Consent for Participation & Purpose of Study

# Consent

Participation in this study is voluntary. You are free to stop participating 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), Jennifer Green (jg@msu.edu), or Stacey Hancock (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 study is to develop an instrument to measure graduate student instructors’ (GSIs’) motivation to use active learning teaching techniques. We define GSIs as graduate students who are the sole or lead instructor of a statistics course or lead a recitation section. This instrument will measure four different types of motivation to use active learning on GSIs when teaching statistics. These motivations include intrinsic, integrated regulation, external regulation, and amotivation. These four types of motivation have been selected because they span our framework of motivation and are linked to a variety of behavioral outcomes in other areas of research.

The purpose of this survey is to gather experts’ feedback on the written items. Your feedback will help identify any opportunities to improve wording and help provide initial content evidence suggesting that these items are measuring their intended type of motivation.

Part 1: Item Review

# Directions

Based on feedback from the last survey, two different types of active learning strategies were selected to be included on our instrument: group work and use of technology. You are asked to please review items for one of the two selected strategies: *Group work.* I have provided the written description of the selected strategy that GSIs will read before responding to the corresponding items of motivation below.

We ask that you provide feedback on three different areas on this instrument:

* Feedback on the active learning strategy’s definition
* Feedback on the drafted items
* Feedback on the motivational constructs’ relationship with the drafted items

Questions targeting these three different areas are provided to help guide the review process. These questions can be found in the *Feedback Questions* sections throughout the document. When providing feedback, please note that this **instrument is intended for GSIs who use active learning while teaching statistics.** Please provide feedback in the appropriate feedback sections below, or through inserted comments within the document.

Additionally, we ask you to please review the background questions intended to collect additional data on GSIs. This can be found at the end of the survey in *Part 2*.

# Active Learning Strategy 1 – Group work

Group work refers to a method of instruction that gets students to work together in groups of two or more.

When using group work for active learning, students authentically and meaningfully communicate, share ideas, and think critically about the topic(s) with their group members. This includes think-pair-share, group presentations, or other small group work activities that have students engage with their group members and the topic(s) as described above. Group work is not when one student dominates discussion, inhibiting engagement of all members or when students divide up the assigned task to work independently.

## Feedback Questions: Definition

* Do you agree with the working definition of group work? If not, please explain.
* Do you find this definition specific enough to clearly describe these activities to a general graduate student teaching audience? If not, please explain.

*Definition Feedback: It could be improved if you said “*have students engage AUThENTiCALLY and MEANINGFULLY” or some other way to clarify that if students are engaging only at a superficial level it isn’t really group work. I would give examples (so if students divide and conquer that’s not group work, or if one student dominates the group and doesn’t allow the group to engage together that’s also not really group work….)

I like these descriptors a lot. I also think examples, much like we use for technology, is a really good idea. Here are some potential example ideas:

Ex. Students collectively share information, ideas, and work collaboratively to solve specific problems

Ex. Students taking turns speaking and collectively build on each other's ideas

Ex. Think-pair-share: Students first think alone about a particular question. Then students pair up to discuss, listen, and compare their ideas with their partner(s). Lastly, students share their collective ideas with the entire class.

Ex. Groups involving all students engaging in short, informal discussions to answer specific questions or help transition to new topics.

## Construct 1: Intrinsic Motivation

Intrinsic Motivation – Performing an activity for oneself, to experience pleasure and satisfaction inherent in the activity. Example: A person plays a game of basketball because of the sheer joy they experience while playing it.

### Items

Directions: Read each item carefully. Using the scale below, please select the number that best reflects the extent to which you agree or disagree with the following statements about your use of technology in the classroom when teaching statistics.

Is this meant to be use of group work? See highlighted prose above.

Missed one

Answer each item according to the following scale: 5 – Strongly Agree; 4 – Agree; 3 – Neutral; 2 – Disagree; 1 – Strongly Disagree

1. I find using group work satisfying when teaching statistics
2. I find it enjoyable to use group work when teaching statistics
3. I find it interesting to use group work when teaching statistics
4. I’m committed to regularly using group work when teaching statistics
5. I get excited when using group work to teach statistics
6. My favorite statistics lessons to teach are ones that involve group work
7. I feel proud about lessons where I have used group work
8. I feel pleased about lessons where I have used group work

### Feedback Questions: Wording

* Are there concerns about the wording of the item (e.g., double-barreled, idioms, jargon, etc.)?
* Are there concerns about how items are phrased (e.g., leading items, items that may be misinterpreted, items that may not be appropriate for GSIs)?

*Wording Feedback*

See yellow highlight above.

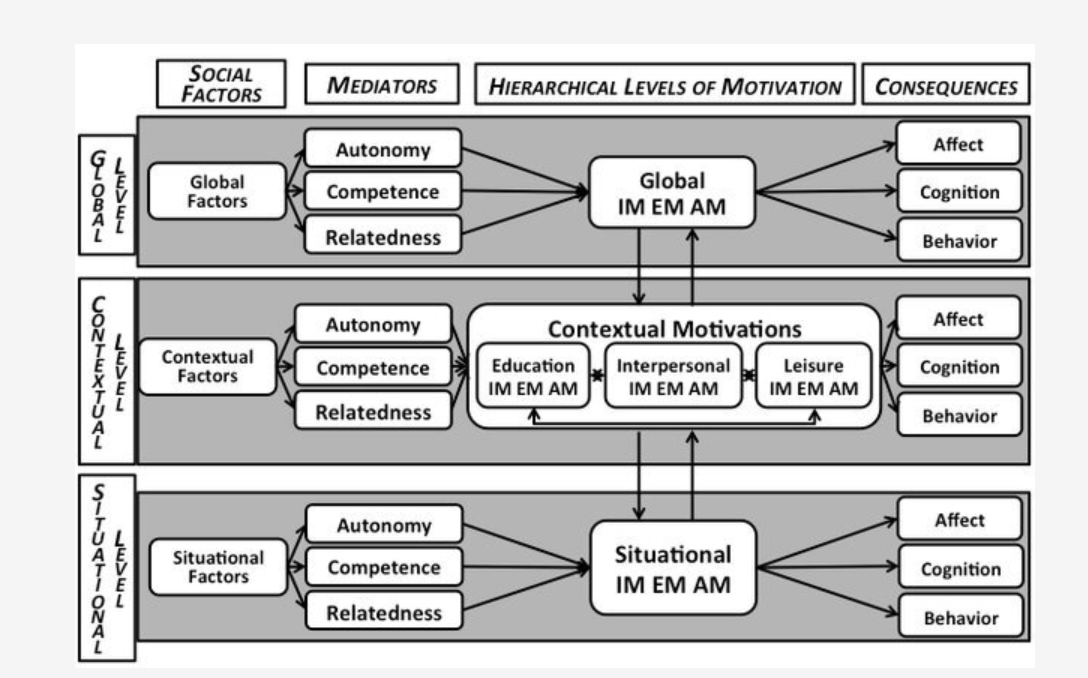
The items suggest that you ALWAYS feel pleased or you always find group work satisfying. What if only sometimes they do? Are you interested in whether they have EVER been satisfied using group work? Are you interested in whether they consistently feel satisfied using group work? Or what if they just tend to feel satisfied when they use group work? I guess what I’m saying is you need to clarify whether they need to ALWAYS feel proud, etc., or whether they have ever felt proud, etc., and so on…

This is such an excellent point. I’m going to check how other instruments handle this.

SIMS - Situational motivation refers to the motivation individuals experience when they are currently engaging in an activity. It refers to the here-and-now of motivation (Vallerand, 1997). Situational (or state) motivation, as measured at a given point in time, provides a useful understanding of a person’s current (or state) self-regulatory processes.

SMS – does not specify if they are measuring state motivation

For the purpose of our instrument, I believe we want to be measuring situational motivation. It is important to understand how motivation changes over time. If this instrument is measuring a more encompassing view of motivation (ex. Have you ever been motivation / are you always motivated), I don’t think our instrument is as practical as we would hope.



Accordingly, the different types of motivation (i.e., intrinsic, extrinsic, and amotivation) can be analyzed as a function of three levels of generality: global, contextual, and situational.

The highest level is the so-called global level. At this level of the hierarchy, the individual has developed a general motivational orientation to interact with the environment intrinsically, extrinsically, or amotivationally. Motivation at the global level is the most stable, acting as a personality trait. The next level is the contextual level. The word “context” is used to refer to a sphere of human activity and, although there are different contexts in an individual’s life, research has revealed that the three most important are: education, leisure, and interpersonal relations (Blais, Vallerand, Brière, Gagnon, & Pelletier, 1990). Individuals develop moderately stable motivational orientations toward each context, in which social factors may have an impact. Contextual motivation is less stable over time, compared to global motivation (Guay, Mageau, & Vallerand, 2003). Finally, the situational level is the most specific. The study of motivation at the situational level is an attempt to understand why individuals engage in a concrete activity at a given time. It is assumed that motivation at this level is unstable due to its enormous sensitivity to environmental factors.

<https://www.researchgate.net/publication/317974221_Testing_the_Relationships_Between_Global_Contextual_and_Situational_Motivation_A_Longitudinal_Study_of_the_Horizontal_Top-down_and_Bottom-up_Effects>

The items suggest that the GTA has control over the pedagogy they use in the classroom. Somehow you need to clarify some of the items for the GTA who would like to use group work but is not allowed to use it / doesn’t really have the support to use it and visa versa: the GTA who doesn’t want to use it but is forced to use it by the authorities. This is particularly relevant for some of the items but not others…

I feel that this instrument does a decent job at hitting the vice versa of this particular feedback. I believe amotivation scores would be high for that example as well as external regulation. What do we think about including “screening” questions in the background section? For example, we ask if they use group work in the classroom. If they say no, do we pop up an additional question asking “if they are allowed to do so?” I think that this classification falls under desire if they are not actually using group work. Maybe instead of the items, we collect data on their desire to use group work in a free response question (to use later after the dissertation).

### Feedback Questions: Construct

* Do you believe each item reflect qualities of intrinsic motivation?
* Do you believe there are missing items?
* Are aspects of intrinsic motivation’s definition mis- or underrepresented within the set of items?

*Construct Feedback*

*Maybe missing is something to the effect of finding the challenge of using group work meaningful. So for example if a lesson involving group work doesn’t pan out as planned, whether it is worthwhile to try again or whether they aren’t motivated to adjust but retain the group work aspect. I guess this really is related to whether they’re motivated to persevere with group work.*

*I really like this as well. The fun / excitement / joy of using group work can come from the challenge. I wonder if that could look something like this:*

* *I willingly continue to use group work, even if using group work did not result in what I expected*

*This makes me slightly nervous though. Perseverance and motivation are 2 different constructs:*

*Motivation is willingness of action especially in behavior*

*Perseverance is continuing in a course of action without regard to discouragement*

*Situational motivation is a snap shot in time. Perseverance breaks the boundary of that snap snot.*

## Construct 2: Integrated Regulation

Integrated Regulation – A willingness to engage in a behavior because it is important and valuable to oneself. Example: A person attends school because they believe that the act aligns with their personal belief system.

### Items

1. Using group work is necessary when teaching statistics
2. Using group work is consistent with my goals as an instructor when teaching statistics
3. Using group work is consistent with my values as an instructor when teaching statistics
4. Using group work is essential to my identity as an instructor when teaching statistics
5. Using group work is important for me as an instructor when teaching statistics
6. I incorporate group work to align my teaching with disciplinary “best” practices
7. Using group work makes me a better instructor when teaching statistics

* Feedback Questions: Wording Are there concerns about the wording of the item (e.g., double-barreled, idioms, jargon, etc.)?
* Are there concerns about how items are phrased (e.g., leading items, items that may be misinterpreted, items that may not be appropriate for GSIs)?

*Wording Feedback:*

*“Essential to my identity” is too strong for this group. Many GTAs are novice teachers so they don’t yet have a solid identity as a teacher. So nobody will say it is essential because nothing is essential at this point. Consider softening this item with something more like “a large part of my identity” …. Something softer than “essential to…”*

*Agreed. I like “a large part of my identity” as well. I’m flagging the term identity as something to pay extra attention to in the think aloud interviews, and try to better understand how GSIs interpret that term.*

*Again here you might want to clarify for the GSI’s that they should answer about how they WOULD teach stats if they had 100% control over how they teach (not about how they currently teach under the constraints of authority etc. in their positions). Otherwise some will be confused because they are forced to teach using pedagogies that are not necessarily aligned with their ideals or beliefs.*

*See discussion above. Very important to hammer home this idea of why we are studying situational motivation and not the other two.*

### Feedback Questions: Construct

* Do you believe each item reflect qualities of integrated regulation?
* Do you believe there are missing items?
* Are aspects of integrated regulation’s definition mis- or underrepresented within the set of items?

*Relationship Feedback:*

*The green doesn’t make perfect sense to me so I’m not sure I can answer this question very well. That said, maybe missing is something to do with using group work will promote the best student learning.*

*The more I read it, the more “belief system” stands out. I don’t think that is going to fly. Suggested edits:*

*A person who attends school because attending school aligns with what they believe about education*

## Construct 3: External Regulation

External Regulation – Engaging in a behavior to satisfy an external demand, receive an external reward, or avoid a punishment. Example: A student studies hard to get a good grade and receive a reward from their parents, or to avoid punishment for receiving a poor grade.

### Items

1. I use group work to teach statistics because it is recommended to me by my colleagues
2. I use group work to teach statistics because this is the way I am expected to teach statistics by my colleagues
3. I use group work to teach statistics because I would get in trouble by my supervisors if I didn’t use it
4. I use group work to teach statistics because students would be upset with me if I didn’t teach using it
5. I use group work to teach statistics because I think it will help me earn a teaching award
6. I use group work to teach statistics because I am praised by my colleagues for doing so
7. I use group work to teach statistics only when I am being observed by another instructor
8. I use group work to teach statistics so that my peers think I am a good instructor

### Feedback Questions: Wording

* Are there concerns about the wording of the item (e.g., double-barreled, idioms, jargon, etc.)?
* Are there concerns about how items are phrased (e.g., leading items, items that may be misinterpreted, items that may not be appropriate for GSIs)?

*Wording Feedback:*

*colleagues should be: Colleagues or Supervisors in a and b*

*Yep!*

### Feedback Questions: Construct

* Do you believe each item reflect qualities of external regulation?
* Do you believe there are missing items?
* Are aspects of external regulation’s definition mis- or underrepresented within the set of items?

*Relationship Feedback:*

*Missing is the idea that using group work will help me get a job after I graduate. (Or not using group work will limit my ability to get a job).*

*I think the inclusion of an item(s) like this would exclude GSIs in the population. Should we include a background screening question, and it they are planning to get a teaching job, show them an item like this?*

*I have a hard time because I think external regulation from peers might be a different construct than external regulation from overseers. So I think these items are not going to be consistent and they’re not measuring the same thing.*

*External regulation is not coming “from peers” or “from overseers.” Instead, external regulation is a type of motivation in one’s self.*

*Is the concern that the context of external regulation changes? For example, when thinking about what external regulation looks like with peers and how this is different than when working with a supervisor? I think this is okay in the working definition of external regulation. I will think more about this.*

*\*Keep working through LIsa’s notes*

## Construct 4: Amotivation Items

Amotivation – The absence of intention or clear motives to engage in an activity. Amotivation is the lack of intrinsic motivation, integrated regulation, and external regulation. Example: An athlete claims to not value or see the point in training anymore for competition.

### Items

1. Using group work to teach statistics does not improve the way statistics is taught
2. Using group work to teach statistics does not improve student learning
3. I question if I should use group work to teach statistics
4. Group work’s role in teaching statistics is unclear to me
5. Using group work to teach statistics ends up using more class time than it is worth
6. I do not see what value using group work to teach statistics brings to my classroom
7. I do not see what value using group work to teach statistics bring to me as an instructor
8. I do not wish to continue incorporating group work in my classroom
9. I do not know why I use group work to teach statistics
10. I do not see myself using group work in the future while teaching
11. I do not understand why we use group work when teaching statistics

### Feedback Questions: Wording

* Are there concerns about the wording of the item (e.g., double-barreled, idioms, jargon, etc.)?
* Are there concerns about how items are phrased (e.g., leading items, items that may be misinterpreted, items that may not be appropriate for GSIs)?

*Wording Feedback:*

*On item j it should clarify that I don’t see myself using it in the future when I get to choose the pedagogy I use. Otherwise you might get confounding because the GSI sees themselves doing it because they expect to be required to by external authorities.*

*This is a good point. See comments above for discussion on this topic.*

*For item “i” they might know why but think the reasons are poor. (e.g., we do it because the department chair makes us). They know why but it’s not necessarily intrinsic motivation. Consider changing that item to something more like, “I don’t agree with the reasons for using group work…” ? Not sure.*

*I like this suggestions and will explore this more.*

### Feedback Questions: Relationship

* Do you believe each item reflect qualities of amotivation?
* Do you believe there are missing items?
* Are aspects of amotivation’s definition mis- or underrepresented within the set of items?

*Relationship Feedback:*

### Additional Comments

*If you have additional comments that you would like to make about the sections above, please do so here:*

Part 2: Background Questions Review

# Directions – Background Questions Review

Background questions will be given at the beginning of the instrument to collect background data on each GSI filling out the survey. We ask you to please review these background questions and consider the following:

*Feedback Questions*

* Are the background questions written clearly?
* Are the background questions appropriate for GSIs?
* Are GSIs unable to answer certain background questions?
* Are there any additional background questions you suggest we consider collecting data on?

Please write feedback in the *Background Questions Feedback* area at the end of the background questions, or through inserted comments within the section.

## Background Questions

Are you currently a graduate student or within one year of graduation?

Please list the name of the university in which you are currently enrolled as a graduate student.

Please list the name of the department in which you are currently enrolled as a graduate student.

What degree type you are currently pursuing? Ex. Doctorate in Statistics

1. What is the subject you are getting your degree in? Ex. Statistics
2. How many years have you been a graduate student at your current institution? Round up (e.g., if you have completed 3.25 years, please enter 4).
3. Are you currently involved in teaching a statistics course, or leading a statistics recitation/discussion section?
4. Prior to becoming a graduate student at your current institution, did you have experience teaching as an instructor or recitation/discussion leader?
5. How many college terms you have taught a statistics course or led a statistics recitation/discussion section before being enrolled as a graduate student at your current institution? Ex. 2 Semesters; 3 Quarters
6. How many terms you have taught a statistics course or led a statistics recitation/discussion section while being enrolled as a graduate student at your current institution? If you are currently teaching a statistics course or leading a statistics recitation/discussion section this term, please include that in your count
7. List all statistics courses and statistics recitation/discussion sections you have taught and indicate how many times you have taught each course or section.
8. Do you engage in conversations about teaching with other peers? If so, how often and what about?
9. Describe the classroom that you currently teach in. In other words, describe the arrangement of desks/tables, the technology available, Etc.
10. Does your department offer a training program for new graduate students?
11. What kind of support does your department provide graduate student instructors?
12. Please read the following definition of using technology in your classroom:

Technology refers to technological tools that assist in the analysis of data, communication of ideas, and development of student understanding.

When using technology for active learning, students acquire information and discover statistical ideas through their interaction with the technological tool. This may include having students work with Tableau, CODAP, R, Tinkerplots, applets, etc. to discover concepts. This does not include using passive technology, such as displaying a PowerPoint or using a calculator for calculations.

Based on this definition, describe how you use technology when teaching statistics. If you do not use technology when teaching statistics, please write “N/A.”

1. Please read the following definition of using group work in your classroom:

Group work refers to a method of instruction that gets students to work together in groups of two or more.

When using group work for active learning, students communicate, share ideas, and think critically about the topic(s) with their group members. This includes think-pair-share, group presentations, or other small group work activities that have students engage with their group members and the topic(s) as described above.

Based on this definition, describe how you use group work when teaching statistics.

*Background Question Feedback*

This item needs to be divided into 2 items: Are you currently a graduate student or within one year of graduation?

This item is going to give you trouble: Please list the name of the university in which you are currently enrolled as a graduate student. It will make it easier on you if you give examples and clarify NOT to use acronyms (e.g., write University of Minnesota instead of UMN or U of Minn). Otherwise you’re going to deal with the millions of different ways to write the same university. Also what should they do with the location like “at Twin Cities” or “at Tacoma…”

For question 8 clarify whether K-12 experience counts.

Question 9 is confusing. Consider putting the preposition at the start to help. Still confusing (you might add that for many graduate students this will be 0). Switching the order of items 9 and 10 might help because 10 feels more intuitive.

If I was a GTA I would have stopped filling out your survey when you ask question 11. It is a lot to ask folks. What are you really after? Intro vs. advanced level? 1st year courses? # of courses? I’d encourage you to simplify the question by making it separate questions about how many semesters of 1-st year non-major courses, how many 1st year major courses, how many courses for non-intro, etc. Just counting courses instead of typing the names would help a lot.

I recommend changing question2 12 through 17 into specific forced choice items suggesting different topics. Youre asking GTAS to do a lot of the cognitive work coming up with ideas on their own. Instead you could ask specific questions e.g., How often do you engage in discussions with peers about \_\_\_\_\_. ? How often do you engage in discussions with peers about \_\_\_\_\_\_ ? Then include an OTHER item after you’ve jogged their memory about other possible topics. The same for types of support…. Ask them if their department provides \_\_\_\_\_\_, then ask if their department provides \_\_\_\_\_\_\_. Otherwise if you keep it open ended you’re going to lose them and they won’t take the time to actually think of things.

### Additional Comments

*If you have additional comments that you would like to make about the background questions above, please do so here:*