Mini AR Response

Summary: "What did I learn?"

For our mini AR study, our driving question was "Who is a scientist and what do they do?". As a class, we devised five different data collection instruments and then subgroups of students administered these in our their own classrooms. I found the process to be fairly novel because, though I was familiar with all of the individual data collection techniques from various points in my teaching career, I had never considered any but the survey type as being a "real" data instrument.

Admittedly, while the panel debate I prepared on quantitative vs. qualitative research helped me to see my own pre-existing biases toward quantitative research (seeing as my background is in the physical sciences and that I chose that field precisely because of the ability to investigate questions quantitatively) I thought at the time that I was able to objectively appreciate the merits of both approaches. However, when you (Professor Rivas) introduced the first data-collection instrument in which students would "draw a scientist in action", it immediately reminded me of an activity another colleague of mine, Afrodita Fuentes, used with her freshman biology class. It was, actually, almost the identical activity, and I only now realize she used that activity likely because she was a graduate of this same MA cohort and because she was convinced of its utility as a formative assessment tool, which I was too prejudiced to see.

At the time, I thought the activity was somewhat silly and was merely a warmup to help incoming 9th graders transition from a middle school mindset to a high school mindset. I thought it was "soft". What I didn't appreciate is that much of my prejudice against qualitative research and its methods came from times in my past of seeing poorly structured research of that type used to

further arguments that were patently flimsy, and then associating those methods with those arguments. I believe I came to equate qualitative research with vague reasoning and developed a disdain for it that I now see was unmerited. I say unmerited specifically because this Mini AR study concretely helped me to see that qualitative and quantitative data, when gathered and interpreted correctly, can work complementarily to paint a fuller picture than either can individually.

Analysis: "What is still unclear to me?"

What I still find unclear is the distinction between the concepts of validity of data versus its reliability. As I recall, validity is the concept of whether or to what degree any particular data collection instrument that you choose use collects data that is relevant to the research question at hand, whereas reliability has to do with whether that data collection instrument is likely to collect reproducible data given identical conditions for measurement. Given those premises, I suppose validity is easier to determine than reliability, especially in action research, because when working with non-reproducible situations, such as classrooms of specific students in specific times and places, identifying what reliable data even looks like could be highly subjective.

Reflection: "How do I explicitly plan to apply what I experienced?"

_____This experience let me see that I need to watch my own prejudices when choosing an approach in my action research and be willing to get out of my comfort zone if that is what will yield the most valid and reliable set of results. Further, multiple types of measures will be crucial for the depth of understanding I'm after so that the results will have real utility to improving my instruction going forward.