**Participant 1**

**Study Description and Purpose**

The purpose of this research study is to develop an instrument to measure graduate student instructors’ (GSIs’) motivation to use active learning teaching techniques. The instrument’s target population is GSIs who teach an introductory statistics course or a recitation section.

Within the context of this study, we are currently defining active learning and motivation in the following way:

Active learning refers to “classroom practices that engage students in activities, such as reading, writing, discussion, or problem solving, that promote higher-order thinking” (CBMS, 2016, 1).

Motivation is a multi-dimensional construct characterizing why individuals choose to use (or not use) active learning teaching techniques. Motivation is the “why” of behavior (Deci & Ryan, 1985).

There are many different types of active learning techniques GSIs may use when teaching introductory statistics. The purpose of this survey is to gather experts’ opinions about which active learning techniques are most valuable to include on an instrument measuring GSIs’ motivation. Your opinions will help us identify which techniques to address when creating research instrument items.

**Survey Questions**

1. At your institution, what are the teaching roles and responsibilities of graduate student instructors (GSIs) who teach statistics? Please also state whether GSIs at your institution are sole instructors of any statistics courses and, if so, which ones. If you do not have GSIs at your institution, please type, “We do not have GSIs at our institution.”

At my institution, GSIs typically have one of three types of positions

1. Grading positions, where primary time commitment may include creating solution keys, question testing, grading, and occasionally assisting students in office hours
2. Discussion TAs, where primary time is preparing for and holding Question and answer sessions with students (used for the undergraduate Statistics and Probability I course at the 400 level), or leading a lab activity involving programming in Python (used for the Data Science Discovery course at the 100 level). These TAs will also hold office hours, email with students, and grade assignments as well.
3. Solo instructors will take responsibility over a 30-50 student section of our intro to applied statistics or biostatistics course (prefixes 200 and 212 respectively), where responsibility vary based on supervisor. Currently, I supervise these positions, and responsibilities include leading class sessions, doing most grading, communicating with students/office hours, and choosing from available assignments and questions to use in their own class.
4. Based on the GAISE Guidelines and other literature on active learning in statistics classrooms, we have selected four activities for you to review. These are:

**Group work** – Method of instruction that gets students to work together in groups of two or more. Group work involves strategies that allow students to communicate with peers, share their ideas, and think critically about the topic(s). This may include think-pair-share, group presentations, or other small group work activities that have the characteristics described above.

**Technology** – Technological tools that assist in the communication, development, and exchange of knowledge. Using technology is about designing a lesson that allows students to acquire information through discovering material for themselves. This may include having students work with Tableau, CODAP, R, etc. to discover information. This does not include passive technology, such as displaying a power point.

**Real data** – Data that is not fake or simulated. Using real data may include collecting data from students during class or preparing real world data to integrate into a lesson that focuses on the data’s context and purpose. Collecting data may involve the administration of an in-class survey or an out-of-class survey to obtain information from students.

**Large-group discussions** – Conversation about the topic(s) at the class level. Large-group discussions are designed to help students think about and express their ideas with others in the class. During discussion, instructors prepare open-ended questions and move the discussion forward by having students elaborate on their thinking through providing explanations, evidence, or clarifications, and inviting others to react and respond by providing similar and/or alternative viewpoints.

* 1. These definitions will be provided to GSIs when filling out the research instrument. Please review these definitions and answer the following questions:
     + Do you agree with each definition? If not, please explain.
     + Do you find these definitions specific enough to clearly describe these activities to a general graduate student teaching audience? If not, please explain.
  2. If applicable, please use the space below to refine the definitions and address any concerns you noticed.

**Technology:** There are a few thought I have on this—some are more pedantic than others!

* I think you could say “technologies that assist” rather than “technological tools that assist.” But this is probably more a preference thing? Either is fine though!
* Should the first sentence begin “Use of technologies…” to clarify this is a description of methods of instruction? (Same applies to real data—“Use of real data…”)
* There is some uncertainty around what counts as “technology” here. I get the sense you are thinking of computing software technologies with these examples, but does a simulation count? What about calculators? Correct me if I’m wrong, but I think your focus here is on technology that allows students to directly interact with data. So maybe simulations is another category? Calculators should also be added as not fitting this, because I think at a lot of schools, calculators are often considered the technology as equivalent to a computer program.
* What is meant in the last sentence might require more fleshing out--Does use of this component imply that students are directly engaging with the technology? I mention this because I can imagine there is some grey area around teacher-directed technology use—I could just demonstrate something using R (see me write/run this code and look, here is a graph), or I could also demonstrate something that is accompanied by think-pair-shares or points of conversation.

***Computing Technology*** *– Use of technologies that assist in the exploration and analysis of data. Examples include student use of programs like Tableau, CODAP, R, etc. to make discoveries or draw insights from data. This use of technology would be different than what is accomplished with static displays such as whiteboards, power point displays, or worksheets. This would also be different than use of technology for computation purposes, such as calculators.*

**Real Data:**

* I’m not sure how to best phrase this, but I think the options for collecting data might be too narrow in scope. My ideas: You could have a survey of students in the class, a survey of people outside the class, some type of data collection process of a phenomenon inside the class (like measuring distance of paper airplanes for instance), collection of data outside the classroom (like in nature), or even thinking of the compiling and cleaning of data from external sources.
* The other thought I have is that this description seems inordinately focused on collecting, but I would argue that the “collecting” part is half of the value of real data. The other half is the cleaning and drawing insights from real data that reflects the messiness of what we had (limitations of how it was collected, what to do with anomalous readings, etc.).

1. Please list any other active learning techniques that you would like us to consider having on the research instrument we are developing. Please include a working definition and description of each active learning teaching technique you list.

Depending on how you flesh out technology, you might need to consider the use of physical manipulatives or simulations as a separate category.

***Other Interactive Tools:*** *Methods of instruction that include student interaction with virtual or physical tools. Examples include use of online simulations (like applets), simulated environments that allow for reasoning about data collection and design, or physical tools that allow students to interact with conceptual ideas through hands-on activity (like sampling buckets or dice rolling activities).*

**Manipulatives:** The use of physical tools (dice, sampling buckets,

1. Please rank the following active learning techniques (including your own listings) in order of which techniques you would like to be included on an instrument measuring GSIs’ motivation to engage in active learning techniques. Assign a value of 1 to the active learning technique in which you have the largest interest, then continue numbering in order of preference until you have reached the total number of active learning techniques.

1 – Group work

2 – Technology

3 – Other Interactive Tools

4 – Real Data

5 – Large class discussion

1. Would you be willing to serve as an expert reviewer of drafted instrument items? As an expert reviewer, you would be asked to assess the validity of the items in relation to the chosen active learning techniques, as well as identify potential concerns or issues with each item’s wording. We expect to complete a draft of these items during the Spring 2020 semester. If willing, you will be sent an email with more information about the items and the review process at a later date. Thank you for your support in advancing this research.

**Yes**

1. (Optional) If willing, please list the names and contact information of others you recommend contacting to complete this survey and/or review a draft of research instrument items.

Regarding completing the survey, I would definitely contact Radha Bose [bose@stat.fsu.edu](mailto:bose@stat.fsu.edu) at FSU. She coordinates two large lecture classes with GTAs doing discussion sections and oversees about 15 TAs a semester solo teaching