



DR.
CLARISSA
DIRKS



Dr. Dirks currently is a Professor of Molecular and Cellular Biology at Evergreen State College in Olympia, Washington in the Scientific Inquiry Planning Unit. Her research focuses instructional development and science education.

Dr. Dirks is well versed in the rationale for changing instructional methods, but further skilled in helping discipline-based scientists move into instructional research that yields assessment data about the effectiveness of instructional approaches.

DISCIPLINE-BASED EDUCATION RESEARCH

FACULTY DEVELOPMENT WORKSHOP SERIES

TUESDAY – APRIL 9TH

SESSION #1: MOVING FROM TEACHING TO RESEARCH ABOUT TEACHING AND LEARNING

- Improving learning with Scientific Teaching
- Action Research versus Discipline-Based Education Research (DBER)
- Student evaluations of teaching versus empirical evidence of learning
- Pedagogical transparency for student reflection

SESSION #2: CONDUCTING DISCIPLINE-BASED EDUCATION RESEARCH

- Comparison of discipline research with DBER
- Research Formats for quasi-experimental studies
- Qualitative, Quantitative or Mixed Approaches
- Thinking creatively about data analysis

SESSION #3: INSTRUMENT DESIGN

- Instrument types
- Validity and reliability
- Classical item analysis and Item Response Theory
- Analysis of instrument and design
- Case studies: Science Process and Reasoning Skills Test (SPARST);
Introductory Biology Consortium Multiple T/F Test

Dr. Dirks's presentation reached a wide variety of audiences, including house offices, junior faculty, senior faculty and administration.

Total attendance to the presentations:

Presentation	Attendance
Session #1: Moving from Teaching to Research about Teaching and Learning	26
Session #2: Conducting Discipline-Based Education Research	19
Session #3: Instrument Design	18

SURVEY RESULTS:

The online survey was taken by **18 people**.

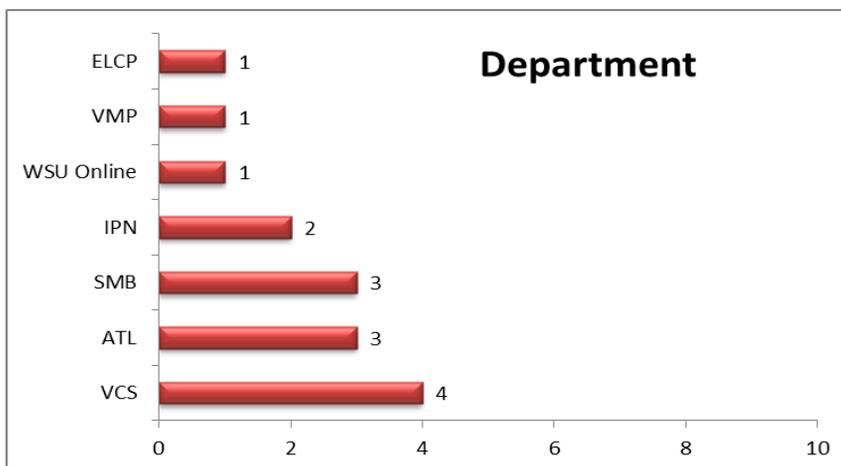
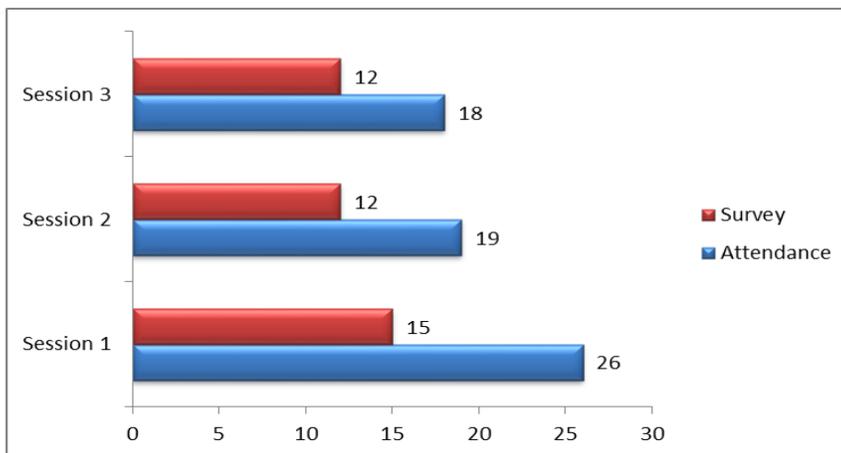
WSU Affiliation

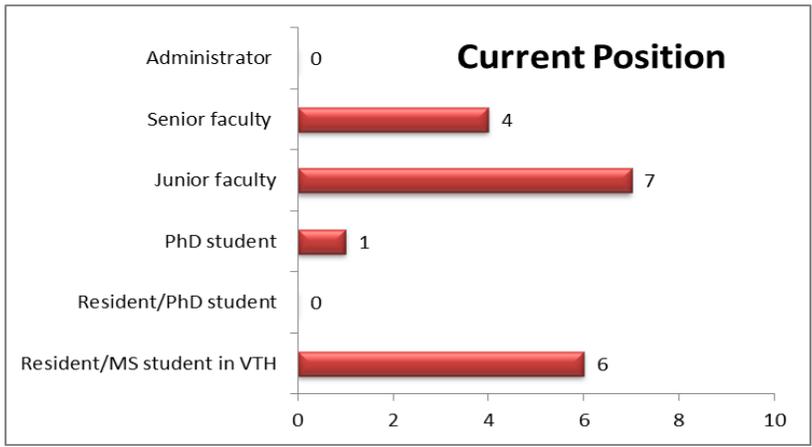
CVM	11
ATL	3
Libraries	2
Global Campus	1
COE	1

TOTAL 18

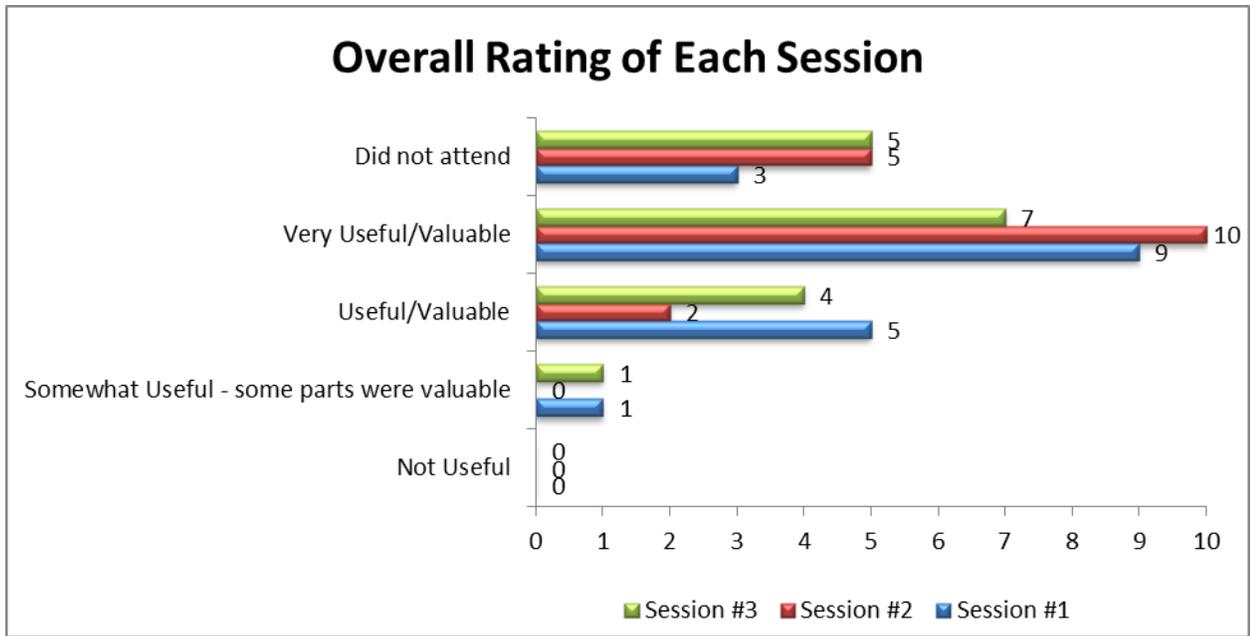
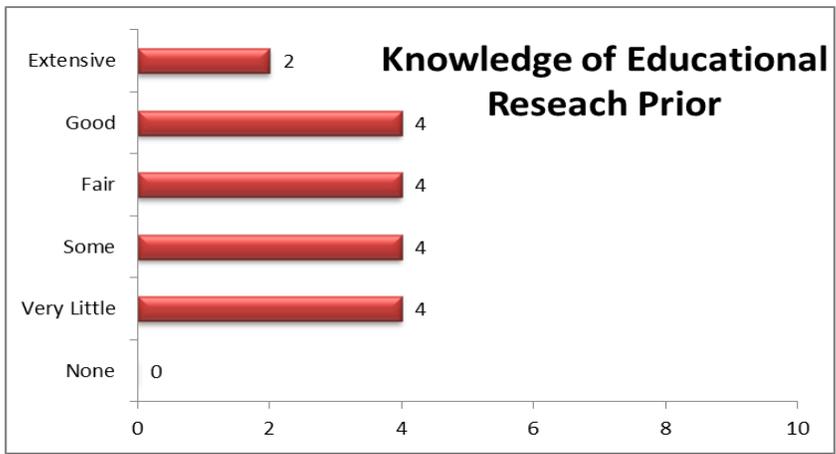
Participated in Survey

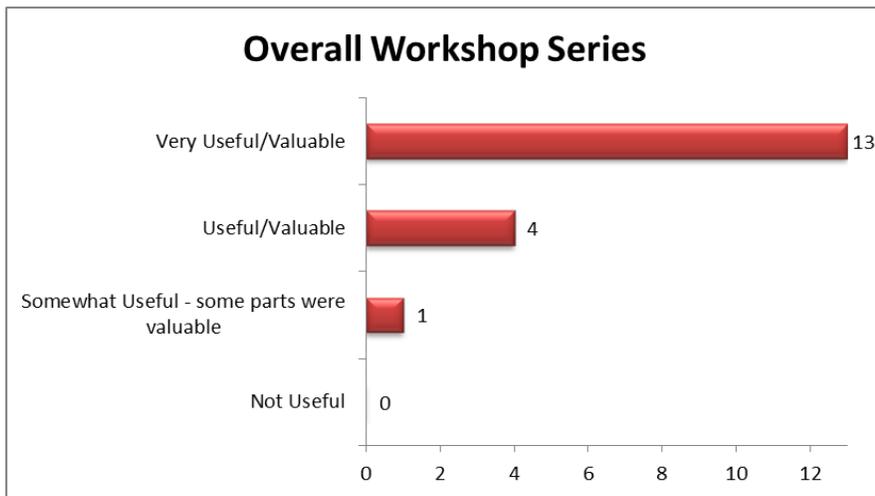
	Attendance	Participated in Survey	
Session 1	26	15	57.7%
Session 2	19	12	63.2%
Session 3	18	12	66.7%





WHICH OF THE FOLLOWING BEST DESCRIBES YOUR KNOWLEDGE/EXPERIENCE WITH EDUCATIONAL RESEARCH PRIOR TO ATTENDING THE WORKSHOPS:





OVERALL COMMENTS:

- I thought Clarissa did an excellent job; I especially liked how she presented it from a "real" experience at UW, and how to implement the changes. Unfortunately I think I missed the how to assess the changes part and which I thought would have been extremely interesting.
- Progression was most helpful in pushing my instructional research to the next level, getting me to put ideas to paper and hear feedback from informed peers
- I did not have enough background to follow all of Instrument Design.
- This was a great introduction for folks who know very little about ed. research. I was surprised at the clarity of her explanations of how IRT works.
- I was a little distracted by something that had happened. I thought section 1 was good but ran too long. I wish I had time to attend the other sessions!
- Very new concepts that (some) of our faculty are struggling with (trying to do), so the workshop was very timely and informative.
- I thought the instrument design workshop was very valuable because I had not been exposed to that information before.
- I really enjoyed the brainstorming part of the 1st session. The sharing of ideas and what different people thought would be areas to spark the action research that could spawn DBER. It was interesting also during the 1st session that she talked about how to reward education research, and the changes that would need to come.
- Dr. Dirks gave an excellent workshop that conveyed basics of DBER very well and also contributed to collaborations and networks at WSU.
- Excellent presentation from 9:30-11:30 - wish I could attend more sessions!
- I had no idea that the science community was not already familiar with basic education research practices. It was interesting to hear about their concerns and get a better understanding of how Ed Psych could potentially partner with sciences to conduct research.

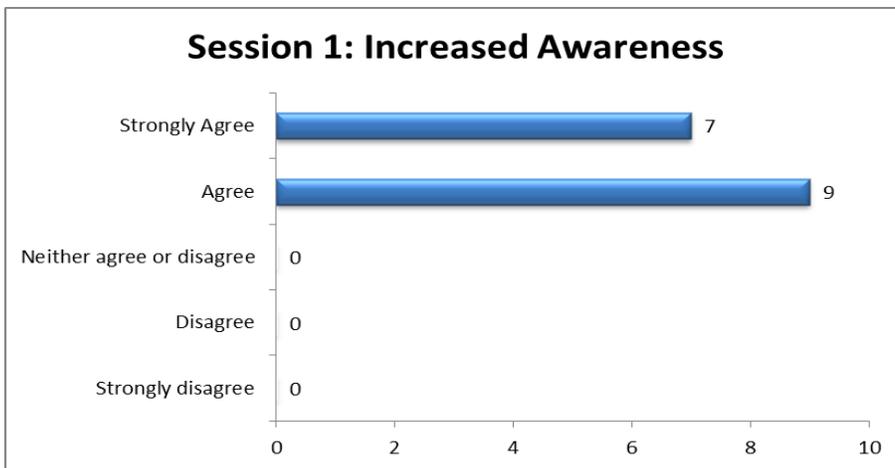


- Excellent, well structured, organized and executed.
- It was very beneficial to have Clarissa come to campus and meet with our faculty. I think her visit will help the group think more seriously about conducting education research.

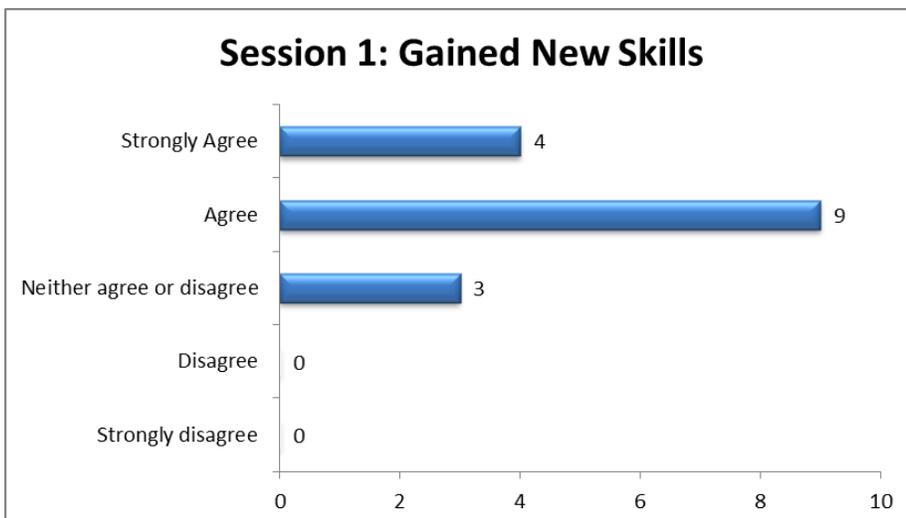
SESSION #1: MOVING FROM TEACHING TO RESEARCH ABOUT TEACHING AND LEARNING – 9:30 AM – 11:30 AM



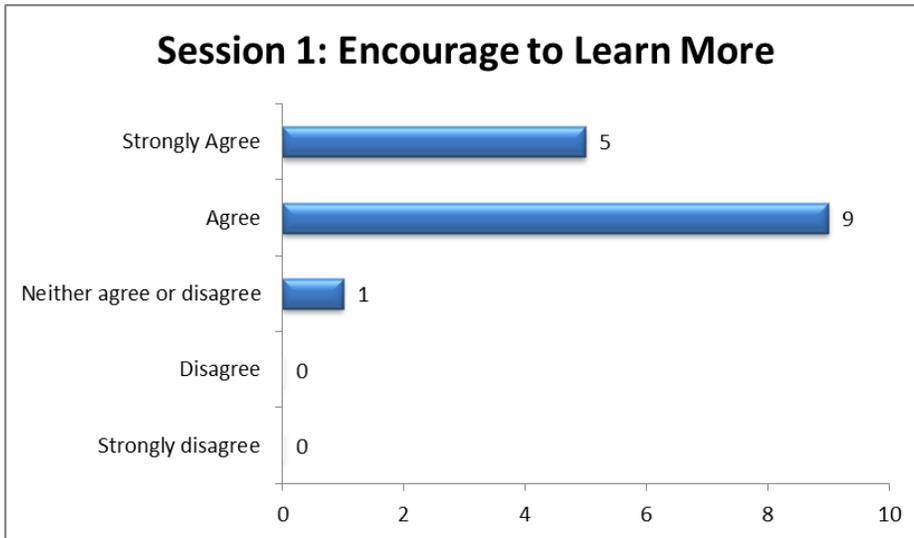
THE WORKSHOP INCREASED MY AWARENESS OF HOW TO IMPROVE LEARNING WITH EDUCATIONAL RESEARCH



I GAINED NEW SKILLS THAT I WILL USE IN MY RESEARCH



THE SESSION HAS ENCOURAGED ME TO LEARN MORE ABOUT RESEARCH IN REGARDS TO TEACHING AND LEARNING



WHAT WERE THE ONE OR TWO BEST/MOST VALUABLE ASPECTS OF THIS SESSION?

- Learning about Clarissa's path to develop the undergraduate scientific basics course, it helped me realize the importance of "cross talk," to utilize expertise and not operate in a vacuum
- The brainstorming of action research problems and describing in relation to different areas.
- I appreciate the distinction between action research (a classroom trial) and DBER (intention to publish) in ways I didn't earlier -Excellent discussions about motivation for DBER and modes of approach/rationale -Excellent scaffold for identifying problem, planned intervention and assessing impact
- Some of the definitions were very helpful, including ST (Scientific Teaching) versus AT (action research)
- Built awareness that many studies relating to DBER have been done and that there is a good foundation of knowledge to draw upon. Learning to develop a study design including outcome assessment.
- Bringing people together that otherwise would not cross paths
- how to get started in ER
- I really liked hearing about the Biology Fellows program Dr. Dirks established.
- table discussions
- The discussion about the distinction between 'action research' and 'educational research'
- Discussion on how people use AR or DBER.
- Explaining the different types of education research



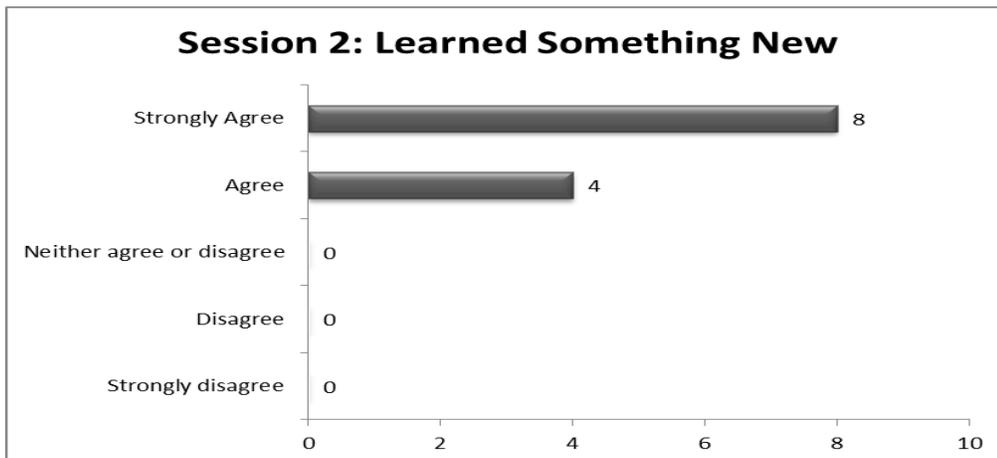
WHAT ONE OR TWO SUGGESTIONS DO YOU HAVE THAT MIGHT HAVE IMPROVED THIS SESSION?

- I would have liked to have even more time to discuss this 1st part. Maybe a longer session.
- No big suggestions, but I might have benefited from a handout with PowerPoint slides to augment my notes from this session
- We might have benefited from a "LBL" assignment to read one or two articles to ground us in the DBER concept.
- Encourage those from disciplines not represented (specifically engineering) to attend
- Closer to VTH
- It was too long.
- I suspect the first session would have seemed more useful if I'd been able to attend the other two. By itself it was interesting and there were some good discussions at our table, but there was not a lot of concrete take-away material.



SESSION #2: CONDUCTING DISCIPLINE-BASED EDUCATION RESEARCH – 12:30-2:30 PM

I LEARNED SOMETHING NEW



AFTER PARTICIPATING IN THE SESSION, I PLAN TO CONDUCT DISCIPLINE-BASED EDUCATION RESEARCH PROJECT



WHAT WERE THE ONE OR TWO BEST/MOST VALUABLE ASPECTS OF THIS SESSION?

- Small group work
- I learned more about valuable EXISTING resources and tools that are just what I need for my DBER, including CLASS/VASS/FLAGUIDE (these are like nuggets of gold to my research--thank you!!) -I needed to stop juggling multiple simultaneous research questions and focus/refine a very few questions first; This session helped me get rid of some chaff and drill-down on a few issues
- I thought the workshop really helped to clarify some of the critical steps in moving into DBER. It was also helpful to talk a bit more about qualitative research. The initial discussion of research formats/study designs and intro to instruments was particularly useful to me.
- See previous
- getting past talk to planning
- Realizing that scientists and science professors want to conduct in-classroom research but don't always know how to go about it.
- Discussing specific projects/proposals
- The opportunity to have Dr. Dirk's specific feedback as we started to design our own DBER project
- The chance to share our developing research plan with others and the information on experimental design.
- Explicit details about designing education research



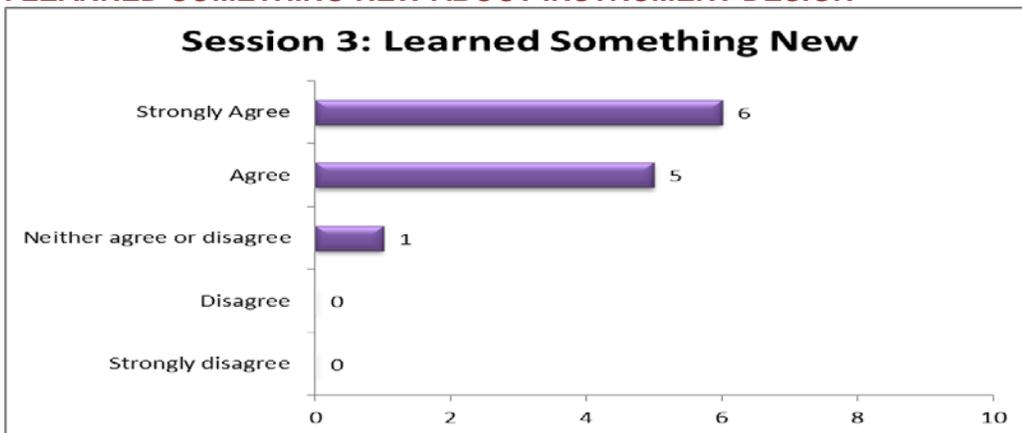
WHAT ONE OR TWO SUGGESTIONS DO YOU HAVE THAT MIGHT HAVE IMPROVED THIS SESSION?

- None; I had to step out for part of this session
- For those of us who were trained in "the hard sciences" (e.g. biology and medicine), I think delving deeper into Qualitative Research so that we might understand and appreciate it better would have been very useful.
- Again, having other disciplines would have brought greater diversity to the session.
- The title assumed an understanding that I did not have. I did not realize this was aimed primarily at science disciplines and for in-classroom research, but it was still very interesting and I am glad I was there.
- I liked seeing everyone's poster, but the 'poster session' where people stood by their posters did not seem to work very well. It may have been more effective for each person to describe their poster to the group as a whole.
- I think session two could have been lengthened so we had a chance to talk more about experimental design. However, I understand there was a limited amount of time in the day.
- More details about designing education research

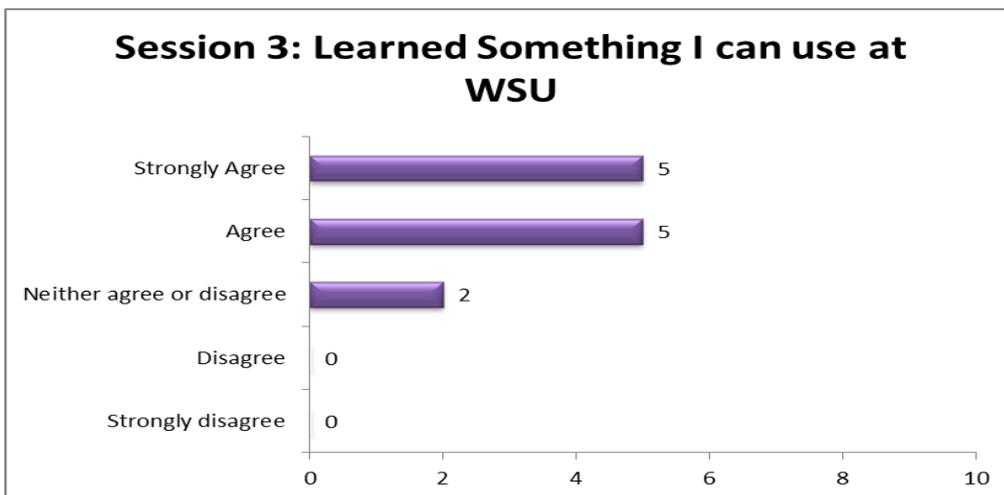


SESSION #3: INSTRUMENT DESIGN- 3:00 - 5:00 PM

I LEARNED SOMETHING NEW ABOUT INSTRUMENT DESIGN



I LEARNED SOMETHING I CAN USE IN MY WORK AT WSU



WHAT WERE THE ONE OR TWO BEST/MOST VALUABLE ASPECTS OF THIS SESSION?

- The considerations in developing an instrument in terms of audience
- "Using concrete examples and mentoring through the process of design, data collection and analyses was most helpful -Good balance in presentation between the challenges of new tool development and validation versus the need for a specific tool to answer my . If I end up developing and validating my own measurement tool, I will do it with eyes open to the scope of this task. Good inclusion of educational theory (IRT vs. CTT) to novices like me"
- This was probably the most valuable session for me, in that I learned the most. The discussion of existing instruments and (in particular) the presentation of the various INSTRUMENT MODELS (concept inventories, multiple T/F, etc.) was very helpful. I came away with a better appreciation and a lot of fear about designing instruments.
- The list and discussion around instruments already created
- Explanation of IRT in terms people can actually understand.
- "I was not familiar with the multiple T/F format and might be able to use that structure. Good emphasis about refinement and getting specific about the research question. It's easy to be too broad. Liked suggestion to use common misconceptions as the distractors."
- Poster 'session' discussions
- Appreciating the complexity of creating a valid and reliable instrument.
- Learning about instrument validity and reliability.



WHAT ONE OR TWO SUGGESTIONS DO YOU HAVE THAT MIGHT HAVE IMPROVED THIS SESSION?

- The focus seemed to be considerations when developing an instrument intended for a broad audience as opposed to focused on developing a good assessment instrument for say assessing a unit or chapter in a particular course. I think the description of the session could have been a little clearer as the far as the scope or type of assessment instrument design. Not understanding the scope initially, I thought she was suggesting that instructors not design their own tests, unless there is nothing else out there, or that they needed to have their tests vetted by experts before giving them to their class.
- If these sessions are provided in series, there's a certain degree of information saturation by the end of the afternoon. I appreciated the opportunity to have discussions and get up and move around, but I was spinning by the end, struggling to maintain focus. It was all great content, but my retention lagged in this session in ways that were different from session I and II. My notes are less coherent, reflecting this. (I hope this doesn't sound negative, but just the pragmatic reality of the 5th and 6th hours of dense topics)
- It might have been useful to discuss available instruments more deeply. My sense is that most would not be applicable to the types of discipline-specific research most of us will engage in - but I am not sure that is correct.
- Minor suggestion -- I would have liked to annotate her slides if we had a print out of them.
- Discussion of the value and differences of action research, DBER, and assessment.
- Not much. Given the short time she had to present she did a great quick overview that gave people the key points of what they should read more into.
- I can't think of any. I had to leave early so I didn't hear the entire session.

- Hard to control but participants 'coming and going left gaps.
- It was clear that instrument design is a very involved process. It would have been more helpful to me to learn how to use some specific instruments that are already well-established.

ANY FINAL COMMENTS ABOUT THE SESSIONS (OR ANYTHING ELSE)?

- "I appreciated meeting new collaborators from diverse units on campus. I have started and continued new discussions with them since. Dr. Dirks' energy was unlimited and she really kept us all going with enthusiasm that complemented her expertise."
- These were well designed and well led sessions. Dr. Dirks was a thoughtful and engaging speaker. Kudos to her - and to Phil Mixter and Rachel Halsey for all their work to make this happen. I hope this is the beginning of a collaborative relationship between WSU and Dr. Dirks.
- "I felt the format of creating small work groups and assigning us the task of working through the elements of DBER was very useful. We ran out of time in all three sessions, so I'm not sure if we were to do it over again, if the workshop sequence could be restructured to spotlight each segment and give each additional time. Perhaps spread the workshops out over two days?"
- Have her back in ~ 1 year
- Dr. Dirks provided valuable information important for her scientific colleagues to know. Her informal yet professional style was engaging. I am glad that I attended and appreciated Dr. Dirks willingness to share her expertise in conducting education research.
- I think this was a very beneficial workshop series and I hope it will encourage the group to pursue this type of research.

AFTER ATTENDING THESE WORKSHOPS DO YOU HAVE ANY ADDITIONAL/NEW SUGGESTIONS FOR FUTURE WORKSHOPS, BROWN BAGS, OR OTHER ACTIVITIES RELATED TO EDUCATIONAL RESEARCH

- "I would like to see an ""action"" group follow this workshop like the one that followed Diane O'Dowd, helping institute these principles and aiding faculty as they move into DBER for the first time. Thanks to all who made this event possible."
- I think it would be very good if someone from the College of Education, possibly in collaboration with one of the WSU Libraries folks, led a session to help us learn about educational databases and how we should conduct literature searches when we begin to explore and design educational research projects. I am very comfortable with PubMed and the few resources we use in our specialty areas. However, I really don't know where to start when I consider education-focused work. As Dr. Dirks noted, the first thing we should all do is examine the literature - and most of us don't know how.
- I have taken a full semester course on "Qualitative Research", and came away with the awareness of how different (and unfamiliar to most of us) it is from quantitative research. I think it would be helpful to have a workshop to present and help us develop this skill set.



Dr. Clarissa Dirks's visit April 8-9, 2013
Hosted by CVM Teaching Academy

Various informal individual meeting on campus		4/8/2013
College	Number	
COE (Jenny Lebeau, Brian French, Sola Adesope, Chad Gotch, Kelly Ward, & Dean Mike Trevisan)	6	
ATL (Carol Anelli, Becky Dueben, Briana Morrison, Scott Avery, & Kimberly Green)	5	
Veterinary Medicine	3	
<i>Bill Davis</i>		
<i>Lynne Nelson</i>		
<i>Leslie Sprunger</i>		

Reception			4/8/2013
College	Number		%
ATL	2		20%
Veterinary Medicine	8		80%
<i>Dean's Area</i>	3		
<i>VCS</i>	1		
<i>SMB</i>	2		
<i>IPN/VCAPP</i>	2		
Total	10		

Workshop #1: Moving from Teaching to Research			4/9/2013
College	Number		%
Agriculture	1		4%
Libraries	2		8%
ATL	2		8%
CLA	1		4%
Veterinary Medicine	20		77%
<i>Dean's Area</i>	3		
<i>VCS</i>	5		
<i>VMP</i>	3		
<i>SMB</i>	5		
<i>IPN/VCAPP</i>	4		
Total	26		

Workshop #2: Conducting Discipline-Based Education Research			4/9/2013
College	Number		%
Agriculture	1		5%
Global Campus	1		5%
Libraries	2		11%
ATL	2		11%
CLA	1		5%
Veterinary Medicine	12		63%
<i>Dean's Area</i>	2		
<i>VCS</i>	2		
<i>VMP</i>	2		
<i>SMB</i>	4		
<i>IPN/VCAPP</i>	2		
Total	19		

Workshop #3: Instrument Design			4/9/2013
College	Number		%
Agriculture	1		6%
Global Campus	1		6%
Libraries	2		11%
ATL	3		17%
Education	2		11%
Veterinary Medicine	9		50%
<i>Dean's Area</i>	1		
<i>VCS</i>	2		
<i>VMP</i>	2		
<i>SMB</i>	2		
<i>IPN/VCAPP</i>	2		
Total	18		

Other Informal Discussions:
Lunch - Phil Mixter & Simon Newkirk (SMB)
Dinner - Samantha Gizerian, Julie Stanton, William Davis, & Phil Mixter