TWG 13: Knowledge Building/Knowledge Creation in the School Classroom and Beyond

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Issues

Knowledge building/knowledge creation is critical to the future of societies, but a common belief holds that only the highly capable ones can create new ideas. A modern theory of knowledge creation is needed to realize the vision of an inclusive knowledge society. The traditional "genius" conception serves to increase the gaps between knowledge rich and poor, and, in turn, undermine society's natural, abundant, untapped resource—the ideas of its citizens. What is needed is a way to engage all citizens--including children and youth--in generating and refining ideas for public good –in environments that enhance collective as well as personal well-being.

Knowledge Building/knowledge creation, supported by Knowledge Forum® technology, is an educational approach that aims to enhance society's health and wealth by the most direct means possible—engaging students in the actual work of a knowledge society (Scardamalia & Bereiter, 2014).)[1]. Through Knowledge Building practices and technology, students work together in rich multimedia environments with a way in for everyone and means to build on each other's ideas, locally and globally; embedded assessment and analytic tools provide formative and transformative feedback to support continual improvement of community knowledge. Sustained idea improvement in socially and emotionally supportive contexts is the principal day-to-day work of knowledge building communities. This educational approach has been implemented in classrooms, schools, and school systems in over 20 countries synergizing research, policy and practice. Knowledge Building International[2] is a global design community of researchers, teachers, engineers, designers, educators and policy makers working together to create models for an inclusive knowledge society.

Misalignments and emerging new alignments

Although knowledge creation is now increasingly emphasized in education (e.g., UNESCO ICT competency framework for teachers)[3], there are issues relating to how it should be addressed within education policies and enacted in school practices. Misalignments are prevalent in schooling for knowledge creation, including learning, curriculum, and assessment, and the introduction of new pedagogies and technologies often leads to more misalignments. Based on over three decades of research evidence and learning outcomes[4], Knowledge Building offers a holistic integration of theory, pedagogy, technology to enculturate students into authentic knowledge work, with new forms of assessment and interdisciplinary knowledge practices supported globally through innovation networks. Table 1 shows misalignments and problems in schooling for knowledge creation and emerging realignments through Knowledge Building.

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[1] Scardamalia, N., & Bereiter, C. (2014). Knowledge building and knowledge creation: Theory, pedagogy, and technology. In R. K. Sawyer (Ed.), *The Cambridge Handbook of the Learning Sciences*, 2nd Edition (pp. 397–417). New York: Cambridge University Press. (Note: Knowledge Building and knowledge creation are synonymous).

[2] Knowledge Building International: http://ikit.org/kbi/

[3] UNESCO ICT competency framework for teachers (2011) Accessed at https://url.cn/5v83Qin

[4] Chen, B., & Hong, H. Y. (2016). Schools as knowledge building organizations: Thirty years of design research. *Educational Psychologist, 51*, 266–288.

Table 1: School and policy practice misaligned with knowledge creation in education and emerging realignments through Knowledge Building Model

Misalignments with knowledge creation	Knowledge Building emerging realignments
Traditional views of learning as individualistic; knowledge as static and immutable; knowledge creation for knowledge elites	Knowledge Building/knowledge creation is dynamic, and part of a cultural effort engaging all through collective responsibility
21st century learning is about mastery of predetermined, discrete skills	Beyond 21st century skills; competence emerges from student engagement in authentic knowledge creation
Assessment focused on static snapshots of individual achievement; individual assessment misaligned with collaboration and creation	Assessment illuminates learning as it proceeds; transformative collective assessment supported by collaborative technology
Knowledge creation is for the privileged - only high achievers and capable students can do it	Knowledge creation is for everyone – all students can contribute and improve ideas
Generic digital technologies and classroom activities as add-ons; more to-do lists of work	Digital technologies optimized for knowledge creation -- principle-based pedagogy and change in classroom culture
Change in policy and practice for innovation is fragmented, often focusing on separate parts	Change based on the systemic and holistic integration of research, practice, technologies, and policy action through Knowledge Building

Strategies and Actions

TWG13 advocates international tripartite partnerships (school-university-government) (SUNG) grounded in coherent Knowledge Building/creation theory, pedagogy and technology to support the development of open and connected knowledge-building communities in education. We propose interrelated strategies for policymakers, practitioners and researchers to be taken in systemic manners.

Policymakers
- Adopt systemic, holistic, and ecological approaches; a diversity of paths to increase sustained innovation
- Engage in participatory politics to build relationships; co-construct policies involving different stakeholders
- Provide accessible and functional technological environments to support Knowledge Building in schools

Practitioners
- Engage in Knowledge Building/creation both as teacher and learner in knowledge building communities
- Use principle-based practice supported by analytics tools to enhance evidence-based teaching improvements
- Work with fellow teachers in professional learning networks and communities and involve in Summer/Winter Institute exchanges to advance Knowledge Building practices

Researchers
- Develop a framework and repository for compiling and synthesizing evidence to impact policy and practice
- Work with practitioners to identify and create exemplars and case studies of Knowledge Building/creation practice
- Develop and provide customized communication of research findings to stakeholders (e.g., research briefs for policymakers; vignettes & visualizations for practitioners).
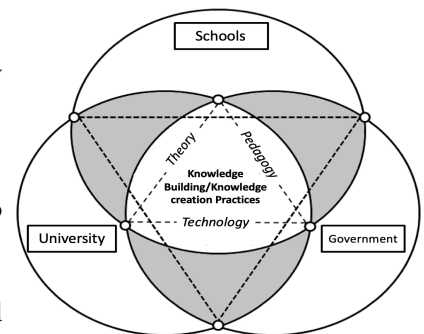

Figure 1: A tripartite model of school-university-government