

Using Metacognition in the Classroom

Invited Guest Speaker Dr. Amy Siegesmund



**HOSTED BY THE SCHOOL OF MOLECULAR BIOSCIENCES SEMINARS
SERIES & THE CVM TEACHING ACADEMY**

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USING METACOGNITION IN THE CLASSROOM

Invited Guest Speaker Dr. Amy Siegesmund

Dr. Amy Siegesmund, is currently an Associate Professor of Biology at Pacific Lutheran University (PLU) in Tacoma Washington. Dr. Siegesmund has been actively involved in the biology education pedagogy during her time at PLU.



Dr. Siegesmund has regularly presented at the American Society for Microbiology Conference on Undergraduate Education annual meetings—topics including: case-based learning, interactive journaling, and role-play as an instructional tool. She is an alumni of the National Science Foundation (NSF) Biology Scholars Research Residency (2010).

Since 2009, Dr. Siegesmund has been actively involved in the Introductory Biology Project, a nationwide effort to rethink introductory biology education.

Recently, Dr. Siegesmund was a member of the American Society for Microbiology (ASM) Task Force on Curriculum Guidelines charged with revamping the goals of microbiology undergraduate education. Within PLU she is a leader in departmental curriculum and assessment.

Thursday - January 16th

SMB Seminar Series: Self-assessment as a tool for increasing metacognition & learning gains

Description: Many introductory biology students have two compounding problems: 1) they are inadequately prepared for college, much less a college-level biology class; and 2) they overestimate their abilities. Together (or separately), these issues tend to result in lower-than-desired-grades for students. For the instructor, these issues require making time to cover basic learning skills at the expense of content and/or time devoted to developing higher order cognitive skills. Self-assessment is an effective tool for increasing student responsibility for learning; a logical extension is that increased responsibility can empower students to make purposeful choices regarding learning behaviors. Increasing the ability of students to effectively self-assess and regulate their learning has significance not only for the individual student, but for entire classroom learning community.

Friday - January 17th

Teaching Academy Workshop: Increasing metacognition in your classroom

Description: This workshop will be focused on developing tools that you can use in your classroom to facilitate increased metacognition and learning. While some background and context will be provided, this will be an interactive workshop; participants can expect to leave with tools they can use immediately. To that end, participants should bring course or assignment materials that can help inform instrument design.

Teaching Academy Discussion: Discussion of national teaching initiative work

Description: In updating the American Society for Microbiology (ASM) guidelines for undergraduates, a committee leveraged work from the 2011 AAAS Report Vision and Change in Undergraduate Biology Education: A Call to Action, a national report urging faculty to work towards ensuring that students have a foundational understanding in biology. Working from a national consensus, the committee worked to add additional areas of scientific thinking and microbiology skills. As one of the six members of this group that helped hone these guidelines, Dr. Siegesmund will share her experiences and discuss challenges for these activities on a national level.

Attendance of the presentations:

Presentations	Attendance
SMB Seminar	25*
Workshop	15
Discussion	18

*Note: There were about **82 people** in attendance to the seminar, as the **SMB seminar** is a required event for all **SMB graduate students**. The number indicated above is the number of people attended that are not included in the **SMB graduate student count** (& who received the survey).

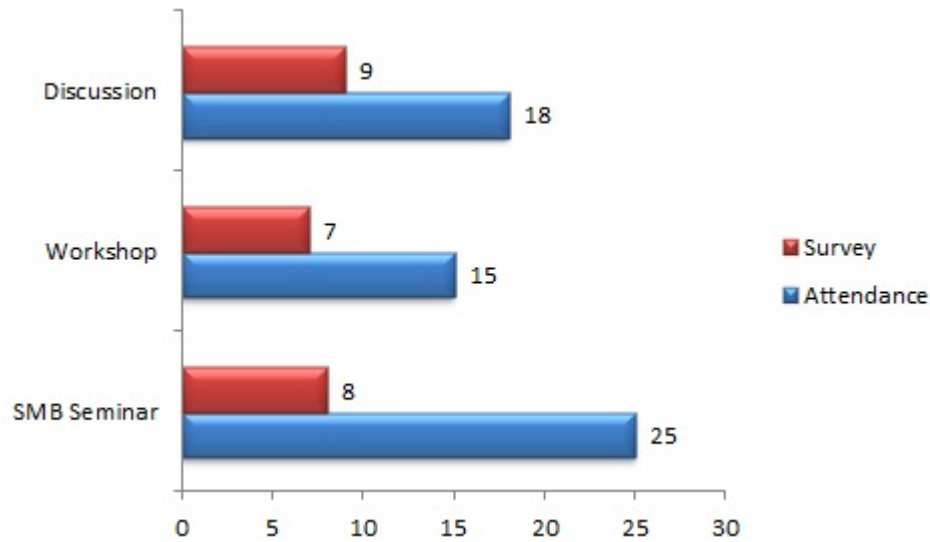
Survey Results:

11 people took the online survey:

Presentations	Attendance	Survey	
SMB Seminar	25	8	32.0%
Workshop	15	7	46.7%
Discussion	18	9	50.0%

Department		
IPN	3	27.27%
SMB	2	18.18%
VMP	2	18.18%
Blank	2	18.18%
Dean's Office	1	9.09%
SGAH	1	9.09%

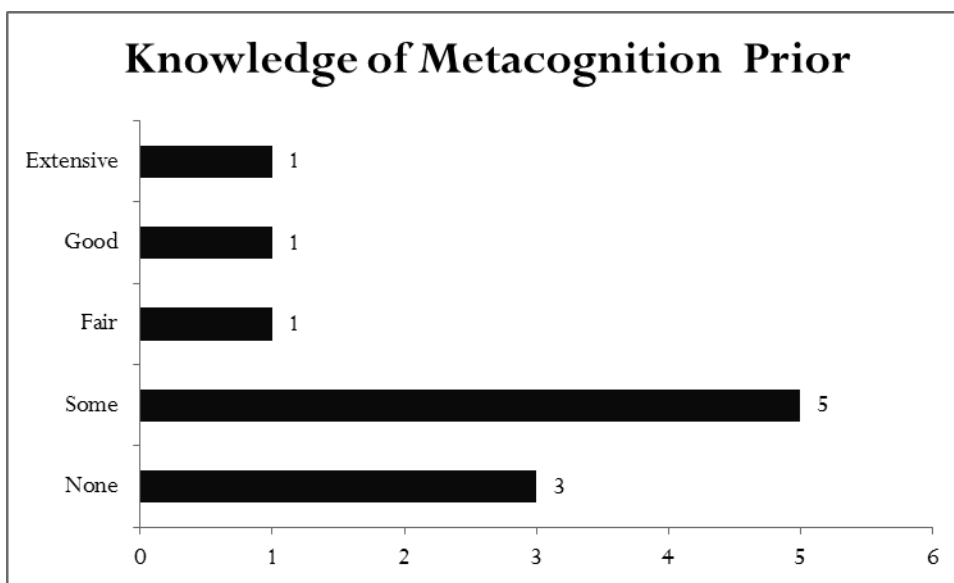
Overall Attendance to the presentations and survey:



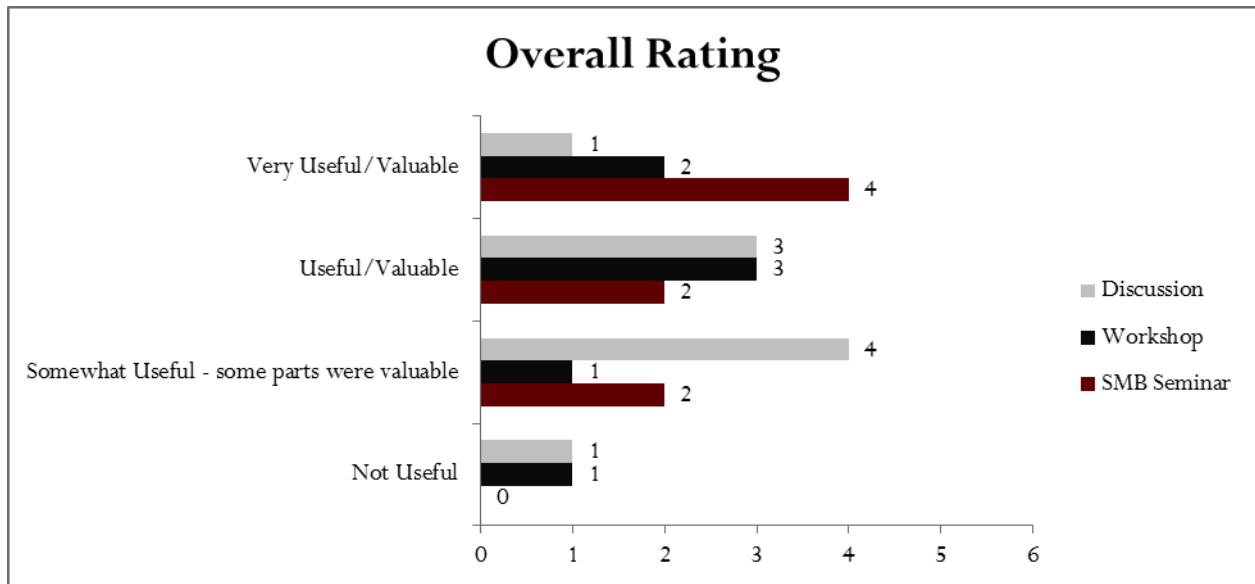
Survey participants:

Which of the following best describes your current position:		
Junior faculty	6	54.55%
Senior faculty	3	27.27%
Administrator	1	9.09%
PhD student	1	9.09%

Which of the following best describes your knowledge/experience with using metacognition in a classroom prior to attending the workshop/discussions:



Overall Rating of the sessions attended:



Overall Comments:

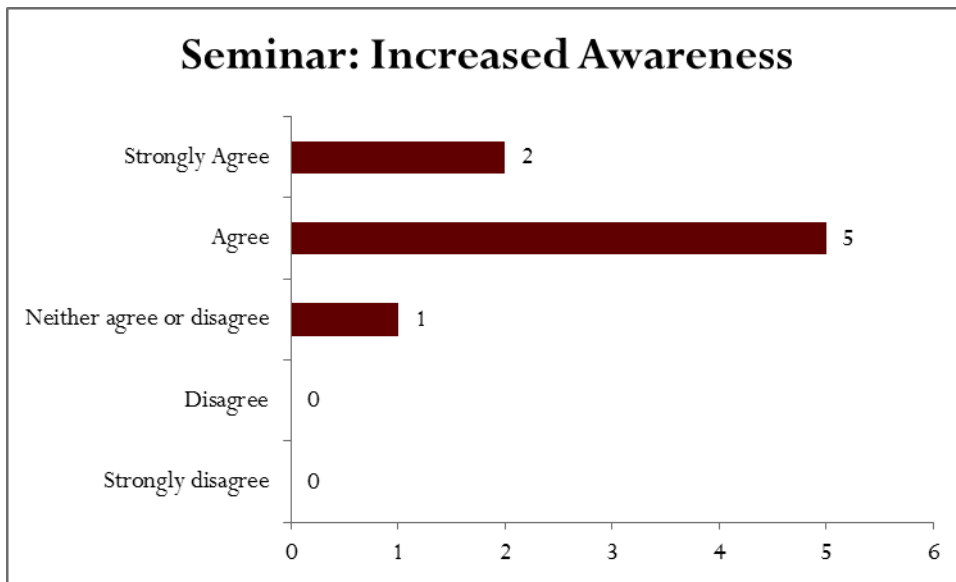
- The lunch discussion was targeted at faculty and those that are developing syllabi. Since I'm only a TA I didn't find the discussion useful, however this had nothing to do with the quality of the discussion.
- For me, if I can bring home one or two "nuggets" or new ideas from these sorts of things, I consider it a success. Thanks to the seminar on Thursday and then a bit of time in the workshop to think further, I came away with 2 and possibly 3 metacognition pieces that I plan to initiate the next time I teach my course. I found the entire program well organized and very well delivered. The Friday discussion was interesting but less pertinent to what I do. It was a good discussion though of "change" and the obstacles to it. Thanks to the workshop organizers and Dr. Siegesmund!
- The lunch discussion was thought-provoking and enhanced my thinking and our collective understanding as a group. That was valuable. I have not responded to questions on the next page of the survey - because I came into the workshop with considerable knowledge about the topic and use of these ideas, my responses would skew the results inappropriately.
- I couldn't be at the seminar because of class



SMB Seminar: Self-assessment as a tool for increasing metacognition & learning gains - Thursday, Jan. 16, 12:00 - 1:00 pm:

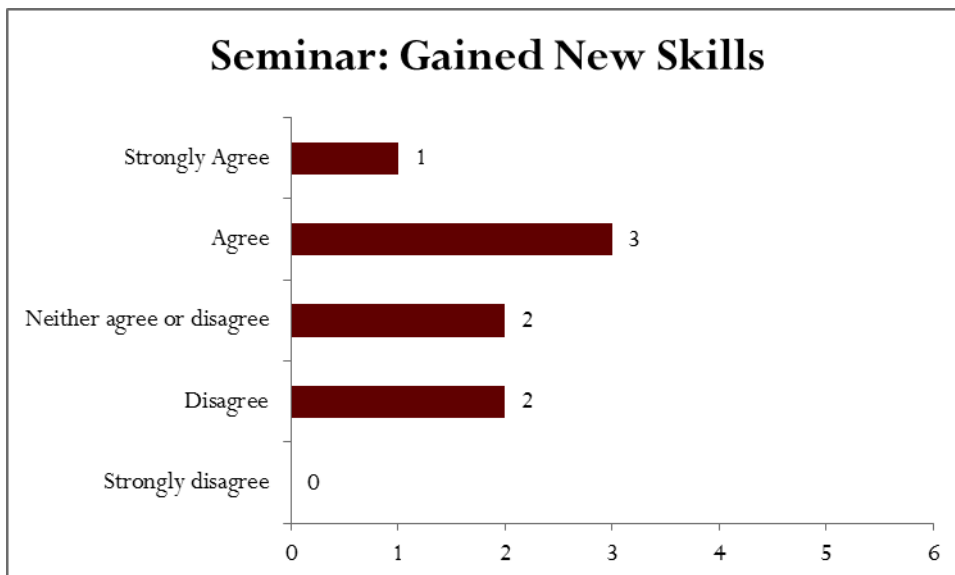
The seminar increased my awareness of how to improve self-assessment as a tool for increasing metacognition & learning gains within my classroom:

- 87.5% of the people that took the survey agree to strongly agree that this seminar increased their awareness.



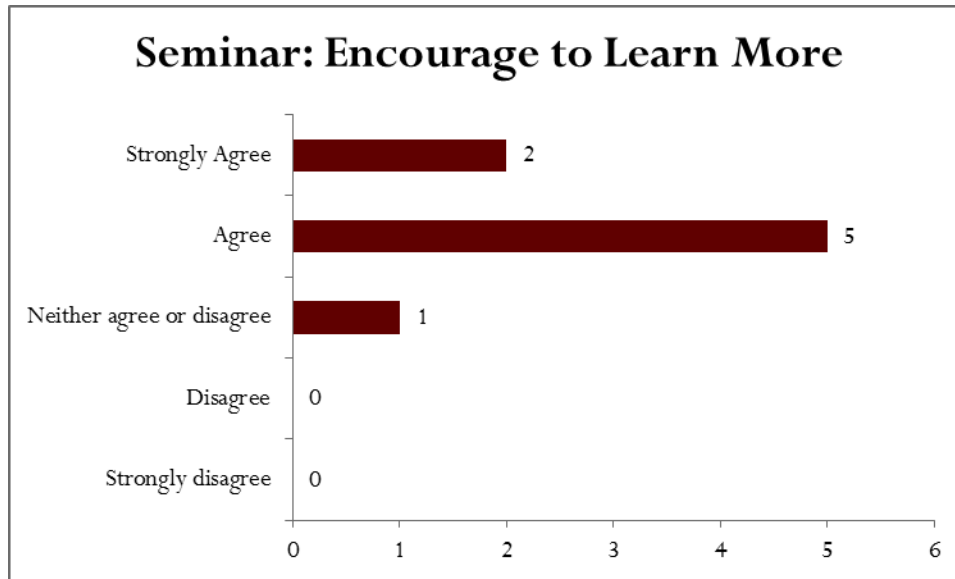
I gained new skills that I will use in my teaching:

- 50% of the people that took the survey agree to strongly agree that during the seminar they gained a new skill that they plan to use in their teaching.



The seminar has encouraged me to learn more about metacognition in regards to teaching and learning:

- 87.5% of the people that took the survey agree to strongly agree that the seminar encouraged them to learn more about metacognition in regards to teaching and learning.



What were the one or two **BEST/MOST VALUABLE** aspects of this seminar?

- Opportunity to see metacognitive practice in action together with the results
- Showing an importance of metacognition
- I wasn't aware before this that metacognition is an important piece of the learning process.
- I very much liked the metaphor of building a house - and framework. Came away with 2 good ideas on incorporating metacognition into teaching activities I am already doing
- Individualized goal setting made public "sticks" and students are then accountable for reaching/failing to reach these, Helpful in changing behavior beyond just feeling they should be doing something to aid learning

What one or two suggestions do you have that might have **IMPROVED** this seminar?



- more time, unfortunately
- more specific examples
- None, except that it seemed mainly to apply to university freshmen rather than grad/professional level students. It might be helpful to expand the examples, etc., to those levels of learning.
- Dr. Siegesmund was a dynamic and thoughtful speaker. I'm not sure if anyone has pointed this

out before but she makes excessive use of the terms "literally" and "right?" I once counted 4 "literally's" in 2 sentences. Then once someone pointed out the "right?'s, I realized they were even more common and part of an "up-talking" style. Please recognize that this is entirely intended to be helpful feedback so that Dr. Siegesmund can continue to improve her strong presentation style.

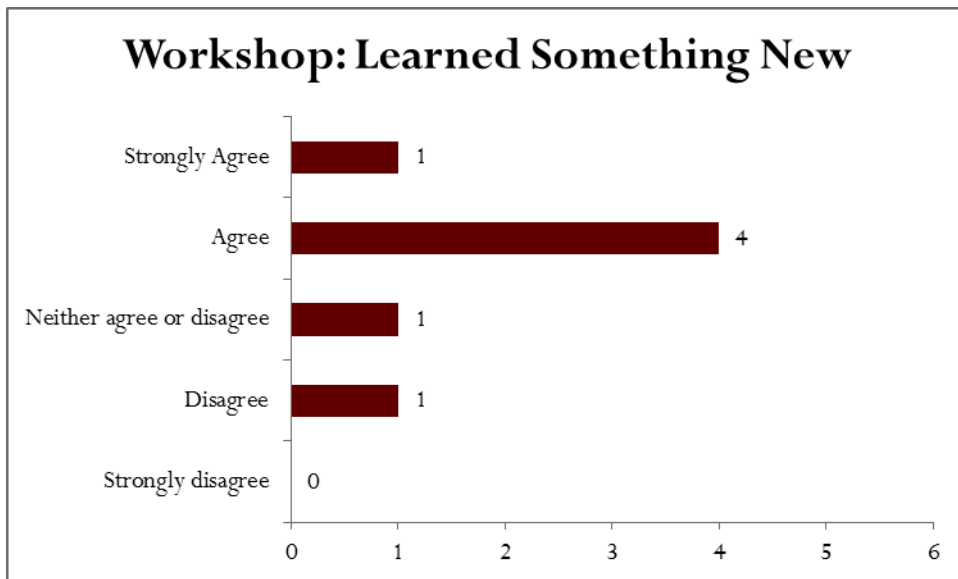
- While I appreciated the inclusion of data, I was unclear about the statistical power of the data, as few standard deviations were apparent. The lack of an active-learning moment made it feel like the seminar didn't employ best principles in education

Workshop: Increasing metacognition in your classroom- Friday, Jan. 17, 9:00 - 11:00 am:



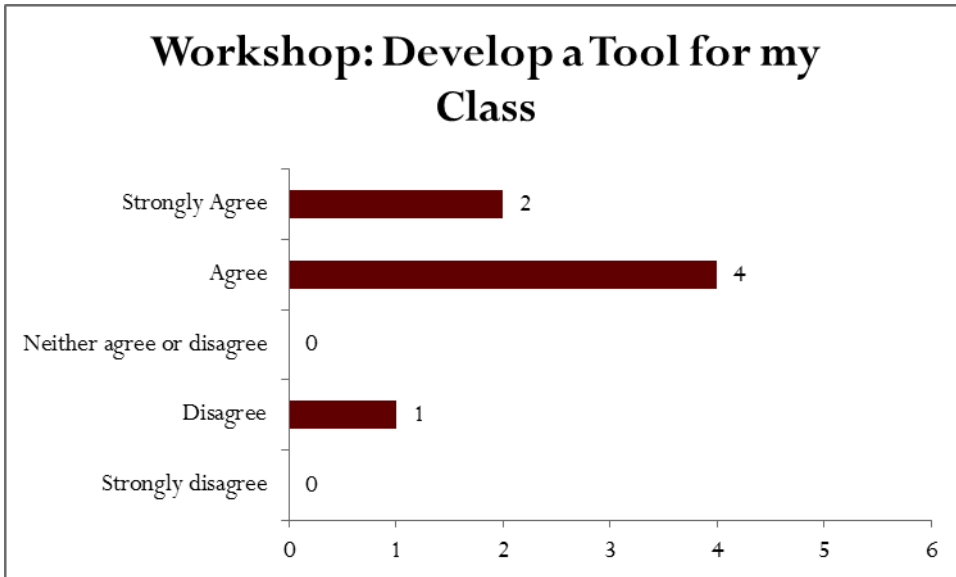
I learned something new:

- 71.4% of the people that took the survey agree to strongly agree that during the workshop they learned something new.



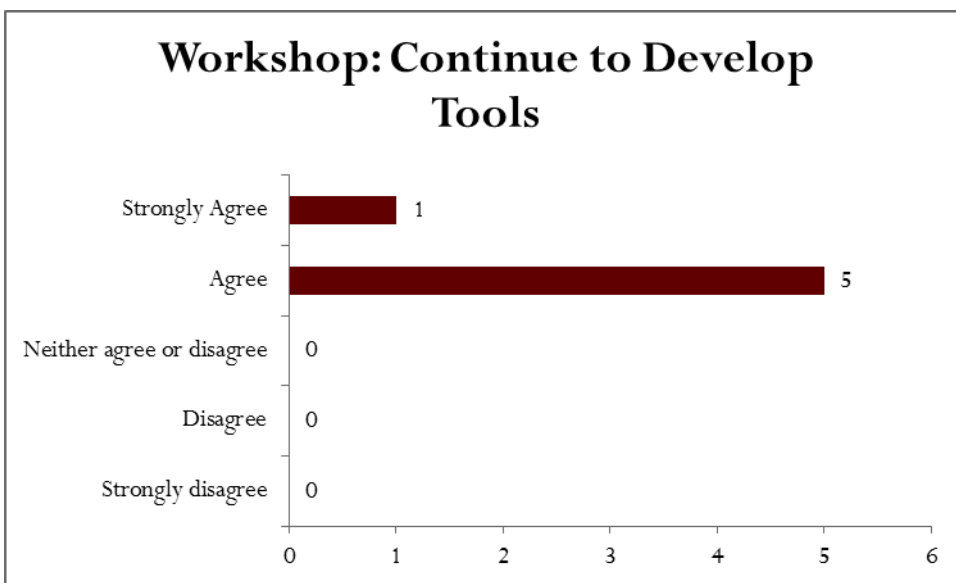
The workshop allowed me to develop at least one tool that I can implement in my class this semester:

- 85.7% of the people that took the survey agree to strongly agree that during the workshop they developed at least one tool that they plan to use in their classroom this semester.



After participating in the workshop, I plan to continue developing tools that I can use in my classroom to facilitate increased metacognition and learning:

- 85.7% of the people that took the survey agree to strongly agree that during the workshop they are planning to develop tools that they can use in their classrooms. To increase metacognition and learning



What were the one or two **BEST/MOST VALUABLE** aspects of this Workshop?

- Chance to get feedback from Amy and from peers about metacognitive exercises

- My partner and I were grouped with some of the more senior faculty so it was helpful to hear their experiences. And since I wasn't able to attend the lecture on Thursday it was valuable to get a synopsis of what metacognition was.
- Carving out time to focus on developing these parts of my course. Discussion with peer instructors about their experiences and interests
- I think receiving the lists of possible activities that can help students get a grasp of metacognition was very helpful.

What one or two suggestions do you have that might have IMPROVED this Workshop?

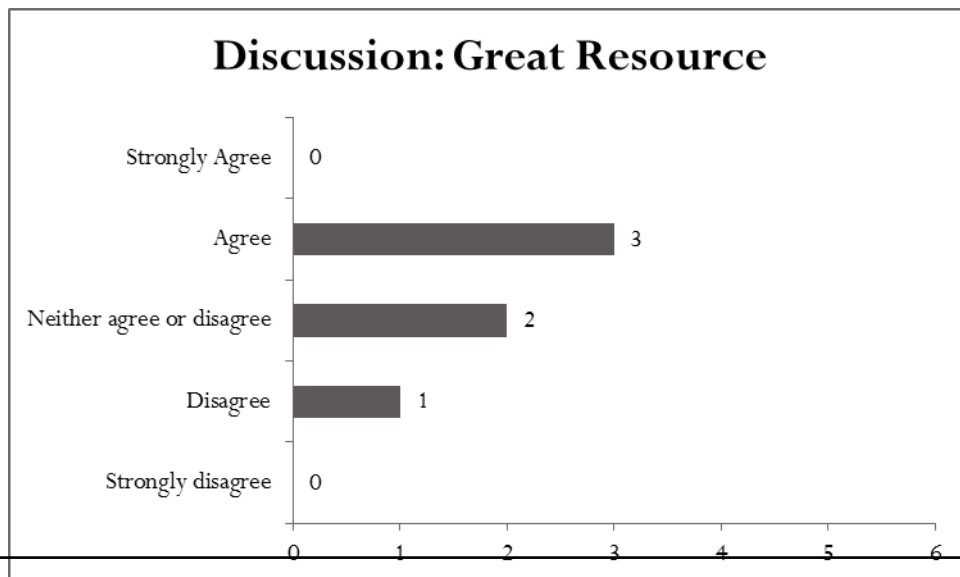
- More time
- The groups might have been organized to make them more effective. It was pretty uneven and sometimes meant a group was just inexperienced graduate students. See previous comment about speaking style.
- It seems like we just ran free after the intro. Giving us some structure over 2 hrs would have helped. It seemed like some participants were not engaged after a while. I thought more instructors from all over campus would be there
- It seemed to maybe be a little bit too short. Maybe more structured activities would have helped too.



Discussion: National Teaching Initiative Work - Friday, Jan. 17, 12:00 - 1:00 pm:

I found that the National Teaching Initiative work to be a great resource:

- 33.3% of the people that took the survey agreed that during the discussion the new teaching initiative work would be a great resource for them.



What were the one or two **BEST/MOST VALUABLE** aspects of this Discussion?

- It was interesting to hear about the process
- A healthy and interesting exchange of ideas
- Useful perspectives as we deal with CVM curriculum changes. Insights into process helped; suggestions for assessment were useful
- I thought the back and forth/question and answers between the speaker and the audience were thoughtful and thought-provoking.

What one or two suggestions do you have that might have **IMPROVED** this Discussion?

- I would have liked more structure, and some real discussion of how this is a lesson we can learn from in curriculum development.
- Should have had website on screen or handout from the start . Surprised no one had insights from professional school challenges that are similar, with national changes in MCAT or other assessments
- None Really

Final Comments:

- Well Done
- Great visitor and WSU alumna

After attending these discussions and workshop do you have any additional/new suggestions for future workshops, brown bags, or other activities related to **METACOGNITION:**

- I'd like to have a follow-up, seeing if participants have implemented and gained insights. I feel like the switch to a course design is big, but there were great incremental pieces that came to mind. It was serendipity that we talked about introvert/extroverts in the days that followed, as we had tools to allow students to reflect on their preferences and natural tendencies.

