

Organizing Teams for Integrative, X-disciplinary Research

Thomas P Seager

Aug 2014

PDS2014

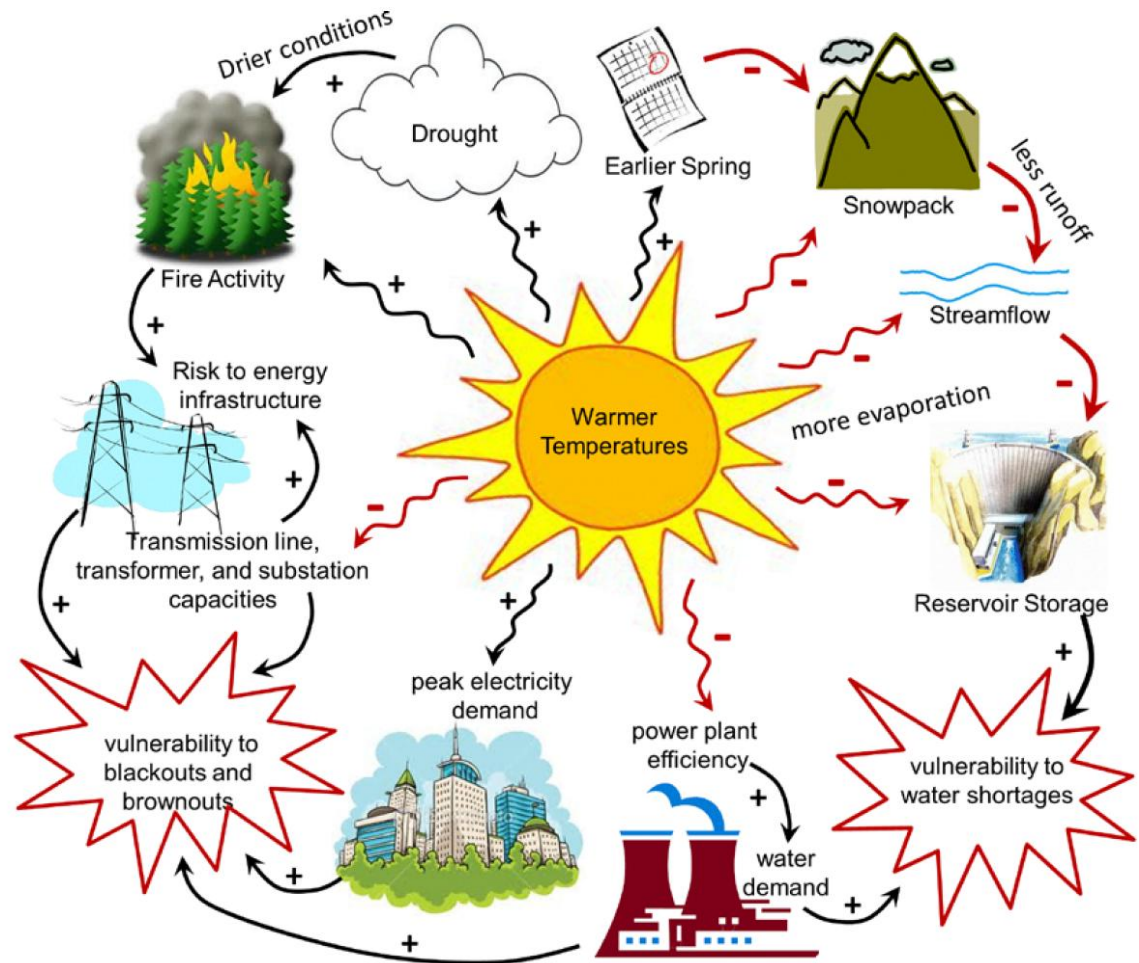


Figure 1: Climate Change and Critical System Interactions

A proposal team is a temporary organization created for the purpose of communicating a research agenda to a funding agency.

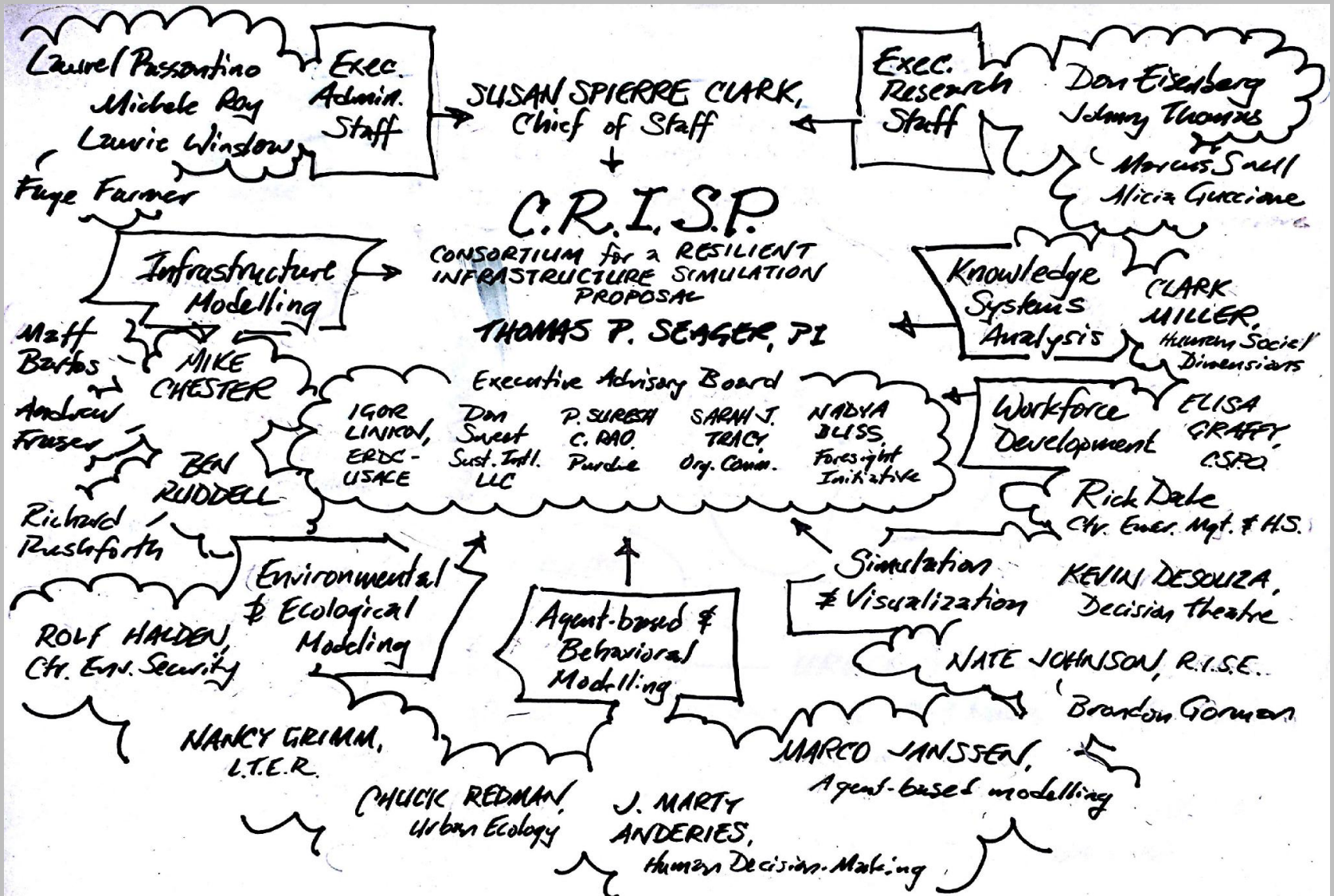
Minimum requirements for effective functioning of our teams:

- Create a name and shared identity for the team.
- Establish an organization chart.
- Agree on a document sharing platform (e.g., Box.com).
- Agree on a style guide (e.g., typeface, headings, margins).
- Agree on a citation management system.
- Agree on a communications protocol.

Every proposal team
operates in crisis.



Establish a name, shared identity and organization chart



Agree on a document sharing platform

The screenshot displays a web browser window with multiple tabs open, including 'DHS CoE Critical Infrastruc...', 'C.R.I.S.P. - Northeastern D...', 'Credits - Allocate', 'WSC Chester full proposal...', and 'Google Calendar'. The active tab shows the Box.com interface at the URL <https://seeds.app.box.com/files/0/f/2210021315>.

The Box.com interface features a top navigation bar with 'Admin Console' and 'My Account' links. Below this is a blue header with the Box logo, notification icons (254 and 20), a search bar labeled 'Search Files', and the user's name 'Thomas Seager' with a settings gear icon.

The main content area shows a breadcrumb trail: 'All Files > SEEDS > Resilient Infrastructure > C.R.I.S.P. - Northeastern DHS C...'. Below the breadcrumb, there are buttons for 'Upload', 'New...', 'More', and a document icon. A grey box contains the text: 'Consortium for a Resilient Infrastructure Simulation Proposal due 26 Sep'.

The file list includes the following items:

- Meeting and Call Notes**: Created Aug 11, 2014 by Michele Roy. 1 icon.
- Biosketches and CVs**: Updated Aug 11, 2014 by Michele Roy. 12 icons.
- Appendices and Support documents**: Updated Aug 5, 2014 by Michele Roy. 4 icons.
- DHS S&T Limited Submission**: Updated Aug 4, 2014 by Michele Roy. 9 icons.
- Reference Documents**: Updated Aug 3, 2014 by Thomas Seager. 10 icons. Description: *Use the Mendeley Group for sharing journal articles and other archival publications.*
- Narrative and contributions**: Created Jul 31, 2014 by Michele Roy. 1 icon.

Each item has a 'Share' button and a permissions icon.

On the right side, the 'Collaborators' section lists the following users:

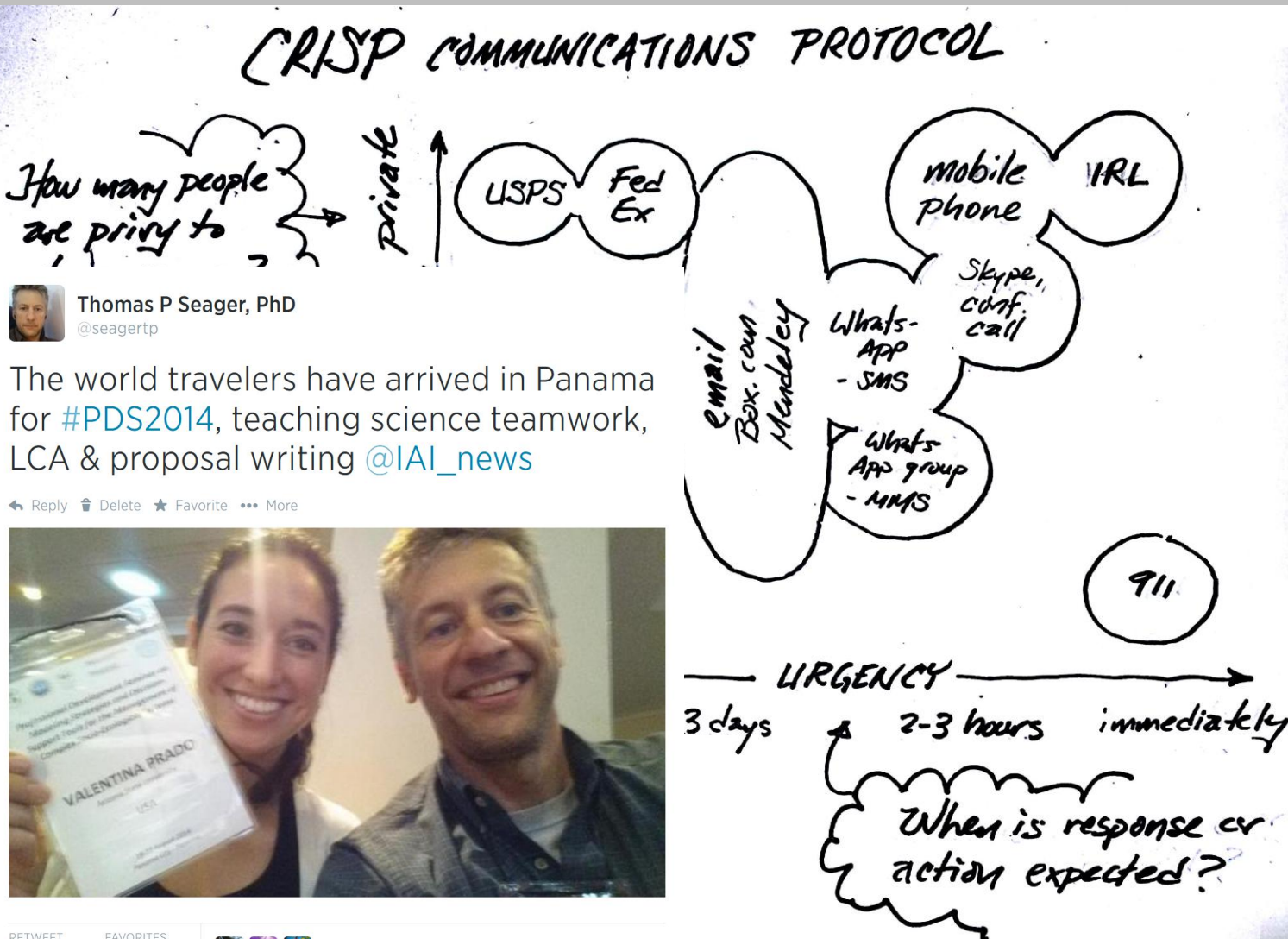
- Thomas Seager (Owner)
- Valentina Prado (Editor)
- Andrew Berardy (Editor)
- Dwarak Triplican (Editor)
- Susan Spierre (Editor)
- +66 People (View All)

Below the collaborators, the section 'IN THIS FOLDER ONLY' shows:

- +10 People (View All)

The Windows taskbar at the bottom shows various application icons and the system clock indicating 10:53 AM on 8/18/2014.

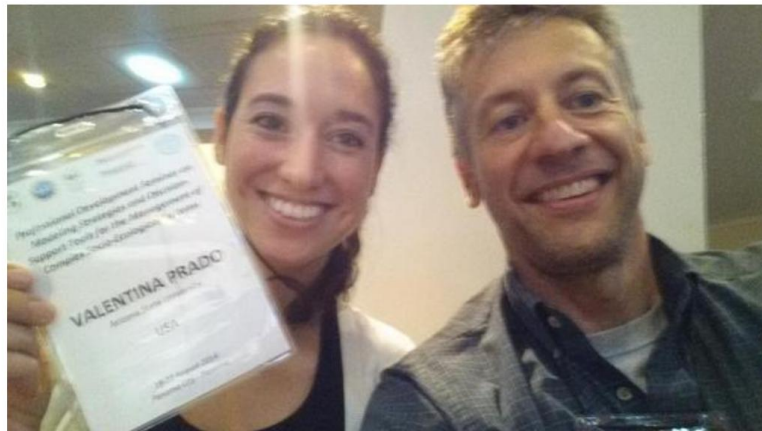
Agree on a communications protocol.



Thomas P Seager, PhD
@seagertp

The world travelers have arrived in Panama for #PDS2014, teaching science teamwork, LCA & proposal writing @IAI_news

Reply Delete Favorite More



RETWEET

1

FAVORITES

2



7:04 AM - 18 Aug 2014

Flag media

Agree on a style guide (e.g., typeface, headings, margins).

for text: Times New Roman, 11pt

figure captions & table titles: Arial, 10 pt with textbox margins at 0.02"

paragraph breaks: 8pt between regular paragraphs, 12pt before a major header

footer: 'Project Description - pg#' in Arial 10pt

left justify all text (i.e., ragged right edge)

wrap text around figures

turn hyphenation on

eliminate widow lines

margins set at 1" for sides (top, bottom, left and right)

MAJOR HEADINGS IN ALL CAPS BOLD (IN BLUE)

Subheadings in sentence case bold. *Start text on same line as subheading.*

Sub-sub headings in italics. *Start text on same line.*

- *sub-sub-sub-headings use bullets or numbered list, black text.*

The major working groups shall be in Caps Ital, e.g., Metrology, Food, Water, Protection, Education & Engagement, and Knowledge Mgt.

Agree on a citation management system.

The screenshot displays the Mendeley Desktop application window. The title bar reads "Mendeley Desktop". The menu bar includes "File", "Edit", "View", "Tools", and "Help". Below the menu bar is a toolbar with icons for "Add Files", "Folders", "Related", "Share", and "Sync".

The left sidebar shows the "My Library" section with a list of documents and groups. The "Groups" section includes "Chan-seager L...", "LC Nano", "Net Positive Onl...", "NSFAISL - Urb...", "QESST", "test", "Works for marg...", and "Resilience - Eng...". The "Filter by Authors" section lists authors such as "Albert, István", "Albert, Réka", "Alexander, D.E.", "Amin, M.", "Anderies, John M.", "Angeloudis, Panagio...", "Barabási, a.", "Barabási, Albert-Lás...", "Barthelemy, Marc", "Barthelemy, Marc", "Battaglia, Loretta L.", "Buldyrev, Sergey V.", "Parshani, Roni", "Paul, Geral...", "Yusta, Jose M.", "Correa, Gabriel J.", "Lacal-Aránt...", "Ungar, Michael", "Ghazinour, Mehdi", "Richter, Jörg", "Noltemeyer, A L.", "Bush, K R", "Francis, Royce", "Bekera, Behailu", "PoTUS", "Presidential Policy Directive -- Critical Infrastructure Security and Resilience/PPD-21", and "Windle, Gill".

The main pane shows a table of documents under the "Overview" tab. The table has columns for "Authors", "Title", "Year", "Published In", and "Added". The documents listed are:

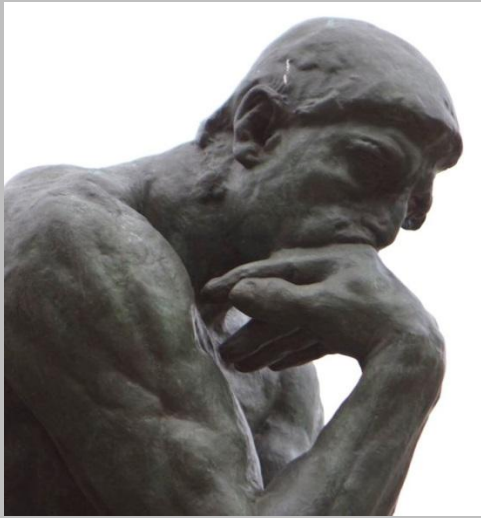
Authors	Title	Year	Published In	Added
Park, J.; Seager, T P; Rao, P S C; Convertino, M...	Integrating risk and resilience approaches to catastrophe management in engineering systems.	20	Risk analysis	Aug 1
Alexander, D.E.	Resilience and disaster risk reduction: an etymological journey	20	Natural Hazards Earth System Sciences	Aug 1
Standish, Rachel J.; Hobbs, Richard J.; Mayfield...	Resilience in ecology: Abstraction, distraction, or where the action is?	20	Biological Conservation	Jul 28
Anderies, John M; Folke, Carl; Walker, Brian; Os...	Aligning key concepts for global change policy: Robustness, resilience, and sustainability	20	Ecology and Society	Aug 1
PoTUS	Executive Order 13636—Improving Critical Infrastructure Cybersecurity	20	Federal Register	Aug 3
Anderies, John M.	Embedding built environments in social-ecological systems: resilience-based design principles	20	Building Research & Information	Aug 1
Cutter, Susan L. et al.	Disaster Resilience : A National Imperative	20		Aug 1
Ostrom, Elinor	Background on the Institutional Analysis and Development Framework	20		Aug 1
Park, Jeryang; Seager, Thomas P; Rao, P Sures...	Lessons in risk- versus resilience-based design and management.	20	Integrated environmental assessment and management	Aug 1
Buldyrev, Sergey V; Parshani, Roni; Paul, Geral...	Catastrophic cascade of failures in interdependent networks.	20	Nature	Aug 1
Yusta, Jose M.; Correa, Gabriel J.; Lacal-Aránt...	Methodologies and applications for critical infrastructure protection: State-of-the-art	20	Energy Policy	Aug 1
Ungar, Michael; Ghazinour, Mehdi; Richter, Jörg	Annual Research Review: What is resilience within the social ecology of human development?	20	Journal of child psychology and psychiatry, and allied disciplines	Aug 1
Noltemeyer, A L; Bush, K R	Adversity and resilience: A synthesis of international research	20	School Psychology International	Aug 1
Francis, Royce; Bekera, Behailu	A metric and frameworks for resilience analysis of engineered and infrastructure systems	20	Reliability Engineering and System Safety	Aug 1
PoTUS	Presidential Policy Directive -- Critical Infrastructure Security and Resilience/PPD-21	20		Aug 3
Windle, Gill	What is resilience? A review and concept analysis	20	Reviews in Clinical Gerontology	Aug 1

The right sidebar shows the "Details" tab for the selected document, "Integrating risk and resilience approaches to catastrophe management in engineering systems." by J. Park, T. Seager, P. Rao et al. The "Notes" tab is also visible. The "Abstract" section contains the following text:

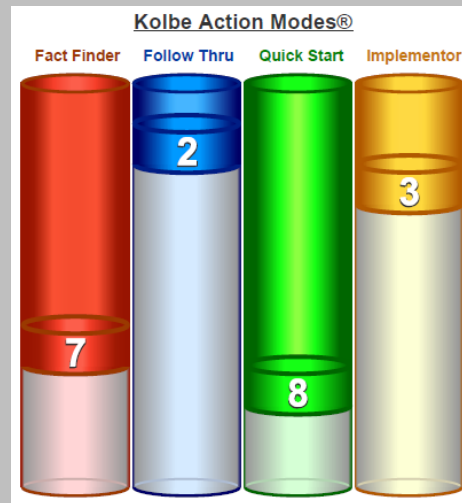
Abstract:
Recent natural and man-made catastrophes, such as the Fukushima nuclear power plant, flooding caused by Hurricane Katrina, the Deepwater Horizon oil spill, the Haiti earthquake, and the mortgage derivatives crisis, have renewed interest in the concept of resilience, especially as it relates to complex systems vulnerable to multiple or cascading failures. Although the meaning of resilience is contested in different contexts, in general resilience is understood to mean the capacity to adapt to changing conditions without catastrophic loss of form or function. In the context of engineering sy...

The "Author Keywords" section is also visible.

Get to know your teammates...



Three Aspects of the Mind



Cognitive

THINKING

- What you know.
- Improves with experience and education.
- “Intelligence”

Conative

DOING

- Instinctive behavior



Affective

FEELING

- Attitude
- Values
- Motivation
- Emotion



Action Modes®

Fact Finder: Gather and share information

Follow Thru: Arrange and design

Quick Start: Deal with risk and uncertainty

Implementor: Handle space and tangibles

Methods of Communication

Fact Finder: written words with data, citations, analogies, case studies, verifications

Follow Thru: visuals with graphs, charts, diagrams, posters, outlines, maps, similes, patterns

Quick Start: spoken words with ad libs, improvised metaphors, visuals, bullet points, intense colors

Implementor: tangibles with props, models, demonstrations, texture, machinery, body language

Sense of Time

Fact Finder: focuses on the past, builds on experience

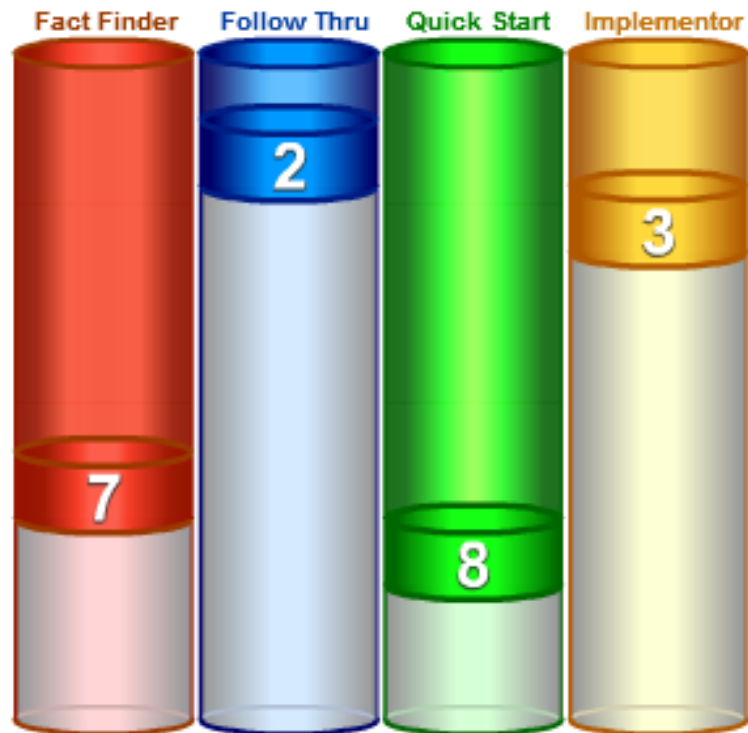
Follow Thru: integrates past, present, future
builds timeline

Quick Start: focuses on the future, goes right to the bottom line, sets deadlines

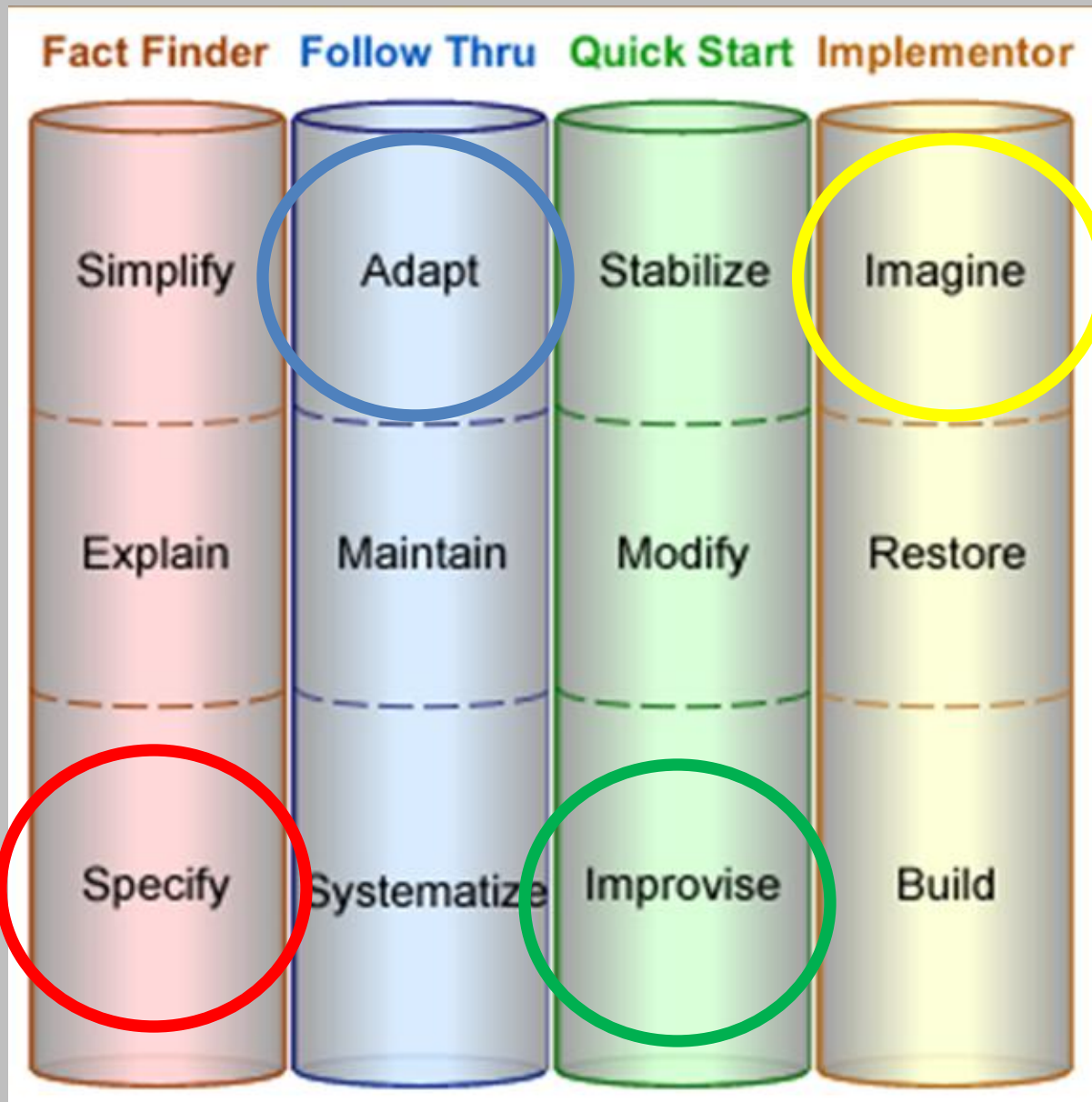
Implementor: focuses on present preserves and protects the best of today

Thomas Seager

Kolbe Action Modes®

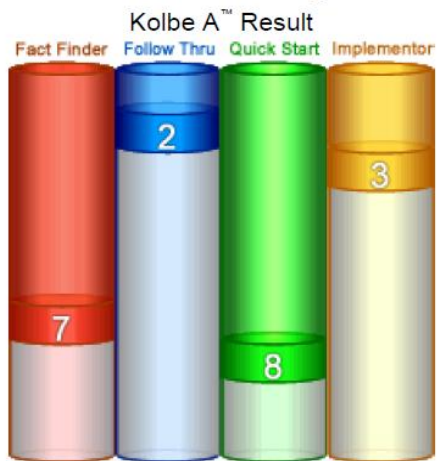


Thomas P Seager, PhD
CEE300 *Engineering Business Practices*
Arizona State University

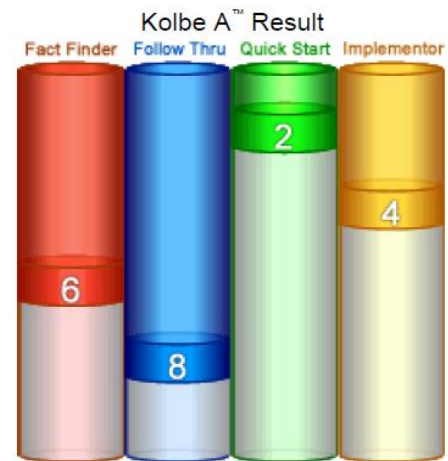




Thomas Seager



Elizabeth Adams



Valentina Prado

Graduate Research Asst.

4 5 7 3



Challenges, originates, brainstorm

Thomas Seager

Associate Professor

7 2 8 3



Challenges status quo, revises standards, changes priorities

Conative Conflict

CEE300 MIDTERM EXAM

18 Oct 2011

Write your Kolbe A Index numbers below:

Fact Finder: 7

Follow Thru: 7

Quick Start: 3

Implementor: 3 ✓

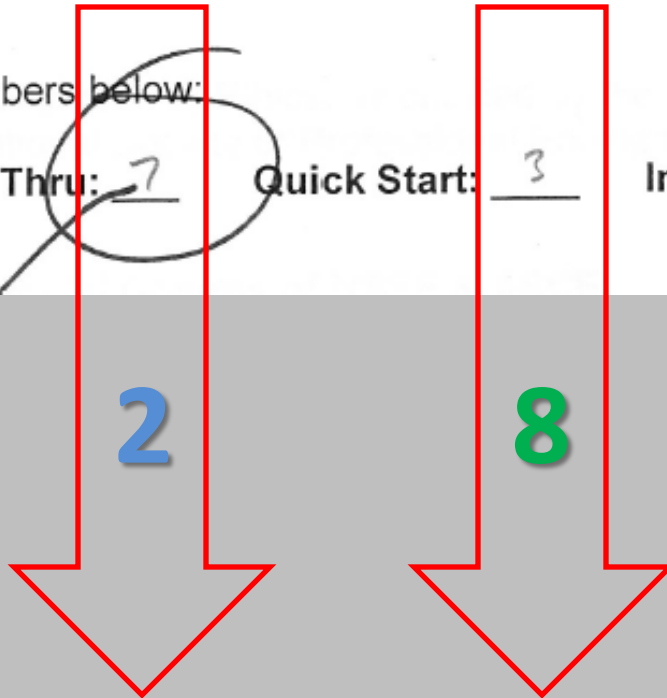
Seager:

7

2

8

3



CEE300 MIDTERM EXAM

18 Oct 2011

Write your Kolbe A Index numbers below:






Fact Finder: 6 Follow Thru: 3 Quick Start: 3 Implementor: 6 ✓

MY DESIRE TO GO INTO DEPTH REFLECTS THE FACT FINDER "STRENGTH" OF MY KOLBE A INDEX. THIS "STRENGTH" MAKES GROUP WORK DIFFICULT FOR ME BECAUSE I DON'T LIKE TO GET STARTED UNTIL I HAVE EXAMINED EVERY ANGLE, WHICH I OFTEN DON'T HAVE TIME TO DO.

I AM PRESSURED TO FINISH BEFORE I AM READY IN ORDER TO KEEP UP WITH THE GROUP AND I AM DISSATISFIED WITH THE FINAL PROJECT BECAUSE I FEEL IT WAS THROWN TOGETHER.

Overall Evaluation of the Course and Instructor

17 Overall quality of the course and instruction.

Response	Count	Per
Excellent 	1	2.17%
Very Good 	9	19.57%
Good 	11	23.91%
Fair 	15	32.61%
Poor 	10	21.74%
Avg 2.48		

This is one of my favorite classes and teachers I've taken at ASU thus far.

I liked how Dr. Seager stimulated a different kind of thinking that is totally different from traditional engineering courses. It was not a "plug and chug" class but rather a class that encouraged out of the box thinking.

Felt the class was very unstructured

Not knowing what was expected of me as a student. Seager is very carefree and unstructured and it is hard to give him what he wants when he is not clear about it.

No structure in the course. I feel that I honestly have learned nothing in this course and that it was a complete waste of time.

The professor seems to like a more unstructured manner of teaching. This doesn't really work for me too well. I learnt a lot more from the book than i did listening to the professor's lectures,

If classes were more like this one, I'd actually want to be a civil engineer, and not just go through the classes to just graduate.

Strategies for Reducing Conative Stress in My Classroom

- Increase level of detail in the syllabus **Fact Finder**
- Publish a schedule weekly, giving students at least two weeks notice on learning activities **Follow Thru**
- Be explicit about activities or areas that will remain flexible. **Follow Thru**
- Emphasize that students can deviate from *my* plan, but they can also stick to my guidelines . **Quick Start** **Follow Thru**
- **Introduce students to Conation (raise the conflict to a conscious level).** **Fact Finder** **Follow Thru** **Quick Start** **Implementor**

Using the Kolbe A™ Conative Index to Study the Retention of Computer Science Students

Robert Lingard, Brenda Timmerman, and Elizabeth Berry
California State University, Northridge, CA 91330
rlingard@csun.edu, eberry@csun.edu, btimmer@csun.edu

Abstract - Recent studies at California State University, Northridge using the Kolbe A™ index have shown differences in conative profiles between computer science students near graduation and those just entering the program. Since conation, or a person's inherent talent or natural way of doing things, relates to how a student

science were more likely to leave." The *Conseil de la Science et de la Technologie*, in Quebec reported that in "computer science technology at the collegial level, more than 70% of the young people who register abandon the program along the way." [3] The same report indicates that the overall dropout rates in the scientific and technical disciplines as a whole is



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Available online at www.sciencedirect.com

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Computers & Industrial Engineering 48 (2005) 593–608

**computers &
industrial
engineering**

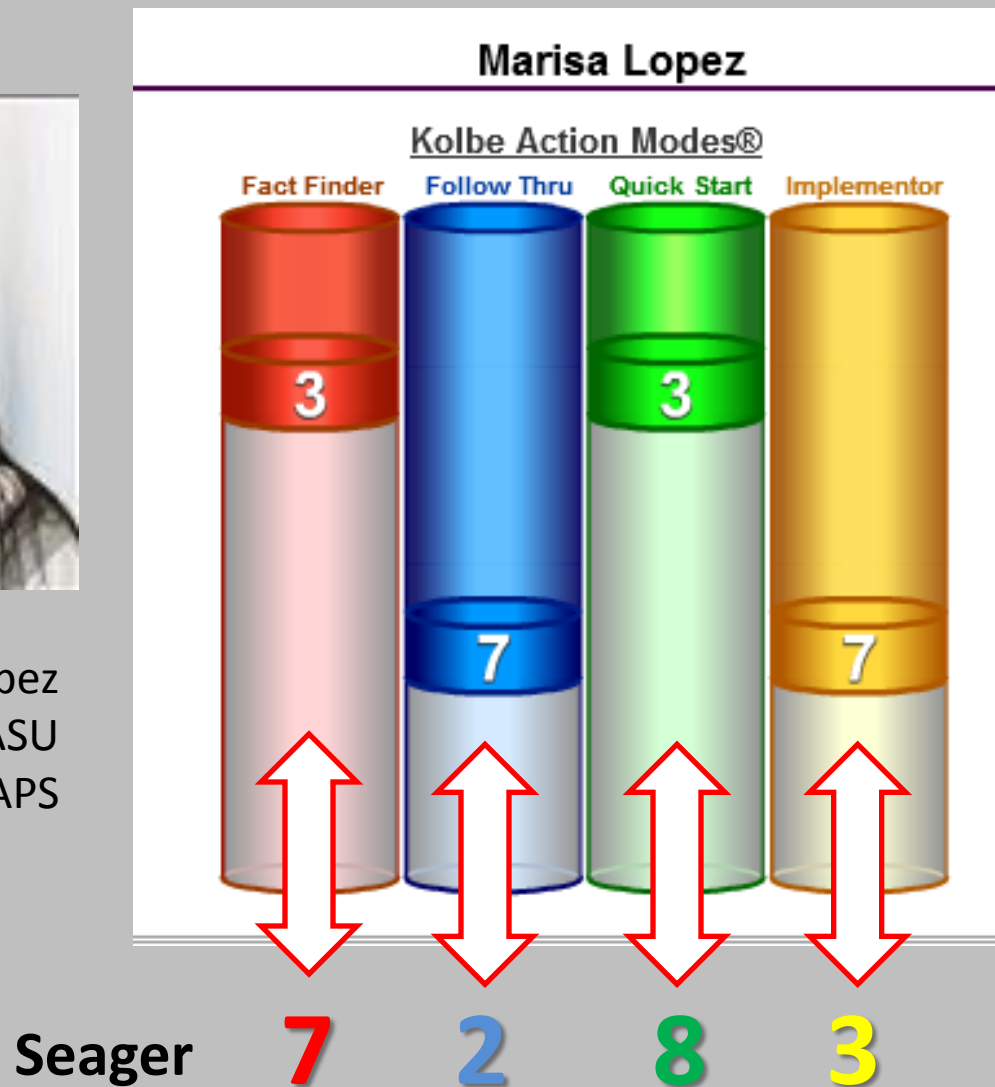
www.elsevier.com/locate/dsw

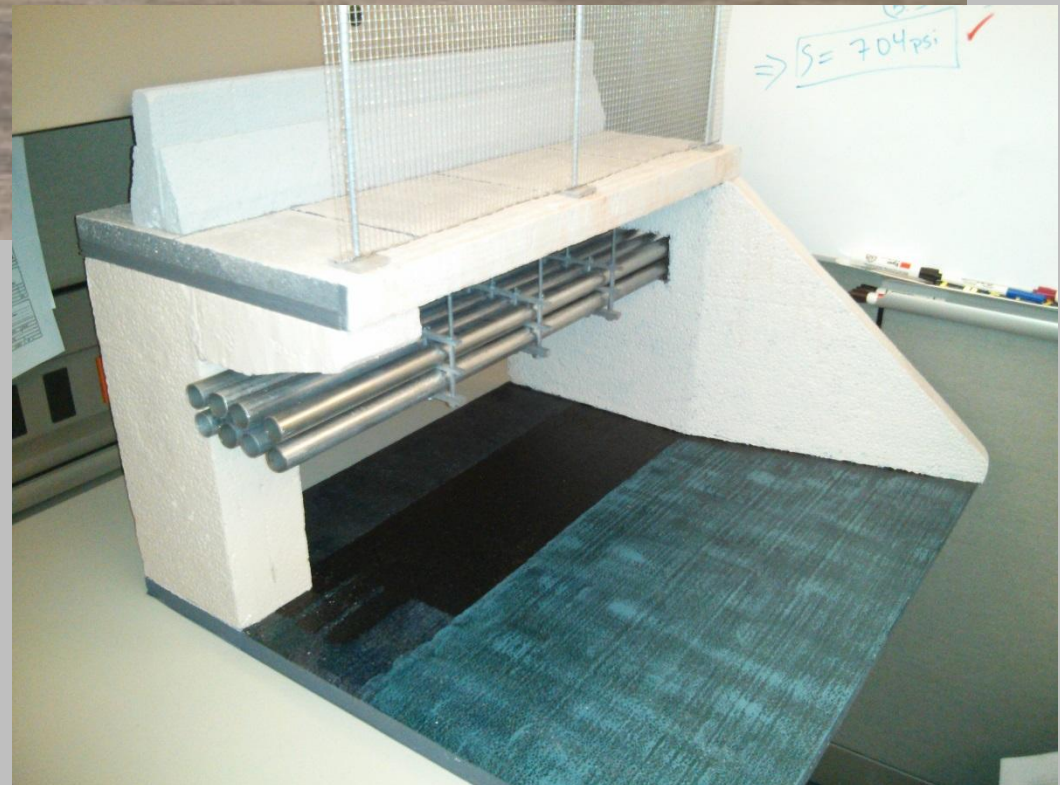
Forming effective worker teams with multi-functional skill requirements

Erin L. Fitzpatrick^{a,1}, Ronald G. Askin^{b,*}



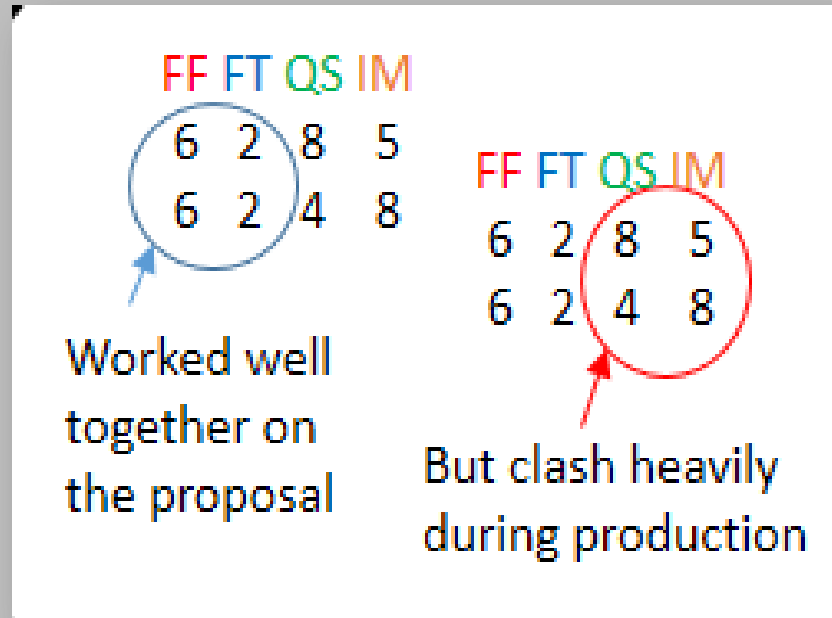
Marisa Lopez
Civil Engineering Student, ASU
Intern Engineer, APS





Scale model of electrical conduit, suspended from highway bridge deck.

“XX and I worked well together on the proposal but clash heavily during production. **It is interesting to see how some people complement each other in some areas and clash in others.** We all do our part, just in different ways.”





“This proposal is so unorganized!”

Follow Thru


Halden: “Why can’t I propose to bring a Brazilian boys choir up to Phoenix for three days to illustrate a point about urban metabolism?”

Seager: “Because our proposal is due at the NSF *tomorrow*.”

Quick Start



Panama

Marcella, Mariana, Moira, Prado, +57 3... 

Toledo Mariana

I made a reservation in the restaurant, same place we had breakfast at 17h

4:46 PM

Not lounge then? 4:50 PM ✓

Who eats breakfast at 5P? Am I reading that right? 4:51 PM ✓

Toledo Mariana

Not breakfast, the same place we had it

4:51 PM

The meeting will be there 4:51 PM

Where will the meeting be? 4:52 PM ✓

Toledo Mariana


the restaurant we had breakfast today

4:52 PM

OK. 4:52 PM ✓

I think I can find that again. 4:52 PM ✓

Moira Zellner

 5:01 PM