Converging on Cognition: Visions of the Learning Sciences

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Since the International Conference of the Learning Sciences will be held in Boulder next year (<http://www.icls2014.org/>) this seems like a good occasion to reflect on the state of the field -- and especially to map out potential future directions for the Learning Sciences. This "Convergingon Cognition" meeting can be viewed as an early "brainstorming session"exploring themes for ICLS 2014.

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Blazing and Mapping Pathways of Learning

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The "learning sciences" was established as a field in the early 1990s with the intention of studying learning as it exists in real-world settings. Realizing the potential of the field requires applied research that informs theory and the design of learning environments; this has largely been accomplished through what has come to be known as design-based research. In this presentation, I will elaborate on some specific directions I believe design-based research must move in order to understand and advance learning in the real world. Specifically, I will outline why I believe we must seek to blaze new pathways of learning through the design of learning environments that invite new forms of participation and identification. I will argue we must simultaneously research the trajectories of participants over time both within and beyond the learning environments we design, and research the development of learning environments as activity systems, so that they may be adaptive over space and across time. I will argue for viewing learning environment design as constructing "scenes" which frame experiences, where people participate in practices supported by sociocultural tools with important affordances and constraints.

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The Learning Sciences: a Field's Got to Know Its Limitations

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There is a foundational intellectual problem that plagues the learning sciences as a field. This problem, rooted in the field's history and its early emergence from artificial intelligence and cognitive science, has stunted its ability to create truly powerful and tasteful educational artifacts. Essentially, the problem is that the research culture of the field is incompatible with the needs of a design culture; or, to put it another way, it is unlikely that "learning sciences research" will or could ever lead to good "learning sciences design". This talk will explore possible ways in which a re-imagined "learning sciences" could in fact provide a foundation for positive educational change.

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From Designing Innovations to Organizing Infrastructures for Improvement

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For much of its history, the learning sciences have sought to impact practice by designing and scaling up innovations. This approach, supported by research policies, sees individual innovations targeting classrooms as a leverage point for improvement. While such designs have helped to inform theories of how children learn, few have spread or been implemented widely. In this talk, I outline a different focus for learning scientists' efforts, namely organizing infrastructures for continuous improvement. This shift would require learning scientists to engage and test theories of learning at multiple system levels simultaneously, collaborate with a broader range of stakeholders, and use data on local adaptation to inform iterative re-design of infrastructures for ongoing improvement. This approach, called design-based implementation research (Penuel, Fishman, Sabelli, & Cheng, 2011) calls for learning scientists to apply design research methods and perspectives on learning to problems of implementation, scaling, and sustainability.