

# Improving Student Discussions in Graduate and Undergraduate Courses: Transforming the Discussion Leader

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**ABSTRACT** Student discussions are a common teaching approach in graduate and advanced undergraduate courses because of their benefits to student learning, and to future professional development for natural resources professionals. However, traditional student-led discussions often are ineffective at meeting course and learning objectives and suffer from many common pitfalls, such as dominance by a few vocal students. I present the “student facilitator approach” to student-led discussions that changes the roles of all students in the discussion classroom, particularly the leader, and provides students clear guidelines about preparing for and participating in classroom discussions. A key feature of the approach is the replacement of the student discussion leader (who has control over both discussion content and process) with a student facilitator (who has control over only the discussion process). Using this approach, I found that students responded very positively, that it tended to encourage student participation, and that it created an environment where students took more ownership of the discussion.

There are many reasons for using discussions in graduate student courses, but all of them center on moving students from passive learning to active participation (Eble, 1988), and on developing skills necessary for post-graduate work. The literature on student learning overwhelmingly indicates that discussions increase student learning (Hollander, 2002). Similarly, the literature on cognitive psychology shows people are more likely to remember something if they think about it and ponder its relationship to other things, rather than if they hear it from other people, such as through lecture (McKeachie, 1999; Hollander, 2002).

Some of the main purposes for using discussions in graduate-level courses include: (1) to raise the level of student involvement in the classroom, (2) to develop the individual skills of formulating and expressing ideas and opinions, (3) to help students learn to evaluate the logic of and evidence for their own and others' positions, (4) to increase students' appreciation for complexity of issues, (5) to develop listening and critical thinking skills, (6) to increase students' intellectual agility, (7) to develop skills of synthesis and integration, and (8) to develop motivation for further learning (Eble, 1988; Brookfield and Preskill, 1999; McKeachie, 1999; Hollander, 2002).

Given the important roles that discussion serves in graduate and advanced undergraduate education, it is remarkable that instructors so rarely provide students with clear guidelines for how we expect them to function within discussions, or even with the goals that we have for the students in discussion-oriented courses and seminars.

Unfortunately, instructors and students alike may believe that effective discussions are a result of the magic of the leader's personal charisma or chemistry among the group members. In reality, increasing the likelihood of effective discussions takes deliberate, intentional actions on the part of instructors (Brookfield and Preskill, 1999; Grover, 2007).

Unfortunately, collaboration (or effective discussion) among individuals does not happen automatically when people are in a group; rather, it must be guided by someone or a process (Rees, 1998; Grover, 2007). Having the ability to effectively facilitate a group of people to meet an objective (e.g., make a decision, come up with a plan, discuss with a group of peers) is a highly sought-after skill in many professional settings. A facilitator can be defined as a person who makes a group's work easier by structuring and guiding the participation of group members and a person who improves group effectiveness by overcoming some of the difficulties in working with groups (Rees, 1998). In fact, many of the basic facilitator skills are extremely useful in a variety of professional setting outside of the classroom in the natural resource professions, and so greatly contribute to the professional development of students, as well as helping them to achieve a deeper understanding of the material being discussed.

I developed an approach to student-led discussions (the student-facilitator approach) that contrasts in some key ways from commonly used formats for student-led discussions (e.g., the student-leader discussion approach). I had three specific learning objectives that I hoped to achieve with this approach: (1) to learn and practice the skills necessary for effective discussions, including the preparation for effective discussions; (2) to develop individual student's ownership over the discussion periods to take more responsibility for their learning; and (3) to improve their understanding of the course content by increasing the students appreciation of the complexity of the discussed topics.

My goal in this article is to present an approach to

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improve the basic functioning of student discussions to improve overall learning in the classroom and in particular to meet these three learning objectives. I developed and tested this approach for graduate students using articles from the primary literature as the discussion items. However, this approach could also be effectively used in advanced undergraduate courses, where we should be using the primary literature in a variety of different ways (Janick-Buckner, 1997; Glazer, 2000; Hoskins et al., 2007). I will first discuss some common pitfalls of student-led discussions, then provide an overview of the approach and provide details about the main roles students play. I conclude with an analysis of the student responses to this approach from four semesters in an advanced limnology graduate course taught at Michigan State University from 2000 to 2008 in relation to my three learning objectives.

## Common Pitfalls of Student-Led Discussions

Despite their educational benefits, student-led discussions can suffer from several common pitfalls. First, a common feature of student-led discussions is the over-preparation of student-leaders who feel they must become "experts" on a given topic, and the under-preparation and lack of participation of the rest of the students. These latter students either feel little responsibility for the discussion, as they are not the leaders for the day, or they are reserved and have trouble expressing their opinions in front of an expert. Second, discussions can be dominated by one or two vocal students who carry the weight of the discussion in either a positive or negative direction. Despite the quality of the discussion by these few (in fact, the students may be well-versed in the topic and analyze it quite effectively), the effect on the other students is about the same: the non-involved students relax and assume that these vocal few will carry the burden of the discussion (Brookfield and Preskill, 1999). Meanwhile, the discussion leaders continue to rely on these students for participation. Third, often, both the instructor and the students have unrealistic expectations of the method, as well as uncertainty about the discussion outcomes (Brookfield and Preskill, 1999). Many student-led discussions fail because both student and instructor expectations for ensuring an effective discussion incorrectly lie on the discussion leader, when, in fact, it is the discussion participants who should carry most of the weight of the discussion.

Many of these pitfalls are common because of the way discussion sessions are organized, or, rather, not organized (Jensen et al., 2005). Instead, students are simply told they will be graded on "participation" during discussion sessions. Regrettably, with few guidelines, students (and instructors) typically equate participation with speaking quantity rather than quality, and therefore not saying anything becomes an indication of mental inertia or stupidity (Brookfield and Preskill, 1999). The end result is that the focus is often on individual contribution rather than progression toward a collective goal of improved understanding or synthesis of a topic (Hollander, 2002).

Taken together, these common problems often result in large variability in the quality of discussions. Certainly, with the right combination of student participants and discussion leaders, some very effective discussions can occur, and obviously do. However, in general, the probability of effective discussions occurring is often lower than it should be. The challenge to instructors is to ensure that the probability of effective discussions is as high as possible.

## The Student-Facilitator Approach to Classroom Discussions

The student-facilitator discussion approach has three main roles for students: the *facilitator* (one student), the *recorder* (one student), and the *group participants* (all remaining students as well as the instructor). Guidelines for each role are provided to the students before the first discussion period (Table 1). The main feature of the student-facilitator discussion approach is to separate the selection of the content of the discussion from the facilitation (or moderation) of the discussion (Table 2). All of the student participants are responsible for deciding the content of the discussion (rather than just one or two discussion-leaders), and the student facilitator is responsible for the facilitation of the discussion. The instructor participates as one of the group participants, and is governed by the same guidelines as other students to avoid dominating the discussion. The instructor is also free to step outside of his/her role as group participant to comment on the mechanics of the discussion, but it is preferable that this type of activity is kept to a minimum.

Each role has a distinct focus during the discussion period. The group participants provide the thought power and ideas that propel the discussion from beginning to end. Collectively, these members are the most important resource from which information and ideas are drawn to produce good discussions/outcomes. The recorder is the 'servant' of the group and records what he/she hears from the participants while focusing on the main ideas discussed (but with minimal detail). The facilitator is the person who manages the procedure that the group uses during the discussion. He/she is responsible to the whole group and performs his/her role through the consent of the group. The facilitator should not act as an expert who is expected to know everything about the substantive material that is being discussed, and he/she should not provide a summary of the paper for the group. The facilitator should ensure that everyone has a chance to speak, and that the floor is not being dominated by one speaker alone. I include some common strategies that facilitators use in facilitating discussions in Table 1 (Rees, 1998).

A typical discussion period would proceed as follows. At the beginning of the discussion period, the roles of facilitator, recorder, and participants are randomly assigned; then everyone (including facilitator, recorder, and instructor) provides: (1) something positive about the reading, and (2) a topic for discussion. The recorder records the topics to be discussed on an overhead. After everyone has provided a topic, the facilitator guides the class in deciding the order of topics to be discussed, prioritizing as necessary; he or

**Table 1.** Detailed description of each of the roles and strategies of the student–facilitator approach. These guidelines are provided to students at the beginning of the semester.

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**Preparation of all students prior to the discussion period.** All students should do the following to prepare:

- a. Prepare by thoroughly reading the article (most likely more than once), and having a solid understanding of the big-picture of the article as well as the details.
- b. Because there will be no one who should know substantially more than others about the topic, each student should feel responsible for doing any supplemental reading/searching for components or background of the article that he/she does not understand to share with the group.
- c. Each student should write down 1–2 topics that he/she would like to discuss during the discussion. Some ideas for types of topics to discuss include: delving deeper into a particular research area, exploring the evidence the authors provide for any their conclusions, expanding on an implication of the study, exploring the implications of this particular study for understanding of different disciplinary areas or for how the research could be applied in a variety of different capacities, etc.

**The group participants.** The group participants are responsible for most discussion content and should do the following:

- a. Provide 1–2 topics for discussion at the beginning of the discussion period.
- b. Provide insights, questions, answers to posed questions from the facilitator or recorder.
- c. Actively listen to fellow group participants and respond to each others' comments rather than just bringing his/her own comments to the table.

**The recorder.** The recorder is a "servant to the group" and is responsible for being the memory of the discussion group and record participants contributions (Rees, 1998). The recorder should do the following:

- a. At the beginning of the discussion session, the recorder will write down the discussion topic(s) from each group participant, using the participants' own words as much as possible. Thereafter, the recorder will "cross" topics off the list on the overhead as they are discussed; he/she will keep notes on paper to him/herself during the discussion for later distribution to the group.
- b. Although anyone can suggest at any time that a summary of the discussion or a synthesis of ideas is needed, it is the recorder who would write such a summary on an overhead for the group.
- c. At the end of the discussion, the recorder will compile a list of "take home messages" on an overhead that the group participants create. It is helpful for this list to be displayed to the group as they are developing it.
- d. After class, the recorder will transcribe discussion notes and the list of discussion topics to a computer file and distribute to the group within a couple days.
- e. The recorder is encouraged to participate as a participant as well; however, she/he has the added job of keeping some written record of the discussion. In addition, because the reporter often has a good overview of the discussion, he/she should also feel like they can help the facilitator move the discussion along.

**The facilitator.** The facilitator is also a "servant to the group" (Rees, 1998). Facilitation is about seeing what the group needs to move forward and providing guidance and empowering the group; to do so, the facilitator can use any of the following strategies to facilitate the discussion (modified from Rees, 1998):

- a. Ask questions: To inspire a response is perhaps the most important strategy of the facilitator. Questions should be open-ended questions, such as "what, how, who, why" type questions that encourages brainstorming and creativity.
- b. Probe in-depth into a comment/idea: Encourages more in-depth analysis, such as: "Why did you say that?" or "Could you be more specific?"
- c. Paraphrase: Only for clarification of a comment made by a student, not to evaluate or improve it.
- d. Refer back to earlier comments: Which ties the discussion to previous student's contributions.
- e. Be comfortable with silence: The facilitator must be willing to wait once a question is posed as people need time to think and frame a response. Thus, a facilitator should not step in and answer one's own question
- f. Give positive reinforcement: This is a way to encourage participation, especially to students who are quieter.
- g. Include quieter members: Some ways to draw people out are to ask students directly for their opinion on something that has been brought up, to refer back to comments that quieter people make to draw them out further, or to break the class into smaller groups or pairs that then report to the larger group.
- h. Shift perspective of the discussion: If all students seem to agree, it may be less likely that a single or few students who feel differently would speak up. To get these students to speak up, the facilitator can ask if there "might be another viewpoint that could be missing from the discussion." In addition, the facilitator can ask for the implications of the topic or a big-picture question; or the facilitator can ask for a specific example or for details to enrich the discussion that may be at too broad of a level.
- i. Summarize: Occasional summary is helpful to keep the group focused. The facilitator can briefly summarize what has been said before moving on. Or, better yet, the facilitator can ask for someone else to summarize, but it is important that enough time is provided for students to think before answering.

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she then guides the class in discussion of the topics. The reporter documents the discussion on paper to be distributed to the class at a later date. With approximately 5 to 10 minutes remaining in the class period, the facilitator asks the participants to summarize the discussion. The recorder

writes this on the overhead, creating a list of take-home messages from the discussion.

A critical feature of this approach is that the facilitator and reporter roles are decided randomly at the beginning of each class period. Student preparation, then, should be

**Table 2.** A comparison between a traditional student–leader discussion approach and the student–facilitator discussion approach.

Feature of course related to discussions	Traditional student–leader discussion approach†	Student–facilitator discussion approach
Guidelines for discussion and roles for students provided	not commonly	yes
Choice of readings to discuss performed by	either students or instructor	either students or instructor
Summary of paper provided at the onset of discussion	yes, by student discussion leader	no, unless a student requests it and provides it
Person deciding discussion topics during discussion period	student discussion leader	all students in the class, especially student “participants”
Person facilitating or managing the discussion	student discussion leader identified in advance	student “facilitator” identified on the day of discussion
Person recording discussion items for summary	typically none	student “recorder”
Person responsible for discussion effectiveness and quality	student discussion leader primarily and other students secondarily	student participants primarily

† The model for the traditional approach is one where students sign up for a topic ahead of time, choose the paper, and are responsible for “leading discussion” of the paper on a given day. Although there are variations to this model, I chose a model that is commonly used in graduate biology and ecology courses and seminars.

the same for all roles and for all class periods. Ideally, each student gets to experience all three roles in the semester, with the majority of time spent as group participants. However, depending on the class size, this may not be possible. Nevertheless, because the bulk of the responsibility of class discussions resides with the group participants, this role is the most critical. Still, students can learn from observing a wide range of different peers conduct the facilitating.

Using this model, the instructor can choose readings in a variety of ways. In one course, I choose the papers because I had specific content that I wanted the students to evaluate in-depth. In another course, the students signed up for different topical groups. Each group was given the task, outside of class, of identifying three to four readings for the semester that were discussed in an order based on topics chosen. In this way, the students participated more directly in content. However, the facilitator and recorders were always randomly assigned.

**Assessment of Student Performance.** I assigned a score to each student during each discussion period from 1 to 5 (1 is failing to participate in any way, and 5 is participating to the fullest) for each role that they played. Because most of the time the students assume the role of group participant, their grade is most dependent on that role. I attempted to judge student’s input based on quality rather than solely quantity. I told the students at the beginning of the course that if they were lacking in any of the roles (especially as group participant), I would talk to them during the semester rather than wait until the end of the semester to offer suggestions for improvement during the course. In addition, I mentioned to the student that talking too much can potentially be as damaging to a discussion as talking too little, and that they would be marked down for both.

**Evaluation of the Discussion.** I used three main strategies to evaluate the class discussions to determine if the three main learning objectives were being met. First, after

every discussion period, I asked the reporter, facilitator, and one group participant to stay after class for 5 to 10 minutes to answer two short questions about the discussion period (What worked and what did not work during the discussion period? What suggestions would you make for the next discussion period?). Second, at the end of the course, students completed an evaluation form in which I asked questions about the discussion approach:

“Did you find the discussion format in this course useful? Please compare it to other ‘discussion’ type courses you have had before. And, please offer suggestions for improvement.”

Third, at the end of the course, I assigned a reflective essay asking the students to reflect on their participation in class discussions, and how they would apply these skills to future classroom or professional settings.

## Evaluation of This Approach

I have used this approach in five semesters, including one semester of a graduate seminar that was 100% discussion and four semesters of a graduate course where approximately one-third of the course comprised discussion periods. Because I only have student evaluation data on the four semesters of the graduate course, I will only discuss those semesters. However, the approach worked very well in the graduate seminar setting with a larger number of students (16), and I received similarly positive feedback during that semester. The four semesters I discuss here include a range in the number of students enrolled (7, 8, 14, and 8 in Years 1–4, respectively), discipline (students from zoology, fisheries and wildlife, entomology, geosciences, and environmental engineering departments) and levels (combination of Ph.D. and M.S. students each year). I will not present evidence from the small-group discussion with the facilitator, reporter and one group participant immediately following each discussion period because these

discussions were often very context specific to that particular discussion and difficult to summarize as a whole. However, the first two semesters for which I used this discussion approach, the feedback provided by this small group was instrumental in refining my overall approach. In later semesters, these short sessions helped the students to reflect on their own roles and strategies for improvements, so contributed to the overall reflection of student participants.

Discussions can be hard to quantify, partly because they are contextual, and as such can only be evaluated from the inside (rather than from an external standard). Some authors even argue that student evaluations and testimonials of their own experiences are most meaningful to evaluate the process (Brookfield and Preskill, 1999), which is the approach that I took to evaluate this process in my courses. To present an assessment of the entire class, I report all student responses to the final evaluation question regarding classroom discussions, not just the positive ones (see Appendix 1). Where relevant, I have changed student names to preserve student identity. Overall, the response was overwhelmingly positive, with just one or two students in the four semesters who seemed dissatisfied with some component of the discussion approach. The rest of the students felt positive about the approach and felt that it was better than most other discussion approaches they had experienced. The evidence from all three evaluation strategies used suggests the three primary learning objectives were met using this approach.

For the objective to learn and practice skills of discussion, ~40% of students explicitly stated that this approach was better than other discussion formats they had experienced or the best discussion format that they had experienced (Appendix 1). Unfortunately, such statements showing preference of one approach over another is not proof that a learning goal has been met. However, it is a step in the right direction in that a positive attitude about the discussion approach or process is more likely to place students in a situation for learning to occur than a negative attitude about the discussion approach or process. In the final reflective essay assigned at the end of the course, one student recognized the important balance and interplay between participants and the facilitator and seemed to comprehend the mechanics of a good discussion:

"A facilitator's job is made much easier by effective group participants. An effective group participant must talk, but he/she must have the right motivation for speaking. A participant should be motivated to help other group members learn, not to impress others or to get a class participation grade. It is critical that the group participant is prepared for the discussion. He/she must have a good understanding of the material to be effective in helping others to learn it."

For the objective to develop student ownership over the discussion periods, I found more and more students bringing in background materials related to the article under discussion as each semester progressed. In most years, this developed without my solicitation. In the year with fewer advanced students, I strongly encouraged students

about half way through the semester to consider background reading as an effective approach to prepare, to which they responded positively. I viewed these actions by the students as evidence of taking responsibility toward the discussion and their overall learning. In addition, the following comment shows a student who is truly reflecting on his or her own performance and what needs to happen for taking more responsibility in his/her learning:

"To improve my own contribution to the discussion as a group participant, I needed to do two things: re-evaluation of myself during the discussion and take responsibility. Self-assessment is important for any group participant, but as a naturally quiet person, it is crucial for me to recognize my lack of contributions as the discussion progresses. After recognition, I need to take responsibility for my failure to participate and not blame it on the quality of the article or my lack of familiarity with the topic."

Another student recognized the value of behaviors that were initiated by students, rather than me:

"In the future, it would help me to take additional time to learn some basic concepts where necessary. One highly successful technique to become a more effective participant is by engaging in discussion with a classmate prior to a class discussion. Bob and Justin demonstrated this technique and applied it successfully."

It is exactly such reflection that is needed for students to move forward to begin to take more responsibility in their learning.

The objective to improve student understanding of course content was harder to evaluate. However, evidence from at least one student's final course evaluation suggests this learning objective was met for him/her through class discussion. This student was not in the biological sciences and it shows how students recognize the value and usefulness of discussion periods to enhance their learning beyond that which reading articles alone can do:

"...I probably gained more from this class than most of my colleagues because so many of the concepts were new to me. Listening to graduate students in the biological sciences discuss these papers allowed me to look at things through their perspective. This did so much more for my comprehension of the papers than reading them alone ever could."

## Why Do We Need a Shift in Perspective for Student-Led Discussions?

Support for this approach comes from a variety of sources. Although there has been research conducted on student-led discussions in the education literature, this topic is not as well studied as one would think, especially considering its important role in graduate education. Most studies focus on discussion in courses for undergraduate students, or in teaching graduate assistants how to teach (Jensen et al., 2005; Schussler et al., 2008). However, the conceptual underpinnings of this approach also come from the business and management literature regarding leader-

ship, group management, and meeting facilitation, which has much relevance for graduate student discussions.

A key component of this latter body of literature is the perspective shift that occurs once a student assumes role of facilitator as opposed to leader. In traditional student-led discussions, the student leader is assumed to be the expert, and thus is in control of the content of the discussion. The other students' lack-of-expert status may contribute to some students' reluctance to speak. However, when the expectation of "expert" status is removed from the discussion leader, the rest of the students are freer to frame the discussion in their own words. The "expert" status is further reinforced in the traditional model when the student leader delivers a mini-lecture on the reading at the beginning of the discussion period. Students who are not the leaders on that given day may not feel that their (perhaps differing) perspectives are legitimate. If the purpose of discussions were the one-way transfer of information from the student leader (or instructor) to the students, then the instructor should have chosen a lecture format, even for student presenters, which is a much more effective way to transfer information (McKeachie, 1999). However, a key benefit of discussions is for students to develop their own understanding of the material, in part by drawing on the collective wisdom of all students, which can be very powerful for students to experience (Brookfield and Preskill, 1999). Clearly some students are able to move beyond the psychological hurdle that student-experts impose, but it seems to be an unnecessary hurdle and ineffective approach to fostering student discovery of their own voices. By removing expert-status from all students, the facilitator plays a more supportive role, more on the sidelines, nudging, probing, suggesting, waiting, listening, asking questions and providing structure to the discussion (Rees, 1998). This represents a major shift away from the more authoritarian perspective of "leader" discussions to the more egalitarian "facilitator" discussions, and needs to be presented as such.

Related to this dichotomy in perspectives of the student leader role is the focus of discussions as either an individual or group effort. There is a tendency for traditional student-led discussions to focus discussions as an individual effort, with the discussion leader playing the somewhat independent role as expert and the student participants working hard to come up with pithy, insightful comments to impress the instructor who is grading them (Hollander, 2002). Rather, discussion should be recognized as a collective effort that is certainly based on individual efforts and contributions, but that goes beyond individual efforts (Hollander, 2002).

Additional support for transforming student leaders to facilitators comes from the business and management community where some researchers advocate a peer-based alternative to rank-based leadership for organizations (Nielson, 2004). The arguments presented are that the more individual employees participate in decision-making, the more likely they are to devote energy and dedication to the organization (Nielson, 2004). In particular, when leadership is shared, people feel more invested and expand their range

of involvement beyond just themselves (Nielson, 2004). The shift toward shared responsibility is essential for collective learning, because when people share in responsibility, they know they can make a contribution that matters and they participate more creatively and have a high degree of investment in the outcome (Ellinor and Gerard, 1998). Making all students feel invested in the outcome of the discussion every class period (or the majority of class periods) rather than just the one period they are "leading" is one of the key factors necessary to achieve sustained high-quality discussions, and is a key feature of this approach.

## Conclusions and Further Refinements

Although effective student discussions can occur in a variety of settings, compared with other teaching approaches, discussions may be highly variable and unpredictable (in both good and bad ways) in the actual outcome on any given day with any combination of students. This approach was developed to increase the likelihood of effective discussions that foster flexibility, while recognizing that there is never a guarantee of having a good discussion on any given day. Based on my experience with this approach to date, I am planning changes in future semesters. First, given that the end-of-year reflection essay was so valuable for me (and it appears to the students themselves), I will implement this reflection throughout the semester, rather than just the end. Brookfield and Preskill (1999) suggest several ways that this could be done: for example, students could keep discussion audits (more time investment) or discussion logs (less time investment). Both would allow them to evaluate either the content learned through discussion, their contributions to the discussion, or both. Second, students should also be given more opportunities to facilitate, perhaps in small group discussions, which would provide more students the experience. Third, I plan to change how discussions are graded. I would like to avoid assigning a grade to the discussion. A pass/fail grade will be assigned based on attendance. Additionally, students would be required to rate their own performance as below average, average, or above average, with explanation for each role in which they participate. Brookfield and Preskill (1999) argue that students are more willing to participate when you remove the grade from the discussion experience in a course. In the relatively small classes that I have taught, student peer pressure was enough to keep students engaged in a group effort, such as discussions. The challenge is how to optimize these many learning objectives and strategies while still maintaining course objectives.

Perhaps more focus on the communication and social dynamics of discussing and critiquing the literature would affect training students for other tasks, such as the student's future role as instructors, running and participating in effective meetings, and working in groups to make decisions such as in the natural resource management arena where groups of people work together to make decisions. Given the fact that many instructors teach the way that they were taught, we should think critically about how we teach graduate students.

## Appendix 1. Results from all of the student evaluations conducted at the end of the course from the four semesters that it was taught.

### Year 1: (2 Ph.D. students, 5 M.S. students)

- Yes, I really enjoyed the format of the discussions. Perhaps it was the small size of the class—or your lengthy instruction packet before the first discussion period. But, overall I feel that it was one of the, if not the best (as far as content, participation, etc.) discussion/seminars I have experienced.
- Format was good. Much better than some of the other discussion sections I have had without a facilitator and recorder. I liked coming up with questions ahead of time—it made me read and think about the papers beforehand.
- The discussions in the class were the best that I have ever had in a class. I think that you stated the “rules” of the discussion before class, so we knew what to expect. Also, everyone in the class was actively participating, which is not normal. Great job!
- I found it very useful! Most discussion type courses that I have had in the past have been very lax in what’s expected and it ends up being someone giving a summary of a paper with no real discussion. I actually felt like we discussed things and heard people’s opinions and ideas. I generally left the discussion pleased and feeling like I learned something. Again, the guidelines were extremely helpful!
- The discussion format was very useful since it not only addressed the topics of discussion, but the mechanics behind a discussion. It may be helpful for the class if you could share some of the insights that the facilitator/recorder had about each discussion period.
- I found it useful except when the subjects were over my head.
- I have no other seminars with which to compare this discussion format. Just seemed abstract.

### Year 2: (5 Ph.D. students, 3 M.S. students)

- I liked the discussion format. Having it student-run made it more of a learning experience when you were recorder/facilitator. In other classes they were always run by the professor. This format is much better. Suggestions... some of the papers we read for discussion were hard to talk about. I was much more inclined to talk if the subject was controversial, etc.
- I really like the discussion format. I think it facilitates thought and discussion. Most other discussions have an assigned discussion leader that ends up doing most of the work for the period.
- The discussion was very helpful and aided me tremendously in becoming a better critical reader. This is a weak area of mine that I have really wanted to improve in.
- I haven’t had discussion before and found this very useful. The format you chose seemed to work well, and I like the random choosing of facilitator/recorder. I usually left discussion with a better understanding of the paper than when I came in.
- I found it helpful as without knowing what your role in discussion will be you put some more thought into the preparation.
- A useful tool for learning, thinking. Good to randomly choose facilitator and recorder. I don’t think anybody spoke too much, fairly even.
- I have only had 1 other course with discussion. Small class size is a plus. I think discussion sessions were useful, especially with the variety of expertise of the students.

### Year 3: [7 Ph.D. students (many of them in their final year), 6 M.S. students, 1 undergraduate student]

- Discussions in this class were far better than any class I have had before. No 1 or 2 people dominated; we had structure. The topics were interesting (big factor for me).
- They weren’t really helpful for learning the material, but more for practice articulating my views. To me these are equally important. I liked the facilitator and in-class note taking. Overall good, better than other classes.
- I think this format was the best I’ve encountered. The only improvement I can think of would be selection of topics. A few of the topics were very difficult to read, understand, and discuss.
- I think it was very effective, especially compared with others I have participated in. I think the complete surrender of power to the students is a great strategy and really makes us take ownership of the discussion. I can offer little to improve it—it may not be necessary to mention the “talking too much” scenario at the beginning of class—it may have deterred some from speaking out more! But in all, I think there was good balance—so, maybe it worked well.
- Yes, I do, other discussions (in other classes) we really didn’t have any format to it. I like the idea that we have a leader and recorder every time—that really helps.
- This is the best discussion class I have had! However, some of the features of the other classes could improve my learning, etc. of the material. I thought the discussions were too free-form.
- Yes, I find it very useful and I feel it is a good way to hold students accountable for assignments. I feel it is very relevant to pull readings from journal articles and then was a broad view of many topics related to the course.
- I liked the discussion format, especially having everyone pick a topic to discuss and then working through them. I like somewhat orderly discussions, because I like to mull things over and listen before speaking. I have also enjoyed discussions in other classes where the professor gives a list of discussion topics beforehand. But your way is more democratic, which is nice.
- I thought the assignment of facilitator, reporter was a great idea. In other discussion courses I’ve taken, if an instructor does not assign a facilitator, then there is a lack of discussing the topic. Also, meeting after with the facilitator/reporter was great.
- Having a facilitator was helpful for discussions that didn’t have a life of their own.
- The discussion format was useful. I liked the “recorder” and “facilitator” roles and how they contributed to a meaningful discussion. I don’t know how this would be accomplished, but creating a way to ensure that everyone participates would be helpful.
- Yes, having a management background caused me to focus on management techniques. It would be good to have students present a management question for each discussion. The student-facilitated discussions were a strength of the course.
- The format in this class is good in the way that no one dominated in discussions (as I have experienced in other classes). But, sometimes people don’t recognize important questions and the discussion would be boring.

### Year 4: [2 Ph.D. students (first year), 6 M.S. students (first year)]

- I really liked the discussions. My other experience in a discussion type course was larger and often less interactive/interesting. I think the personalities and group size was ideal.
- Excellent—much more of a structured format than previous courses.
- I think it was helpful and I preferred it to other types of discussions where the responsibility for content/discussion topics all relies on one person.
- It was nice to have students actively participate. Sometimes hard for students to fill in gaps of misunderstanding or content but with experience level these can be filled in.
- Very useful. Forced students to read, comprehend, and evaluated peer-edited material.
- I have never had organized discussions like these, but I really liked them and learned a lot.
- Discussion was good, some papers I knew more/read more than others. Got burnt out on them.
- Choosing the order to discuss topics was awkward at times; should be left to the facilitators’ discretion.

† Note: The students were asked, “Did you find the discussion format in this course useful? Please compare it to other ‘discussion’ type courses you have had before. And, please offer suggestions for improvement.” The comparisons to discussion approaches in other courses are underlined. For each class, the responses are ordered from most to least positive. During Years 2 and 3, one student was absent during the day of evaluations. Approximately one-third of the course was devoted to discussion using this approach.

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### About the author...

Patricia Soranno is a faculty member in the College of Agriculture and Natural Resources at Michigan State University. She teaches courses to advanced undergraduate and graduate students in aquatic ecology and ecosystem management. Her interest in fostering graduate students to more actively and effectively participate in classroom discussions stems from not only her experience in the classroom, but also from her experience working with natural resource professionals. The skills that students learn in the classroom in facilitating and participating in discussions are critical for future careers in natural resource agencies where decisions are often made collectively.