



# Instructional Readiness for Change in a Geoscience Learning Ecosystem

ED31E-1011  
555891



Shandy Hauk  
San Francisco State University & WestEd

Kristen St. John  
James Madison University

Megan Jones  
North Hennepin Community College

## Purpose

Why is professional development successful (or not)? For whom? Under what conditions? In answer to calls in the literature for research on professional learning in which the faculty member is central to the process of change, the study reported here was an attempt to address the question: *What is the nature of college science faculty readiness for change in instructional practices?*

## Setting & Methods

- Professional development experience in oceanography/marine science and paleoclimatology among 32 faculty from 2- and 4-year colleges.
- Two week intensive + follow-up
- Ten of the 32 participated in interviews and all provided survey responses and documents used in analysis.

## Blending Two Models

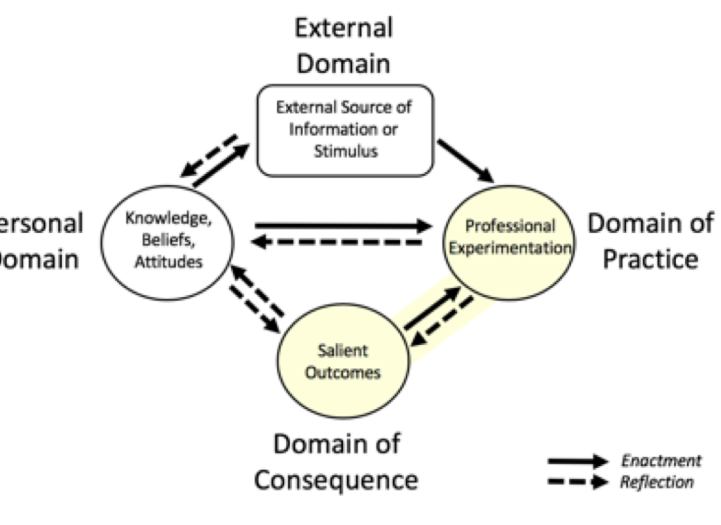
Table 1. Merging the Five Factors (Dalton & Gottlieb, 2003) and Change Environment (Clarke & Hollingsworth, 2002) into an Instructional Readiness for Change Framework.

### Faculty Readiness for Change Factor

(a) a person sees an instructional challenge is not going to resolve without intentional action

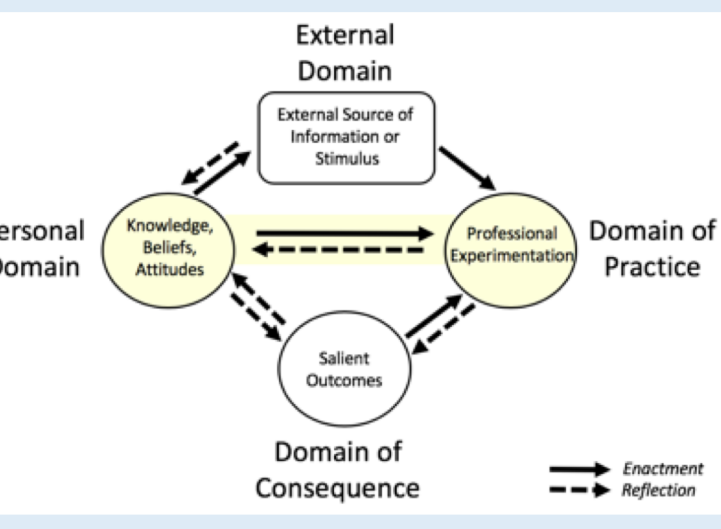
Represented by highlighting of Domains of Consequence and Practice and their interaction because the instructional challenge is an outcome that has become salient (now matters) to the instructor and professional experimentation (intentional action) is what the instructor sees as the primary mechanism for influencing the outcome. While a change in personal views might play a role, the perspective of the instructor is that aspects of the Personal are not as important or consequential as Practice for the desired outcome(s).

### Illustration



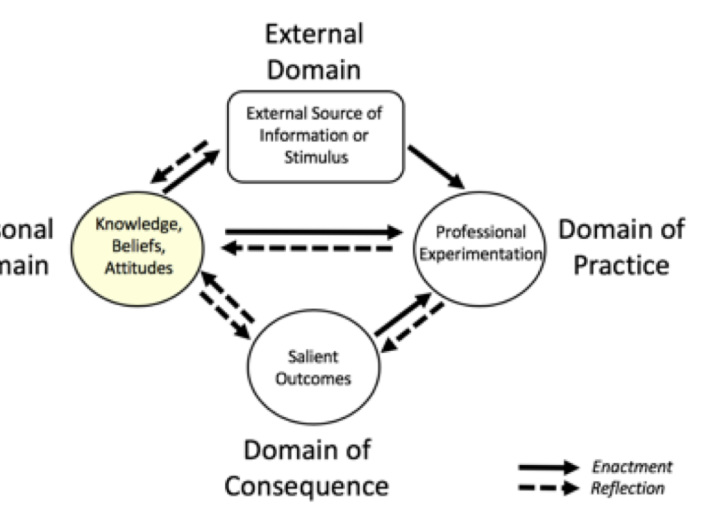
(b) an aspect of instructional practice takes on new significance

Represented by highlighting of Domain of Practice and Personal Domain interaction because what is valued by the instructor in or for perceptions of self as instructionally adept has shifted. Beliefs or motivations about what constitutes good or effective teaching and personal investment in professional growth interact in decisions about what to do in practice.



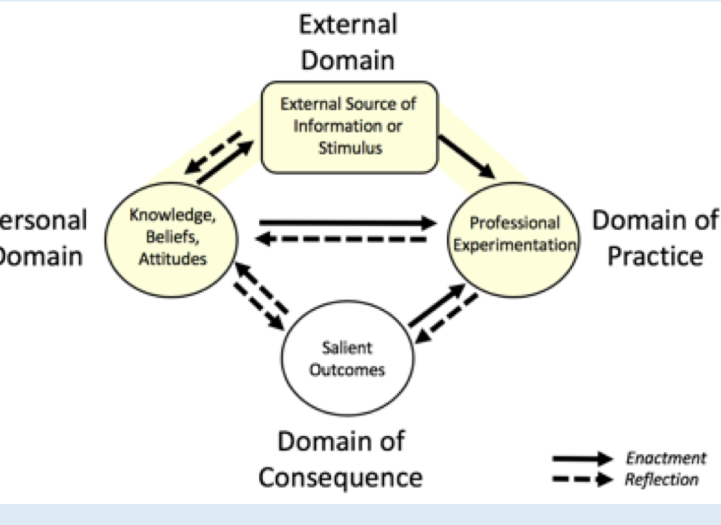
(c) instructor feels able to manage instructional stressors/challenges

Represented by highlighting of the Personal Domain because self-regulation and concept of ability are internal, personal factors. The actual management of instructional stressors/challenges would involve all aspects of the diagram but feeling able to manage is a blend of belief, attitude, and self-knowledge.



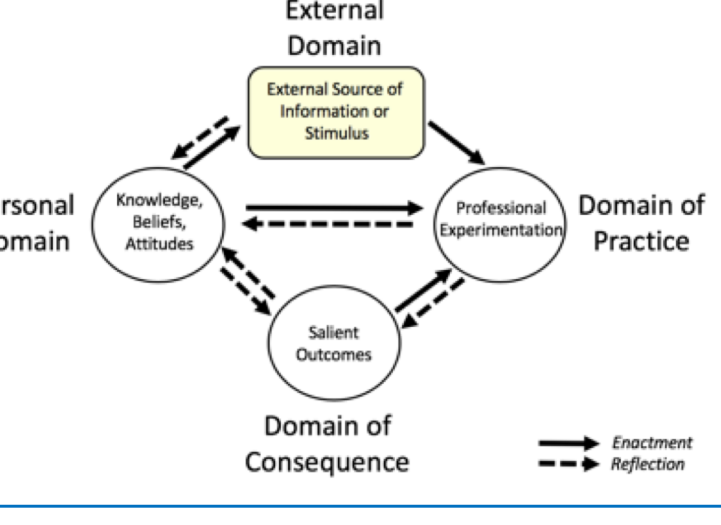
(d) instructor has commitment to initiate/sustain change

Represented by highlighting of two connected subsets: Interaction between Personal and External Domains, and enactment from External into Domain of Practice because the long view required for commitment to initiate takes into account the tensions between Personal and External Domains while commitment that is sustained as professional experimentation is done in the face of /dependent on external pressures and sources.



(e) instructor perceives adequate support in undertaking change

Represented by highlighting of the External Domain because "support" here refers to outside-the-instructor stimulus. Interaction between external and internal factors is a matter of commitment (see d, above), not of perception of support. Similarly, using or responding to the support is an aspect of commitment, not of perception.



## Results: Faculty Readiness Cases

- Lee: Can Manage Instructional Stressors/New Challenges with External Support (c; b+e).** For Lee, envisioned change was teacher-centered. The role of students was not in the foreground. Lee focused on what students would do (as opposed to what they would learn), reporting frustration about students who did not learn in expected ways. Understanding student thinking was not salient for Lee
- Pat: Intentional Action to Address New Significance (a+b).** Pat was ready for student-centered change but unsure how to make it also be responsive to student learning needs. Unlike Lee, Pat noted which outcomes (for students and for Pat) were salient in thinking about future practice and instructional change efforts.
- Chris: Committed to Change and Marshaling Support (d+e).** Chris was ready for student-centered, student-responsive change. For Chris, the most important aspect of preparing for, experimenting with, and sustaining change are strong and supportive relationships with others who have power and influence to support the change.

## Next Steps

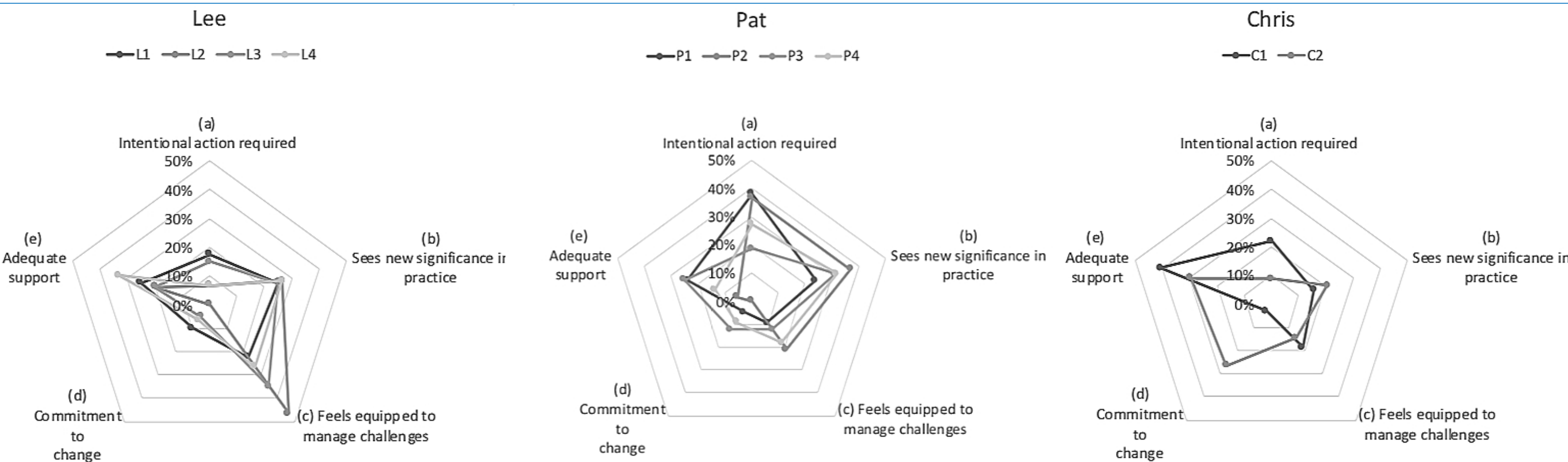
- Research on PD Provider readiness *as instructors of professional development*.
- Henderson et al. (2011) suggest a faculty member has to become a Chris (or at least, to pass through a Chris-like phase of professional readiness).
- In the world of college faculty development, professional learning communities have emerged as powerful but under-researched supports in change efforts (Kastens & Manduca, 2017). Further research using readiness to change ideas can explore the dynamics of *group* readiness.

## Challenge Questions for Readers:

- In what ways might professional isolation play a mediating role in readiness for change?
- Think about your own PD experiences – how do each of the readiness factors influence your own readiness for change?
- Do you identify with one or more of the cases? How has that changed over time?
- If you are a Provider – which case is like you as a PD provider?

References  
Dalton, C. C., & Gottlieb, L. N. (2003). The concept of readiness to change. *J. of Advanced Nursing*, 42(2), 108-117  
Clarke, D., & Hollingsworth, H. (2002). Elaborating a model of teacher professional growth. *Teaching and Teacher Education*, 18(8), 947-967.  
Henderson, C., Beach, A., & Finkelstein, N. (2011). Facilitating change in undergraduate STEM instructional practices: An analytic review of the literature. *J. of Research in Science Teaching*, 48(8), 952-984.  
Kastens, K. A., & Manduca, C. A. (2017). Leveraging the power of community of practice to improve teaching and learning about the Earth. *Change: The Magazine of Higher Learning*, 49(6), 14-22.

## Analysis



Thanks to MSI-REaCH providers and instructors!

This project is supported by a grant from the National Science Foundation (NSF; ICER-1443178). Any opinions, findings, conclusions or recommendations are those of the authors and do not necessarily reflect the views of the NSF.