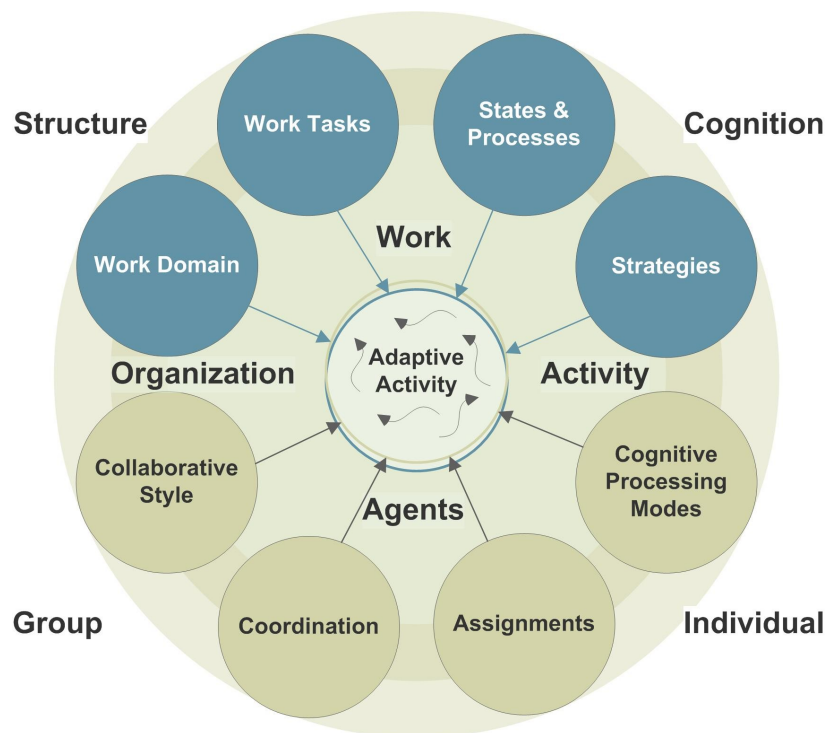


The Foundations and Pragmatics of Cognitive Work Analysis

A Systematic Approach to Design of Large-Scale Information Systems



Gavan Lintern
Cognitive Systems Design

www.CognitiveSystemsDesign.net

Edition 1.0

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Cover Graphic

My inspiration for the cover graphic evolved from a figure developed by Penny Sanderson and published in Sanderson, Naikar, Lintern and Goss (1999). Penny had been influenced by other figures from Rasmussen, Pejtersen and Goodstein (1994) and Vicente (1999). These figures capture the fundamental idea behind Cognitive Work Analysis; that we must orient socio-technical design towards supporting adaptive human activity. That orientation requires consideration of four sets of constraints; those provided by the structure of the work domain and work tasks, those provided by cognitive processing and cognitive strategies used in transition between cognitive states, those associated with individual work task assignments and cognitive processing modes, and those associated with group coordination and collaborative style. The inner ring of labels parses the space in terms of work constraints (upper half), agent constraints (lower half), organizational constraints (left half), and activity constraints (right half). Each stage of Cognitive Work Analysis deals with one or more of these sets of constraints and Cognitive Work Analysis, in its entirety, deals with all of them.

The three images below are the ones from the named publications that inspired development of the cover graphic.

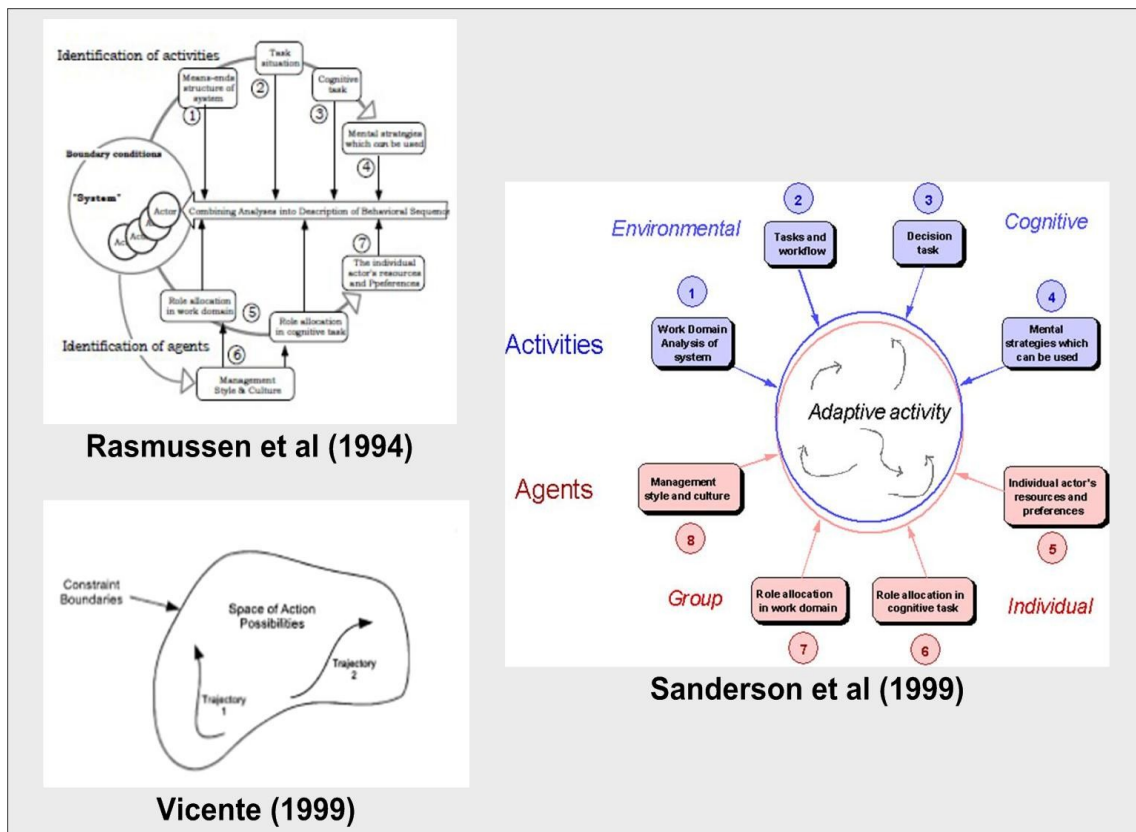


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Preface

I offer this book as a free download from my website at www.CognitiveSystemsDesign.net. I suppose, if I had thought it might be as popular as Dan Brown's "The Da Vinci Code ", I may have been tempted to market it commercially, but the fact is that this is a specialist topic and even if the book is wildly successful in this topic area, it will gain relatively few readers. I value readership above the rather paltry royalties that might accrue and so I hope to encourage readership by making this book as accessible as possible.

I request that you direct others to my website for their copy rather than giving it to them directly. If everyone adheres to that request, I will be able to track how many copies are in circulation and thereby assess whether this project has been successful and whether I should do it again for another topic. However, feel free to break this rule if your colleague would otherwise experience difficulty or delay in downloading a copy.

I was first attracted to the electronic self-publishing route because it is difficult and time-consuming enough to write a book without the further complications of negotiating with a publisher and the delays that accompany printing and marketing.

Electronic self-publishing has a further significant advantage; I can change the book at any time and at no particular cost. I will be adding chapters and appendices as time goes by and when I do, I will identify what I have changed so that you will be able to go straight to the new material.

One useful feature of electronic publishing, at least in the Portable Document Format, is that PC users can access the dictionary meaning of any word via <http://dictionary.reference.com> by right-clicking on that word and selecting "Look Up" from the drop-down menu. I assume Mac users can do this as well but I am not clear on how they can do it.

When you read this in Portable Document Format you may use the hyperlinks in the Table of Contents to jump directly to a desired chapter. Hyperlinks are indicated by a light-blue underline. The Portable Document Format also obviates the need for an index. Use the search function to find references within the book to any term. I have included page numbers in the Table of Contents primarily for the convenience of those who will want to read a paper copy.

This book is an open-source project

I wish to offer this book to our cognitive engineering community as an open-source project. I have become impressed over the past year or two with the capability of open-source projects to develop a product of unique quality. Can that work for a book of this type? I am happy to think of this as an experiment, so we will find out. I will remain the gatekeeper at least for the foreseeable future but if you have an idea, or want to write something that might make the message clearer, send me an e-mail so we can discuss it. I would particularly welcome tutorials on analyses that I could attached as an appendix but also talk to me if you have an idea for a chapter or even a smaller insertion for the body of the book.

Coming soon

New book by Neelam Naikar

Work Domain Analysis: Concepts, Guidelines, and Cases

In this book, Neelam aims to make Work Domain Analysis more accessible, not by oversimplifying it, which would reduce the power of the approach but instead by explaining the concepts and methodology in considerable depth. The book will provide examples from a variety of systems including one that will be highly familiar to readers, namely, a home.

Acknowledgments

I can never ponder issues related to socio-technical systems without reflecting on ideas I have discussed with Peter Kugler. Our conversation on these issues commenced in 1988 and continues today.

I struggled in my early encounters with Cognitive Work Analysis and was assisted considerably at that time through conversations with Cathy Burns and Kim Vicente.

I have had many long and detailed conversations with Neelam Naikar and Penny Sanderson, not always devoted to issues in Cognitive Work Analysis but always engaging and productive.

Wide-ranging discussions with Iya Whitely (nee Solodilova) and Anne Bruseberg continue to guide me into new areas.

I have been concerned for many years about the gulf between Cognitive Task Analysis and Cognitive Work Analysis and have sought to bring ideas from the first into the practice of the second. My ongoing conversations with Cindy Dominguez, Laura Militello and Gary Klein have helped enormously.

I have also become concerned in recent years about the seemingly insurmountable barriers between Cognitive Engineering and Systems Engineering. My ongoing conversation with Steve Deal has helped me frame ideas about how to attack those barriers.

This book would not have been possible without the support and forbearance of my wife, Miyuki Chikamatsu and my daughter, Anna Lintern.

Change Log

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No Changes