"Knowledge Mobilization within Science & Engineering Communities of Practice: Blended Training on Scientific Software Applications", AUGSA 2015.

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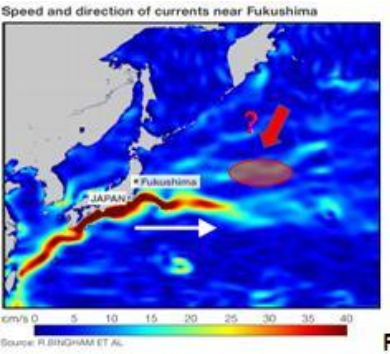
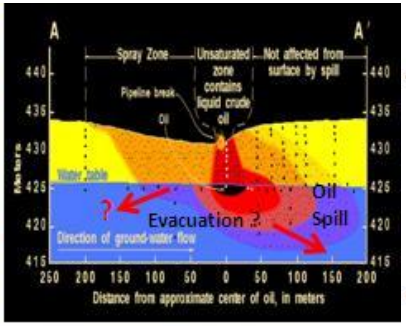
Research Question

What blended training approaches are chosen by software users whose goal is to accurately apply scientific software to questions of research?

Significance of Study

- Although training on scientific software is necessary to ensure correct scientific decisions, it is currently conducted without the backing of supportive theory (Fischer, 2009; Hannay et al., 2009; Howison & Herbsleb, 2011).
- Scientific software user training is a largely unexplored field (Hannay et al., 2009; Howison & Herbsleb, 2011).





Requirement for a Theory-Supported Scientific Software Training Framework

-Limited formal training for users;
-Reliance on peer support, informal self-study:
-wrong ideas propagated
-computing models deteriorate.

Methodology

Qualitative, Ethnographic Approach
Grounded Theory

Primary Data Source + Secondary Data Sources
Open-Ended Interviews — Laboratory Publications

Data Analysis: Coding
Constant Comparison
Focus group (Triangulation) → Saturation

Controlling Researcher's Bias

- Strauss & Corbin (1998) suggest adopting comparative thinking and obtaining multiple viewpoints of a situation as techniques for controlling intrusion of bias.

Participants in this Study

- Must have background in any of the criteria listed below:

1) Experience with scientific software use;
2) Experience with academic research involving the use of scientific software in science and engineering;
3) Experience with industry applications regarding scientific software use in science and engineering.

Results (to date)

For a successful training experience, the user is expected to develop:

- Ability to direct own learning onsite/online
- Ability to communicate technical inquiries to peers online/onsite
- Be motivated to share data in online resources
- In-depth understanding of problem at hand
- Discipline in work routines: Be methodical in recording lab work and collecting feedback

"Training is a loop, an ongoing process" **(Participant 02)**

Training of scientific software users is affected by:

A. Their strengths regarding academic preparation;

B. Their level of comprehension of the problem at hand;

C. Their ability to understand and influence scientific software interface design components (custom input of parameters versus set of default parameters);
-Their ability to test the software output;
-Their ability to identify, assess risks and perform risk management with respect to accurate scientific software use and creation of new, reliable scientific information.

D. The quality and availability of online/onsite knowledge resources (documentation, seminars, courses etc.);

E. Their level of participation in collaborative learning activities available both within the users' physical environment and online;

F. Their level of enjoyment in participating in collaborative learning activities within their community of practice (including open communities of users).