

# Audience Response AERA 2004 - What Counts as Evidence of Learning From Practice? Collaborative Critique of Lesson Study Research Methods.

EXAMPLES		QUESTIONS				
ID	Did you see evidence this knowledge was developed ----- 1 (no evidence) -> 5 (very strong evidence)	Please explain your rating briefly	How important is this knowledge to teaching (at the elementary level)? ----- 1 (not important) -> 5 (essential)	Please explain your rating briefly	Would you expect this knowledge to be lasting and generative of additional knowledge, or fleeting and of little future impact? Why?	We welcome other comments that might help us improve this example or our work to document teachers' learning more generally.
01	4	Told that by February Mindy recognized she needed to ask questions	5	Through questioning teachers may clarify gaps; add strategies for solving problems as students may only use one strategy, expand teachers think as well as expand students understanding and perspective	Lasting and generative as learning is a result of social interaction and dialogue increase brain patterns	---
02	2	She front loaded the "three methods" and in effect set up methods that are acceptable.	5	Knowing how students think is a starting point for lesson design. There are various ways to see how students think. Presentations are just one	If this is practiced/shown in lessons in different strands, they may see the reason this important besides just in the specific problem	---
03	3	---	5	---	---	---
04	3	---	5	Understanding student thinking is at the core of unlocking mathematical concepts and building understanding of math concepts - also critical to decreasing misconceptions students often have in math	There definitely has to be ongoing support, accountability to teach in this way because it is harder - requires more time, planning and patience	---
05	4	Seems to show a move from looking at outcomes to looking at actual student thinking during the process of solving a problem. I would like to see more evidence of this change	4	Not sure how big of an impact this made on the teacher(s), and am unable to say if it will bring about real change in classroom practice	Not sure how big of an impact this made on the teacher(s), and am unable to say if it will bring about real change in classroom practice	---
06	---	---	---	I did the following two- I was not up to speed enough with what you wanted me to do	---	---
07	3	There was some evidence, but had limited information	---	Important to examine students ways of thinking and	---	---
08	---	---	---	---	---	---
09	---	---	---	---	---	See student work, tally those who get concept, those who don't
10	3	Being developed - she says she will pay attention to it in the future - does she?	5	To understand student errors you have to understand how they solve problems. That understanding must be deep and extensive - not just "students used cubes to solve"	Yes - (generative to future knowledge) if teachers push each other to transfer to other topics. Otherwise will still remain localized. However there is great potential in this method	---

11	2	Have to know what she knew at start from what was presented (no time to think about the transcript). Little support for us to understand/see a change	5	It is essential only if you believe (as I do) that teaching (or learning) for understanding are an essential part of teaching. If you only value skills and codified procedures, then it can't be valued as essential	Worry that if children's reasoning isn't politically valued in U.S, it won't become authentically owned by teacher	---
12	4	Their question for investigation changed and the data they sought (observing students' manipulatives versus students' explanations) reflected that shift	5	---	I would expect this knowledge to be generative under conditions that support further lesson study. Seems like what is learned was very grounded in specific math topic and to apply more broadly would require continued collaborative work with other teachers	---
13	---	---	---	---	---	Not here - I came late
14	1	---	4	Seemed to support prior knowledge	Lasting - doing what was known	---
15	---	---	---	---	---	---
16	---	---	---	I am sorry, but given the limited amount of evidence upon which I am being asked to provide a rating, there is no way I am able to generate a meaningful response. I am concerned that this might actually be considered meaningful data	---	---
17	4	Mindy's new goal	5	Essential to understand student strategies as they can be "moved on" (of getting 'right answer' - but no understanding)	---	---
18	3	I saw evidence that the teacher said she understood, and perhaps did in certain contexts	5	This is the essence of individuated instruction	If they have it, generative	---
19	4	Recognition that noting manipulative used does not define thinking process	5	Recognition that noting manipulative used does not define thinking process. This is a "big idea" for teachers. It should influence understanding of individual student thinking	Yes. This is a "big idea" for teachers. It should influence understanding of individual student thinking	---
20	3	---	5	Teachers need to fully understand students' current thinking	---	---

01	5	5	Teacher's comments	5	Expand teacher's context base as well as students. Identify areas of weakness in teaching or misconceptions that teacher inadvertently teach	Yes. Hands-on, minds-on, social engagement in learning	---
02	4	4	Teachers described symmetry more precisely and with an eye on possible misconceptions	3	Symmetry may be a little important - knowing how precision of explanation represents knowledge (or not) is important	They'd know there are possibly other concepts they need to learn better before teaching it. One person described that. Not all concepts are easy to find misconceptions	---
03	3	3	Although the evidence presented was clear in indicating knowledge development it was limited in the amount	5	Teachers have difficulty analyzing the curriculum materials they use and rarely question or adapt their beliefs. This is all necessary for addressing the slippery combination of students and content in the classroom	Because it was linked to their classroom practice, I expect it to have some lasting effects	---
04	3	3	---	5	The teacher's reflection about her new understanding of line symmetry will hopefully influence how she teaches and thus impact student understanding	There definitely has to be ongoing support, accountability to teach in this way because it is harder - requires more time, planning and patience	---
05	4	4	---	3	It is difficult to assign a value of importance. All the various elements of mathematical learning are important, but it just is not possible to cover, in depth, everything and deciding on what must be included will vary with every person asked	From the evidence given, I'm not sure that I can evaluate this question	---
06	4	4	---	5	The evidence was explained. This kind of grounded understanding is the conceptual understanding and symmetry is important in helping problem solve the kinds of errors and misconceptions pupils are likely to bring to learning. It also helps ways of a thinking	Lasting - because it is constructively based	---
07	3	3	Having to articulate what one knows about the content area provides an opportunity to understand what one knows and doesn't know. This teacher is beginning to explore concepts of symmetry	---	---	---	---
08	---	---	---	---	---	---	---

09	---	---	---	---	---	Evidence that teachers (on their own) continue on lesson study would be powerful	----	----
10	4	4	I need to see more discussion of how teachers changed and how that will impact classroom practice. When I see #2 above, that is a 5	5	---	Teachers now have a more complex (and more correct) definition. But how will that translate to practice?	---	---
11	4	4	Clearer explanation of teachers' change over time	---	---	Not necessarily generative - but probably lasting in terms of this bit of knowledge of symmetry. Not sure how it might empower teachers to recognize other areas where they could have similar ahas and whether it would impact practice	---	---
12	3	3	Evidence presented referred to teachers adopting the language of a more formal definition but evidence of how the definition affected their teaching (based on observation) would have been more compelling	---	---	---	---	---
13	3	3	---	3	Single concept	Seems more localized than following example	Needs more depth - examples of student thinking	---
14	3	3	---	3	Learned children focussed on other ?	Fleeting in the bigger idea of focussing on student perception. Lasting for symmetry	---	---
15	---	---	---	---	---	---	---	---
16	---	---	---	---	---	Again insufficient basis for a meaningful response. I choose not to contribute to a garbage in - garbage out scenario. (i.e.) I don't know if George Bush talks to himself when he is alone. I have no basis to respond because I have never observed him when he is alone	---	---
17	4	4	Saw a sample of evidence - clarification of teacher's knowledge	5	Lines of symmetry in curriculum across second year - sound teacher knowledge important from the beginning	---	---	---
18	4	4	Yes	5	Helps teachers see which directions are most fruitful in students	Lasting yes and generative of new conversation with students	---	---

19	3	Some for individuals - not enough evidence of understanding of distance across line of symmetry	4	Important to think about ambiguity of definitions, different perspectives	Don't know. I work with preservice teachers. For them things like this seldom transfer to new content. Maybe with classroom teachers they will see the phenomena often enough to create a pattern of thinking	---
20	4	---	5	Teachers need to have deep conceptual understanding to "notice" and help students construct their own deep understanding	Teachers' first-hand grappling of concept	---
01	5	Teachers saw that students needed to do work. The counting was important factor in understanding the rule	5	Allows students to understand and solve problems on a deeper level	Yes, students engaged and more responsible for learning	---
02	4	They rewrote the lesson to measure student thinking and the result was very different	5	As in this example , kids produce results that are not necessarily the product of the math thinking, we thought we were teaching	My experience has been that teachers learn this "lastingly" in specific lessons but it takes a couple of years of lesson study for this knowledge to effect most lessons	The discussion groups seemed large (in the video). More sharing of ideas may connect all teachers - difficult with such a large group
03	5	---	5	---	This will have some lasting effects, if teachers have time to continue. When they let go of the worksheet, the teachers let go of a lot of control. However, they are able to see the benefits of more student control in student understanding and student product. It is difficult to do in isolation	---
04	4	I saw how the 1st teacher featured, moved beyond her own understanding of the problem and process	5	Teachers allowing students to solve problem that are authentically "open-ended", helps students develop critical analytical, ? thinking skills	There definitely has to be ongoing support, accountability to teach in this way because it is harder - requires more time, planning and patience	---
05	5	Showing the before and after lesson with changes; how the lesson improved really gave the evidence of a change in thinking!	---	What do you mean by this? Teachers learning how to change a lesson or students learn about patterns? I believe the first is essential but the second is not something I would rate so highly perhaps	Again, are we talking about the teacher knowledge? I would hope that the knowledge would be lasting but only if accompanied by further positive experiences along the same lines, i.e. were lesson study activities that showed this level of growth improvement	Excellent use of video! Please clarify your questions - more specific wording as to what you are looking for

06	5	---	5	It was clear from the video sequence that teachers were seeing i) that pupils can get the right answer but either not know why ii) or even for the wrong reasons. This happened when the task was a) closed and b) pretty purposeless c) not collaboratively learned using peer talk	It was clearly opening the teachers' minds to questioning the use and quality/effectiveness of the textbook/curriculum materials they were using. It was giving them opportunities to eavesdrop on the cognitive processing as the children problem solved later on and develop better understanding and greater confidence in more open active learning. It gave them permission to work in this way. It is improving their knowledge about pupils math learning	It might be interesting to re-visit those classrooms the next time (? a year later) this is taught this grade and see what lasting effects there may have been
07	5	---	5	Process is important to all levels of teaching	I would expect that teachers will utilize their understanding of content and pedagogy in all classroom contexts	Great example - especially powerful to document the reflecting-revising-(re)teaching the lesson
08	5	Once the worksheet was taken out of the equation, the kids had to think about on their own - how to organize the data	5	Key to developing critical, creative thinkers who can be independent and self-regulated	Lasting and generative - once the teacher sees how much deeper the students' thinking is ( by having them organize the data), she can build it	The reflective, written comments indispersed between sections are very helpful
09	4	For those teachers who sopke/taught	4	---	Not sure - would have to see transfer to another lesson	---
10	5	In this example I could see teachers talking about how their own learning changed	5	---	Absolutely - Teachers, having to figure out what was wrong with a lesson and why, will never forget that dissonance	---
11	5	Collaborative, more explicit change in practice	5	Again see page 1 - essential to whom?	Perhaps more generative because the aha was a pedagogical one as well as a mathematical one	---
12	5	---	5	---	Lasting and generative. What they learned seemed to transcend the math topic and I would expect me to be able to apply what they learned to many other lessons in math and other subjects	---
13	5	Interplay between classroom and teacher meetings was effective- also nice set-up by Catherine about what to focus on	5	Not just a single concept but a process idea applying to many problems and content domains	Lasting for this content and perhaps others after other examples - discussion and teachers was critical	Beginning of the video was choppy with all the edits but generally very good
14	5	---	5	Multiple types of knowledge demonstrated	Lasting because not only details regarding this lesson/problem - but the bigger idea that students have to process and teacher "structure" can shut this down	Digital - video was so much richer - affect and motivation were captured. It was easier to see and hear what was known, new and important to the teacher
15	4	Teachers' comments and lesson redesign were evident	---	Don't know, but it would have to contribute to connections with other math concepts and pedagogical content knowledge	Don't know, but it would have to contribute to connections with other math concepts and pedagogical content knowledge	---

16	4	It is clear that some participants had an aha! Not so clear how persuasive that is	5	To change practice to a more constructivist approach requires understanding of the dynamics through which learning occurs. This, in turn, enables creation of learning experiences that elicit that type of learning	Fleeting in most cases, unless the opportunity to try to observe what happens, to reflect on that, and to process the reflection (probably with peers) the learning is likely to remain isolated. I will not become ingrained into the teaching ? of the participants beyond this particular lesson	---
17	5	Evidence of reflective discussion. Evidence of development of their own knowledge (saw in pattern after watching ? in Lesson 2)	5	"Let the students do the work" (of worksheet) - crucial to promote student learning	Yes - definitely. Once teacher have such knowledge, will change their thinking	---
18	5	We saw a progression of thinking and action over time	5	Very important	Lasting but not generative. Every bit of curriculum has to be thought and re-thought	---
19	5	Seems pretty obvious - "Students need to do the work, not the teacher."	5	This is a critical concept for teaching	Very generative. It seemed to be a very important revelation for these teachers	---
20	5	Focus of teacher conversation "need to let students do with"	5	Teacher comment: "We're more effective if we understand more deeply"	Teacher self-discovery - constructivist style	---