candidates to have these skills after they finish school. While studies show that writing skills among Botany majors do not improve after their introductory writing course, our hope is to know if the students are utilizing what they've been taught about writing and will continue to improve while they are working towards their careers.
- Describe the possible benefits to society.
  - This study will allow students to see potential errors in their writing that they may not realize they are making. Once they realize that they are making errors, they can better resolve them and increase their writing skills. This will help them to become better prepared for their future career. Society will gain potential employees that are well equipped with the skills needed for specific. Future employers are expecting college graduates to come into the workplace and have all of the qualifications they need from their employees. If a student is strong in the subject of science, but lacks in their writing, this can pose an issue in the future.

I. INVESTIGATOR'S EVALUATION OF THE RISK-BENEFIT RATIO

- We see no immediate risk that could be posed to our participants. However, there are many benefits that may come from our research. For instance, the participants may benefit by becoming more aware of their writing habits, and learning ways to improve them. Therefore, our risk-benefit ratio highly favors the benefit aspect.

J. WRITTEN INFORMED CONSENT FORM ***(to be attached to the Application Narrative)***

- Submit a copy of the informed consent document in the form that it will be disseminated to subjects. The approved consent form will be stamped with the IRB's approval and returned to you for use.
- if recruiting subjects who do not speak English, submit both an English version as well as a version translated into the appropriate foreign language.

L. SUPPORTING DOCUMENTS ***(to be attached to the Application Narrative)***

- Recruitment advertisements, flyers and letters.
  - Elevator Pitch
  - Flyers
  - Email to Botany Club
- Survey instruments, questionnaires, tests, debriefing information, etc.
- Some example survey questions include:
  - What year of schooling are you in?
  - How often are you required to turn in a writing assignment in any of your Botany classes?
  - How do you generally feel about the quality of the writing assignments that you turn in?
  - Does the feedback you receive on these assignments reflect your level of confidence when submitting these assignments?

    - Do you think that writing assignments are necessary in your Botany classes?
    - In what areas do you wish to improve your writing skills?
- If the research is a collaboration with another institution, the institution's IRB or ethical board approval for the research.
- If the research accesses the PSYC 120 Subject pool include the description to be posted on the web-based recruitment program (formerly *Experimetrix*).
- Local review approval or affirmation of appropriateness for international research.
- If the research will be conducted in schools, businesses or organizations, include a letter from an appropriate administrator or official permitting the conduct of the research.