

**Technological Fluency and the Art of Motorcycle Maintenance:
Emergent Design of Learning Environments**

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M.S. Media Technology, Massachusetts Institute of Technology, 1996

Submitted to the Program in Media Arts and Sciences
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in partial fulfillment of the requirements for the degree of

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ABSTRACT

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Abstract

The empirical basis of this thesis is a two-year project to bring new learning environments and methodologies to rural Thailand. Five theoretical and practical innovations are emphasized:

1. A new methodology of merging education with the actual use of technology to improve the economy and quality of life of community is demonstrated.
2. A practice of “*applied epistemological anthropology*,” which consists of probing for skills and knowledge resident in a community and using these as bridges to new content, is developed. For example, analysis of learning behaviors led me to identify an “engine culture” in rural Thailand as an unrecognized source of “latent learning potential.” This theory has already begun to spawn a theoretical enquiry with significant promise for assessment of the learning potential of developing countries.
3. Pilot projects were mounted outside of the education system with the specific purpose of breaking “educational mindsets” that have been identified as blocks to educational reform. A salient example is the assumption that the population and teachers of rural areas lack the cognitive foundations for modern technological education. The engine culture is an existence proof for the theory of unrecognized foundational elements.
4. The work required a flexible approach to the design of digital-based educational interventions. Analysis of these design issues has led to a theoretical framework, “Emergent Design,” for investigating how choice of design methodology contributes to the success or failure of education reforms.
5. The concept of Emergent Design exposes parallels with developments in the restructuring of non-educational organizations. To help explicate this, I draw from my own experience in reforming a healthcare organization.

The work suggests a conclusion with a very broad sweep:

The latent learning potential of the world population has been grossly underestimated as a result of prevailing mindsets that limit the design of interventions to improve the evolution of the global learning environment.

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