

Knowledge Building

12 Principles

Adapted from the work of Dr. Marlene Scardamalia and Dr. Carl Bereiter by Dr. Monica Resendes

IMPROVABLE IDEAS

Ideas are treated as improvable rather than simply accepted or rejected; work proceeds continuously to improve the explanatory power, coherence and utility of ideas → *Not searching for the answer or the final state but on the best explanation we can build.*

Knowledge Forum supports:

Knowledge Forum supports revision in all aspects of its design—there is always a higher level to take ideas, there is always opportunity to rework and refine contributions.

Things you may hear that reflect this principle...

“Let’s design an experiment,” “How does it work, REALLY?”, “We used to think..., now we think...”

EPISTEMIC AGENCY

Learners are given agency to set goals, engage in long-range planning, monitor progress, evaluate idea coherence, support sustained knowledge advancement → *Learners are empowered to take charge at the highest levels.*

Knowledge Forum supports:

Knowledge Forum scaffolds to help support high level knowledge work are embedded in notes to help learners take charge in building knowledge (“My theory”, “I need to understand”, “Putting our knowledge together”, “we need an experiment to,” etc.). Knowledge Forum also provides support for viewing ideas in different contexts and assessment tools to help learners evaluate their own work.

“I need to understand...;” “I think we should take this in a different direction altogether,” “So how does this address our problem?” “What’s our goal here?” “Let’s plan the next stage of our work now, so we can stay on course,”

COMMUNITY KNOWLEDGE, COLLECTIVE RESPONSIBILITY

All participants are legitimate contributors to community goals and take responsibility for advancing the community's knowledge, not just their individual learning → *The community identifies shared progress and needed advances.*

Knowledge Forum supports:

Knowledge Forum's open, collaborative workspace holds ideas that are contributed by community members. Community membership is defined in terms of reading and building-on the notes of others, ensuring that contributions are informative and helpful for the community.

"Let's create a You Tube video—the story of our knowledge advances," "Our ideas don't fit together," "We're all saying the same thing," "How would you describe our current state of understanding?" "We need to organize this Knowledge Forum view."

DEMOCRATIZING KNOWLEDGE

All participants are empowered as legitimate contributors to the shared goals; all take pride in the knowledge advances of the community. Diversity and divisional differences are viewed as strengths rather than as leading to separation along knowledge have/have-not lines → *Everyone's ideas are needed and encouraged.*

Knowledge Forum supports:

All participants have access to and contribute to a central space; analytic tools allow participants to assess evenness of contributions and other signs of the extent to which all members are engaging and making contributions towards the group's shared goals.

"What can we do to get everyone involved?" "We seem to have lost the interest of several people," "Interesting idea—how can we help?"

IDEA DIVERSITY

Knowledge advancement depends on diversity of ideas, just as the success of an ecosystem depends on biodiversity. To understand an idea is to understand the ideas that surround it, including those that stand in contrast to it → *A wealth of ideas and out-of-the-box thinking.*

Knowledge Forum supports:

Bulletin boards, discussion forums, and so forth, provide opportunities for diversity of ideas but they only weakly support interaction of ideas. In Knowledge Forum, facilities for linking ideas and for bringing different combinations of ideas together in

different notes and views promote the interaction that makes productive use of diversity.

"I never realized there were so many ways to view this!" "That's a new idea," "I never thought of it that way," "Let's try a different approach"

KNOWLEDGE BUILDING DISCOURSE

Discursive practices are not simply for sharing ideas and opinions, but for transforming and advancing knowledge; problems are progressively identified and addressed and problems deepened; new conceptualizations are build using contrasting ideas and analogies → *Ever-deepening questions, clearer explanations, better examples.*

Knowledge Forum supports:

Knowledge Forum supports rich multimedia and intertextual notes and views that support emergent rather than predetermined goals and workspaces. Revision, reference, and annotation further encourage participants to identify shared problems and gaps in understanding and to advance understanding beyond the level of the most knowledgeable individual.

"How does this work, REALLY? This doesn't explain how..." "We're just grouping ideas together—what's the big idea?" "That's just a topic, what's the issue?"

REAL IDEAS, AUTHENTIC PROBLEMS

Identify problems that arise from efforts to improve practice and understand the world; pursue sustained, creative work surrounding ideas that matter → *The essence, as I see it.*

Knowledge Forum supports:

Knowledge Forum creates a culture for creative work with ideas. Notes and views serve as direct reflections of the core work of the organization and of the ideas of its creators.

"The real issue, I believe..." "What I'd REALLY like to know..." "Authentic from my point of view would be."

RISE-ABOVE

Work with diverse ideas in complex problem spaces; transcend trivialities and oversimplifications and work toward more inclusive principles and higher level formulations of problems → *There's got to be a better way!*

Knowledge Forum supports:

In expert knowledge building teams, as in Knowledge Forum, conditions to which people adapt change as a result of the successes of other people in the environment. Adapting means adapting to a progressive set of conditions that keep raising the bar. Rise-above notes and views support unlimited embedding of ideas in increasingly advanced structures, and support emergent rather than fixed goals.

"Let's take this to a new level." "I bet we are missing something important here," "How do we get beyond our current thinking?" "It can't be that simple." "We just keep going back and forth—this or that."

CONSTRUCTIVE USE OF AUTHORITATIVE SOURCES

Find and critically evaluate source material; assess writer credentials; use source material to refine ideas, not as ultimate authority; show respect for expertise, but also freedom to question authoritative accounts → *"What do experts say?" "What makes you think this person is an expert?"*

Knowledge Forum supports:

Knowledge Forum encourages participants to use authoritative sources, along with other information sources, as data for their own knowledge building and idea-improving processes. Participants are encouraged to contribute new information to central resources, to reference and build-on authoritative sources; bibliographies are generated automatically from referenced resources.

"How would someone with more knowledge handle this?" "There seems to be agreement among experts that..."; "How does this expert's idea fit with ours?" "Here's what someone who knows a lot says." "I found an explanation but I need help to understand the relevance to our work."

PERVASIVE KNOWLEDGE BUILDING

Knowledge building is not confined to particular occasions or subjects but pervades mental life—in and out of school and across contexts → *Everywhere an opportunity*

Knowledge Forum supports:

Knowledge Forum encourages knowledge building as the central and guiding force of the community's mission, not as an add-on. Contributions to collective resources reflect all aspects of knowledge work.

*"In a movie I saw there was this cool demonstration—it worked like this,"
"I wrote a note—I'll put it in our group space tomorrow."
"I took a picture so I'll remember," "I thought of this while I was walking in the park,"
"Let's enter data from this recorder."*

SYMMETRIC KNOWLEDGE ADVANCE

Expertise is distributed within and between communities and team members; "to give knowledge is to get knowledge" → *The growing edge of knowledge / inner-outer community dynamics*

Knowledge Forum supports:

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"Scientists cannot explain...," "I found a report of a breakthrough..." "What's special about our approach?" "Another team discovered..." "What would those who disagree say?" "I'm going to put this idea out there so others can help advance it."

EMBEDDED, CONCURRENT, AND TRANSFORMATIVE ASSESSMENT

Assessment is integral to Knowledge Building and helps to advance knowledge through identifying advances, problems, and gaps as work proceeds → *Self and group assessment, feedback that enables advances.*

Knowledge Forum supports:

Standards and benchmarks are objects of discourse in Knowledge Forum, to be annotated, built on, and risen above. Increases in literacy, twenty-first-century skills advance in parallel as work to advance knowledge proceeds.

"Let's look at our data and see how we're doing," "We seem to be stuck. Let's see how much progress we've made," "Good we caught this mistake early," "Our best insight so far," "The idea that really needs work," "We haven't advanced our ideas beyond"

Further reading: Scardamalia, M. (2002). ["Collective Cognitive Responsibility for the Advancement of Knowledge"](#). In: B. Smith (ed.), *Liberal Education in a Knowledge Society*. Chicago: Open Court, pp. 67-98.