Intelligent Swarm: Annotated Bibliography

Intelligent Swarm Pattern Library has its roots in the disciplines of information & learning theory, user-centered design, adaptive management, dynamic network optimization and linguistics. Following is a survey of works that have informed the research design available at:

http://humanorigins.org/lab/labproject/ispl/index.html

Alexander, C., Ishikawa, S., Silverstein, M., Jacobson, M., Fiksdahl-King, I., Shlomo, A. (1977) A Pattern Language. New York: Oxford.

This seminal work has informed design practices in the built environment from physical architecture to computer human interface design. A hybrid of poetry and grammar A Pattern Language has helped me think about structure and coherence with regard to human factors and map them to social learning.

Arke, E., & Primack, B. (2009). Quantifying media literacy: development, reliability, and validity of a new measure. *Educational Media International*, *46*(1), 53 – 65.

This article defines metrics for assessing the "ability to understand, analyze, evaluate and create media messaging in a variety of forms". Authors find high correlation of their efforts with critical thinking evaluation programs. Achievements of this study include definition of a conceptual model consisting of five domains: recall, purpose, viewpoint, technique and evaluation which they associated with Bloom's Taxonomy for learning. A significant limitation of the study was the truncation of assessment related to creation and transmission of meaning, which is where social media begins. Useful modeling of application of a theory-based scale to measure interactive behaviors.

Bandura, A. (1990). Some Reflections on Reflections. *Psychological Inquiry*, *1*(1), 101-105.

This short response to peer reviews of "Reflections" encapsulates

and situates many of Bandura's beliefs; his brief arguments related to reciprocality, developmental contextualism, the multidimensional nature of self-efficacy helped me structure the complexity of social learning.

Bengston, D. N., Fan, D. P., Reed, P., & Goldhor-Wilcock, A. (2009). Rapid Issue Tracking: A Method for Taking the Pulse of the Public Discussion of Environmental Policy. *Environmental Communication*, *3*(3), 367-385. doi: Article.

Dynamics of cause-driven socially mediated networks.

Bohm, R. & Short, J. (2009) How Much Information? 2009 Report on American Consumers. *Global Information Industry Center*, University of California, San Diego. Available from http://hmi.ucsd.edu/howmuchinfo.php.

Quantification of contemporary information consumption in US. Great charts of usage broken out by sector.

Brown, J. S., Collins, A., & Duguid, P. (1989). Situated Cognition and the Culture of Learning. *Educational Researcher*, *18*(1), 32-42.

This article promotes an understanding of how education can be re-formed through understanding that situations structure cognition. Building from an analysis of language teaching (vocabulary of indexical words), the authors extend their model to all knowledge. All learning indexes (gains meaning) to the activity and situations where it is produced and evolves along with use. Authentic enculturation, where students practice a discipline, is the meaning-making that is fundamental to learning.

Collins, A., Brown, J.S. & Holmes, A. (1991). Cognitive apprenticeship: Making thinking visible. *American Educator*, *6*(11), 38-46.

Gee, J. (2004). *Situated language and Learning: A critique of traditional schooling*.

Greenhow, C., & Robelia, B. (2009). Informal learning and identity formation in online social networks. *Learning, Media, & Technology*, *34*(2), 119-140. doi: Article.

Authors describe methods for incorporating identity formation from social networking into broader educational ecology to stimulate creativity and authenticity in interactions.

Gunawardena, C. N., Hermans, M. B., Sanchez, D., Richmond, C., Bohley, M., & Tuttle, R. (2009, March). A theoretical framework for building online communities of practice with social networking tools. Retrieved from http://0-search.ebscohost.com.opac.sfsu.edu/login.aspx?direct=true&AuthType=ip,cookie,url,uid&db=ufh&AN=37141620&site=ehost-live.

This article describes process of spiraling toward socially mediated metacognition. Authors propose to create theoretical framework to understand Web 2.0 usages by reflecting on texts and interacting within a community of practice mediated by Web 2.0 tools. Provides a description of the development of the Appreciative Inquiry (AI) method for organizational change from the Anticipatory Principle related to collective imagination and personal motivation.

Kennedy, J., Eberhart, R. (2001) *Swarm Intelligence*. San Francisco: Morgan Kaufman Publishers.

Exploration of intelligence both biological and artificial, modeling, evolutionary computation, optimization patterns, memetics and sociocognitive theory. Clear explanations, technical depth about how intelligence emerges from social organization and interactions.

Lazar, J., ed. (2007) Universal Usability. Chichester, England: Wiley & Sons.

Compilation of articles treating design of computer interfaces for diverse users. Wide range of topics including public participatory design practice, technology used to enhance quality of life for alzheimer's patients, blind people. Very good resource for research models.

Lin Lin . (2009). Breadth-biased versus focused cognitive control in media multitasking behaviors. *Proceedings of the National Academy of Sciences of the United States of America*, *106*(37), 15521-15522.

Maldonado, H., Lee, J. E. R., Brave, S., Nass, C., Nakajima, H., Yamada, R., et al. (2005). We learn better together: enhancing eLearning with emotional characters. In *Proceedings of the 2005 conference on Computer support for collaborative learning: learning 2005: the next 10 years!* (pp. 408-417). International Society of the Learning Sciences.

Ophir, E. Nass, C. & Wagner, A.D. (2009) Cognitive Control in Media Multitaskers. *Proceedings of the National Academy of Sciences* 106(37), 15583 -15587.

This article makes a significant contribution to literature by creating an index of media multitasking and measures of systematic processing and stylistic differences in the effort to understand cognitive costs and benefits of working through multiple media channels simultaneously. It represents a ignificant counter to popular wisdom on the subject researchers found that chronic multitaskers have degraded abilities to focus upon and respond to stimulus that extend beyond periods of multitasking activity. Broad samples were evaluated for filtering and response inhibition, two and three back tasks and task-switching which measured participants abilities to resist distraction, remember, change activities both when operating in multiple channels and not.

Scott, J. (2000) *Social Network Analysis*. London: Sage Publishing.

This text bridges mathematical and ethnological techniques for graphing relational data and attributes in service to transferable methods of analysis and synthesis of social networks. Includes historical development of the discipline, case studies and definition of core concepts such as multi-dimensional matrices, information acquisition and flow, adjacency, cliques, communities, clusters, strong and weak links.

Subrahmanyam, K., Reich, S. M., Waechter, N., & Espinoza, G. Online and offline social networks: Use of social networking sites by emerging adults. *Journal of Applied Developmental Psychology*, *29*(6), 420-433. doi: doi: DOI: 10.1016/j.appdev.2008.07.003.

Analysis of relationships between online and offline social behaviors in young people., contrasts between '"friending" synchronous (Instant Messaging) and asynchronous (Facebook) behavior in college students who spent approximately 2-3 hours studying per day, nearly all went online daily. Online and offline relationships were highly integrated.

Yee, R. (2008) Web 2.0 Mashups, Remixing Data and Webservices. Berkeley: Apress.

This volume surveys techniques for embedding multiple data sources in web pages to create applications. Includes useful technical information about tagging, spatial data, AJAX and the semantic web.. Samples and examples.