

Gary Klein - So the question was to try to identify some essential concepts that we were passing on and sharing. The phenomenon that, well the concept that struck me as worth talking about for a little bit was focusing on the phenomenon. Doing research that has an emphasis on what's really happening. What is the phenomenon as opposed to our preconceived ideas about the work and I think that focus on the phenomenon as opposed to the ideas or the theories of, has been very useful for me and the work we've done, so it started out looking at decision making with a lot of ideas about how people ought to make a decision, had to be making decisions. None of those were accurate so we were so disgusted with the failure of all of the theories and models that we did what researchers aren't supposed to do which is we threw away the theories and speculations and we looked at the transcripts of the interviews to see what are these people actually doing because it doesn't make sense to us and that allowed us to come up with some, I think, useful ideas about how people actually make decisions, so that was sort of a starting point for us about focusing on the phenomenon.

More recently, looking at sense making. The idea of sense making is what you do is you connect the dots and this is something even in the intelligence community, this is what people believe, you just connect the dots and then there's an issue about how do you check rigor to make sure people are appropriately waiting at the various dots and not discarding any, but if you watch intelligence analysts or other people engaged in sense making, and this is the hard part, the hard part is what counts as a dot? Is that a dot or is that a smudge? Are those different dots or are they the same dots? Is this dot relevant here or not? And so once you identify what the dots are it's fairly trivial to connect them. But the expertise is on deciding what counts as a dot to begin with. Then we started looking at planning, and the notion of planning is you define your goals and then you figure out wave points along there and schedules and it all goes wonderful, but if you look at the field what really drives people crazy is not planning, because folks love to plan. They'll spend hours or weeks and months planning but the real hard part is when a plan falls apart and they have to revise the plan. And that's a very different phenomenon, but if you look at the army's field manual 6.0 on command and control. It's three hundred pages, primarily about how to plan. There's two paragraphs about replanning and this is the tough job and there's no doctrine, there's no advice about how to do the replan. So it strikes me again and again how easy it is for us to get fixated on our ideas about what is going on and not to watch what people are actually doing and what they're actually wrestling with. And that means trying to investigate how people are performing cognitive functions. Not our ideas about how they ought to be, but what are they actually doing? What are they trying to accomplish and what do they understand when they take different actions. If they show some sorts of odd behaviors, instead of saying these people must be defective, they must be stupid they must be you know fatigued, the question could be why are they doing that? And trying to see where they're coming from and particularly as we get engaged in that looking for surprises, things that we weren't expecting because those are opportunities to see things in a different, in a different fashion. And focusing on the phenomenon often means the phenomenon as it appears in context and that means often in natural settings. And that's one of the guiding principles for the field of naturalistic decision making to look at the phenomenon as it appears in natural setting and all of that is sort of aligned with the concept of appreciative inquiry If you see something assume that the person is not mentally defective or, or semi suicidal or

out to create errors but it might be a good reason, it might not be, sometimes people do make mistakes. Lets start by giving people the benefit of the doubt and say why might they be doing this, and try to understand it from that perspective as opposed to, I guess the opposite of appreciative inquiry would be depreciative inquiry which is there's a preferred way to think about this and um, ideally we'll study tasks where that preferred way is sort of optimal and that means participants really are subjects. Participants can only fall short. At best they can reach the ideal but usually they'll fall short of it and that way you've got em, because then you can say what are the limits, what are the systematic errors that they're displaying and then you're on your way to say well I could probably design an algorithm that could do a better job and that leads us down one path, but it's a different path than an appreciative inquiry path. The path for depreciative inquiry is to try to detect what the mistakes are and try to build in more and more controls to prevent mistakes, things like checklists, procedural guidelines and algorithms that people might rely on so they don't have to develop any expertise as opposed to a contrasting view. The depreciative inquiry mode is to try to see not what the weaknesses are but what are the strengths and how can we help people build skills and build expertise as opposed to avoiding mistakes, so I see that sort of as a duality about improving performance and improving skills versus trying to limit mistakes.