

Best empirical research

John Carroll – Well I picked the design of the Xerox star which was a product as of 1979, unfortunately a long time ago and I picked it because it's a great piece of empirical work as design, but it also incorporated about ten years of excellent human factors work on then totally novel devices like the mouse, and new display ideas and a whole host of new control ideas like the graphical user interface which was invented in that system pretty much.

Gary Klein – the study I selected was Jim Staszewski's work on demining and this is very recent, it's only been published in the last couple of years. Jim comes out of the Carnegie Mellon tradition worked with folks like Herb Simon studying expertise and he got involved in this project to see how a new generation of demining equipment why it just wasn't working with low metal content high plastic content mines and just wasn't having much of an affect, detection rates were like ten or twenty percent and so it looked like the army had wasted thirty-eight million dollars over almost a decade and Jim found a couple, just a couple actually only one real expert, but he was an expert and in a variety of ways including various kinds of cognitive task analysis methods tried to find out what were the tricks this person was doing, was using and then turned that into a training program and was able to increase the rate of detection from about ten or twenty percent up to over ninety percent and so it was empirical because he was able to demonstrate it and then it very quickly got picked up by the army and used in the engineers and is actually a chapter in Nancy's book, ah, Nancy Cooke and Frank Durso's book on cognitive system engineering successes so to me that's an exemplar, of a great project in human study

Nancy Cooke – I found this hard to do because there's a lot of good empirical work out there, but I picked another story from our book on success stories which is the work of Karlene Ball on useful field of view and its relationship to auto accidents, particularly elderly drivers and auto accidents and the fact that she could actually test it and train it and improve useful field of view through training, and it's a success because she has quantitative results that show success, better after than before results and also because it's a piece of work that's actually been implemented in the field. They're using, there's a triple A website you can go take a useful field of view test and they have it at some insurance companies as well also. I think it's a real good empirical work and a true success story.

Christopher Wickens – Well I'm, I'm sure like all of us up here I found this a very, very difficult one to answer, um, and actually I tied, but I'll say the one first that I have written down there and this is a work outside of the mainstream of our profession but it's a work by John Sweller and his research work group on cognitive load theory in education and I think you can see it's a natural extension, cognitive load and effort, the applications of effort, investment effort limitations in terms of limiting or supporting the material that people learn, students can learn in the classroom, people can learn following instructions and so forth. I wish that were more closely tied into the society and the society should I think move more in that direction. I also want to add the program of, recent program of critical research, of Dave Strayer and Frank Drews on cell phones and distractions because I think that's solid empirical research and I think that's really making impact just as Karlene Bell's has on safety and society

Christopher Nemeth – thanks, other thoughts on empirical research that you particularly would like to have people aware of. Yes sir,

Audience Member 1 – This goes back quite a few years I hope I'm, I hope my memory's good enough as Doug pointed out there's some problems there, but John Senders did some really breathtaking work years ago where he applied the Nyquist sampling function to human behavior and I think that was, at the time quite unique and quite creative, even went to the extent of calculating the information content of a road by putting visors on someone and occasionally opening the visors up to see how performance suffered. I think that was a really incisive empirical approach to a problem. We all know a road has information content, the question is how to measure it and I think he succeeded in doing it

Christopher Nemeth – Thank you, John Senders work could you give it one more time to make sure that everybody could hear

Audience Member 1 – John Sender's work on the extension of the Nyquist sampling function

Christopher Nemeth – Nyquist sampling function

Audience Member 1 – of human behavior

Christopher Nemeth – great, thank you very much.

Audience Member 1 – did I get that right Gary?

Gary Klein – I think so, but let me just make a comment about that because Ken arranged for John to speak at Wright-Patterson and John showed a video of him driving a car on an actual road and while his vision would occasionally be occluded so I don't think this work should ever be replicated
(laughter)

Audience Member 1 – it was route 128 around Boston before route 128 opened, that gives you an idea of how long ago it was

Christopher Nemeth –and fortunately Dr. Senders is still alive so the research was successful in that regard. Alright well thank you.