Cognitive Systems Design

Newsletter Update July 2013

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Joker One: A Tutorial in Cognitive Work Analysis

Cognitive work analysis is a multi-stage analytic framework for identifying the human-relevant work constraints in a socio-technical system. It offers a set of knowledge representation tools specifically tailored to analysis and design of large-scale information systems.

In recent years, I have taught cognitive work analysis many times within extended workshops. The delegates have come primarily from the cognitive engineering and systems engineering disciplines. As I teach this material within those disciplines, I continue to be troubled by the terminology. Those of us who have experience in the use of cognitive work analysis have not been kind to others who seek to understand this framework for the first time. We do not always use words in a sense that corresponds to their natural language meaning and some of the words we use are just outright obscure.

In this book I offer many adjustments in terminology. All of those adjustments are in the service of making the material more accessible. This is an ongoing effort. If you have read my earlier book or have taken one of my workshops, you will notice that I even adjust my own terminology. I like to think that this book will be my final word but I fear that a month or a year from now I will find something I do not like and I will want to change the words I use. Nevertheless, I hope that my adjustments in terminology enhance accessibility sufficiently to overcome any confusion created by lack of consistency with my earlier treatments.

As many of you will already know, the framework of cognitive work analysis is based in the work of Jens Rasmussen. His books are rich in conceptualisation but lack structure. Kim Vicente, in his book titled Cognitive Work Analysis, performed a major service in providing a structured framework. In addition, he established a potent argument for why we would want to embark on such an extensive analytic endeavour. However, despite the structured approach offered by Vicente, the actual execution of the analysis remained a challenge.

What I do here is most specifically aimed at familiarising you with the mechanics of the framework. To do that, I proceed systematically through the framework of cognitive work analysis to demonstrate how to develop each of the representational products and how to use them for design. I work through an example to illustrate each of the analytic stages and to illustrate how the different analyses flow into each other. I also illustrate the implications of each stage for design of a cognitive support system; what is often referred to as an ecological interface (although, for reasons I outline in the book, I prefer the term, functional workspace).

The penultimate chapter constitutes my most detailed treatment to date of the development of a functional workspace. For source material, I draw primarily on a narrative of US Marine counter-insurgency operations provided by Donovan Campbell in his book, Joker One. Campbell's book provides an account of his experiences in Ramadi, Iraq in 2004, where his platoon battled insurgents for seven months.

Slide Show: Cognitive Error in Health Care (Forgetting)

Within healthcare, cognitive errors can compromise patient safety. We can reduce the frequency of cognitive errors but we cannot eliminate them. Nor can we always mitigate their consequences or detect a cognitive error when one occurs. Even more problematically, we do not always intervene when we notice a cognitive error even if we know how to mitigate its consequences.

Memory slips constitute one particular category of cognitive error. They are not unique to healthcare but rather, are pervasive in human experience. However, in contrast to many other walks of life, the consequences within healthcare of a memory slip can be immediate and tragic. Because of that, we would like to know what to do about them. Can we prevent them or at least reduce their frequency? How can we adapt and recover the situation when one occurs.

In this note I review some of the issues surrounding memory slips and briefly discuss ideas for reducing their frequency and for dealing with their consequences when they occur.

Access this slide show from the Workshops page of my website.

Free Presentation Workshop (Half-Day), Tokyo Japan (mid-August)

I have recently adjusted some elements of my two-day Engineering & Scientific Presentations workshop (as described on the [workshops](#) page of my website). I would like to trial those adjustments to a friendly audience and will take the opportunity to offer a free half-day workshop while I am in Tokyo throughout August on other business. Although this is only a small part of my complete workshop, I will offer a complete module that should benefit you if you are seeking to improve your presentation skills.

This workshop is for presentations in English and I will conduct the workshop in English but Ms Miyuki Chikamatsu, who is bilingual (Japanese & English), will be on hand to assist.

I have not yet set the date but I anticipate sometime around mid-August.

If you are interested in attending, please email me. If you know of someone else who might be interested, please forward this advisory to them.