

## Recent Developments

**Christopher Nemeth** – moving right along, hm, okay, recent developments, we have ah, Dr. Pew has a comment

**Dick Pew** – okay, I, these are now, this is, I'm gonna advertise the book and offer two comments that came out of our work ah, in this National Research Counsel survey. Ah, the first one is be prepared to undertake qualitative and quantitative analysis of the risks associated with system development that are specific to human systems integration. This kind of evaluation is essential in order to demonstrate the importance of human factors analysis in competition with other mostly technological development risk factors. A standard procedure in, in system development these days is that you review the potential risks and how you're going to ameliorate those risks, but we do not do that effectively from the human factors, from the point of view of human systems and we need to learn how to do it and to do it better in order to be able to compete in the system development world. The second one, understand that the products that you produce must communicate to the amorphous collection of system development stakeholders, most of whom are unfamiliar with human factors methods and models. We need to think about what are the products of our work and to think about them not just that other human factors people are gonna use them, but that they're going to be used by, they're going to be interpreted and evaluated by other people who are involved in the system development process that don't understand our methods so well.

**Christopher Nemeth** – okay, thank you. Emilie?

**Emilie Roth** – alright, so I'm going to advertise the Pew and Mavor book as well, it just came out and the issue is trying to struggle how to integrate cognitive engineering with human factors engineering into the system development process and why aren't we brought in with all those types of questions. So, um, a couple of things um, that came out of this ah, that I wanted to stress is, is one, there really is a need for us as a community to balance the pressure placed on us to be directly responsive to system engineering needs. Um, so, um, they would like us to easily fit into the current system engineering process and answer questions like, like Peter Hancock sort of said, what's the probability of error, point two four three. Um, so, on the one hand we want to support them, the questions they bring to us, but really our job is to help educate them to what the real questions are, that they don't know to ask, but that once you make it clear are important to address, so for example notions like automation surprise, the impact of an automated system that has a high false alarm rate. These are issues that a systems engineers are grateful, I think to discover, but in some instances don't necessarily know how to ask. So, um, I wanted to mention that and then I wanted to, to mention that one of the things that came out, one of the exciting things that came out of the NAS report is, we were really very interdisciplinary team, there were HCI people, there were usability people, there were cognitive psychology types, ah, coming from very different places and we all sort of agreed that it's really important to ground design in understanding the work practices in the current world. And we all said we did this and we did it different ways so there's contextual inquiry and there's cognitive work analysis and there's work supported, um design, but it doesn't really matter, the point is you go in there and you understand and you represent it and you communicate it.

**Christopher Nemeth** – thank you, alright, we still have time for comments from anyone here in the audience in terms of recent developments that you feel are important that may have happened in the last year to two years in human factors that you would like to include.

**Dick Pew** - sounds like there haven't been any, but  
(laughter)

**Christopher Nemeth** – Tom

**Tom Sheridan** – can I just make a comment on, we're talking about this in our C report which I recommend to all of you by the way. One of the things that struck me in that report was that we tend to focus human factors on the end user, and the design team presumably struggles with the human factors of the end user. Well, this report emphasized what I would call the human factors of the design team, all the actors and the communication between them and how they make mutual representations to each other. And that's what determines the design in a sense. So you have to look. You have to look at the human factors at the end point and you have to look at the human factors of the process.

**Emilie Roth** – yea, that's right