**Participant 13**

**Consent for Participation**

Participation in this study is voluntary. You are free to stop participating in the research at any time and may withdraw your consent at any time. You are not obligated to submit the survey, and you may skip any questions in the survey you want. There are no foreseen risks or benefits to you as a participant. We will not identify you by name in any reports using information obtained in the survey, and your confidentiality as a participant in this study will remain secure.

**Contact Information**

If you have any questions about the survey or this research project, you may contact me ([elijah.meyer@montana.edu](mailto:elijah.meyer@montana.edu)), Jennifer Green ([jg@msu.edu](mailto:jg@msu.edu)), or Stacey Hancock ([stacey.hancock@montana.edu](mailto:stacey.hancock@montana.edu)). If you have additional questions about the rights of human subjects, you may contact the Chair of the Institutional Review Board, Mark Quinn ([mquinn@montana.edu](mailto:mquinn@montana.edu)).

**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.”

GSIs function as regular instructors of some statistics courses. They are typically not assigned our large intro courses or our major courses during the fall and spring semesters, but can teach our primary intro stat course over the summer. They also teach other service (non-major) courses in our department during the regular academic year as sole instructors, such as Elementary probability and Elementary mathematical statistics (not our primary prob/math stat courses), and Introduction to Probability and Stochastic Processes for Engineering.

1. 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.

Good, although “method of instruction” makes me think this is limited to in class… do you want group projects done out of class to be included as well or not? It should be clear one way or the other as to whether you are talking about during class time or more generally as part of the course.

**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.

The listed technologies make me think you are talking about technology for data analysis (e.g. stat technology), but the first sentence makes it seem otherwise (the first sentence reads more like communication technology). I would rephrase the first sentence to make it more explicit that you’re talking about using technology to analyze data (if that’s in fact what you are talking about). The second sentence is a bit limiting I think – using technology should enable students to analyze data on their own, but it isn’t limited to just designing a lesson that allows students to acquire information through discovering material for themselves. If it were up to me, I’d keep the focus on enabling students to use technology to analyze data, draw conclusions from data, etc. A big part of this for GSIs I think is to teach *assuming students are going to have access to technology*, and not waste time teaching students to do by hand things that technology can easily do for them (e.g. manually calculate a correlation or t-statistic, create a histogram by hand, etc.). Although I’m realizing this many not be so much about teaching with technology, but rather using technology as an active learning tool, in which case you may want to reword to make this more clear.

**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.

Good, although I’m not sure “preparing” real world data is the right word. Maybe “finding” real world data? I’d do two sentences – one on collecting data from students during class … then merge with last sentence. Then another on real world data, context and purpose, etc. Ideally this would also include something about context… e.g. the point is not just to compute a p-value, but to make conclusions in context based on the real data being analyzed.

(I think this is super important for intro stat, but not sure I would classify it as active learning?)

**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.

Good

* 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.

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.

I’ve found clickers really useful for engaging students in large lectures. Clickers – devices (handheld or electronic) that enable students to answer multiple choice questions in real time, with the distribution of answers displayed.

Worksheets or live problem solving are also GSI friendly active learning strategies – asking students to work through problems alone or together during class.

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. Worksheets/live problem solving
       3. Technology
       4. Clickers
       5. Large group discussions
       6. Real data (important, but maybe not active learning?)
2. 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.