

Promisingness Judgments in Knowledge Building

- **Promisingness judgments** play an essential role in creative processes (Bereiter & Scardamalia, 1993; Bereiter, 2002)
- The process of identifying promising ideas brings out “discrepant elements” and makes the fruitfulness of selected ideas evident (Gardner, 1994)
- Judgments of promisingness pervade creativity and decision-making of all kinds (e.g., de Groot, 1978; Dunbar, 1995)
- Knowledge building as an emergent, creative process calls for ongoing evaluation of new ideas and possibilities
- Previous research has found promisingness judgments contributing to knowledge building in elementary science learning context (Chen, Scardamalia, Resendes, Chuy & Bereiter, 2012)

Research Goals

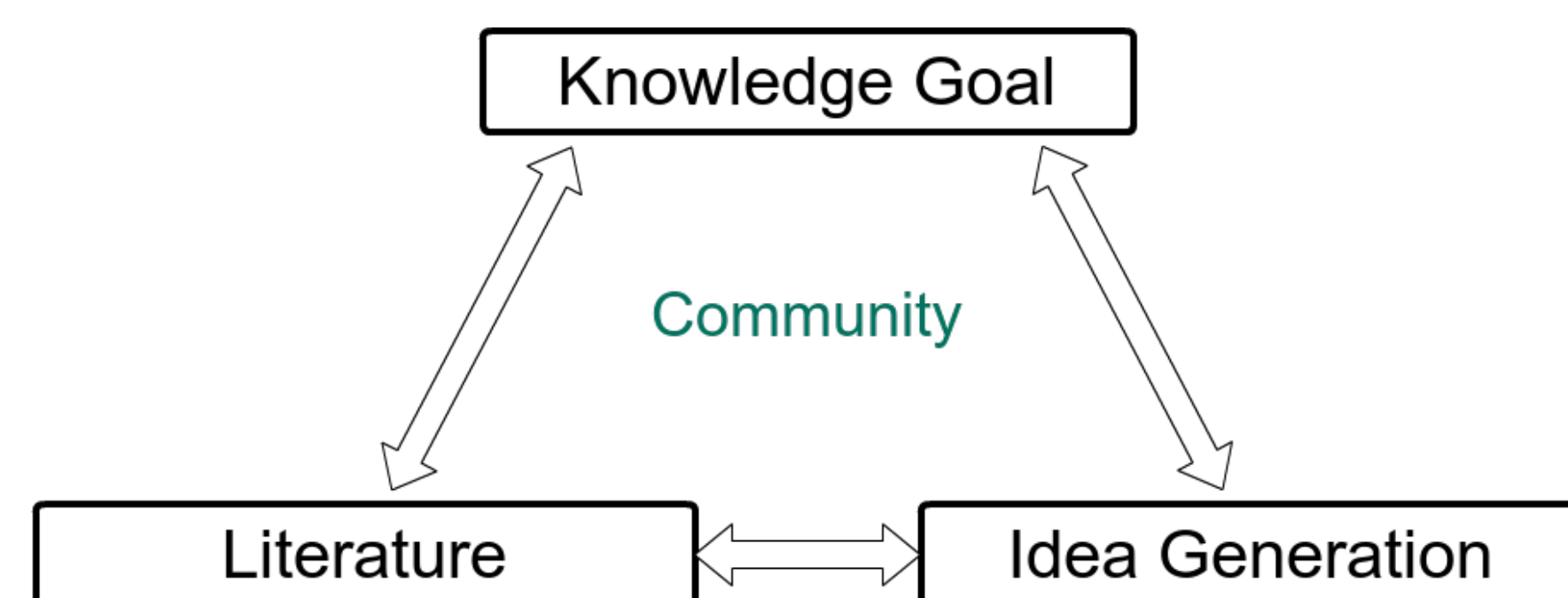
- 1 To explore pedagogical and technological designs to support idea improvement in a graduate-level knowledge-building course.
- 2 To investigate the extent to which promisingness judgments could facilitate knowledge-building processes of adults.

Methods

- **Case study** approach (Yin, 2011) was applied in this study to gain in-depth understanding of the dynamics of promisingness. This study is part of a larger program of design research (Collins, Joseph & Bielaczyc, 2004) on promisingness judgments.
- **Context:** a 12-week graduate seminar at a university in Toronto
- **Participants:** one professor and 15 graduate students from the faculty of education

Course Design

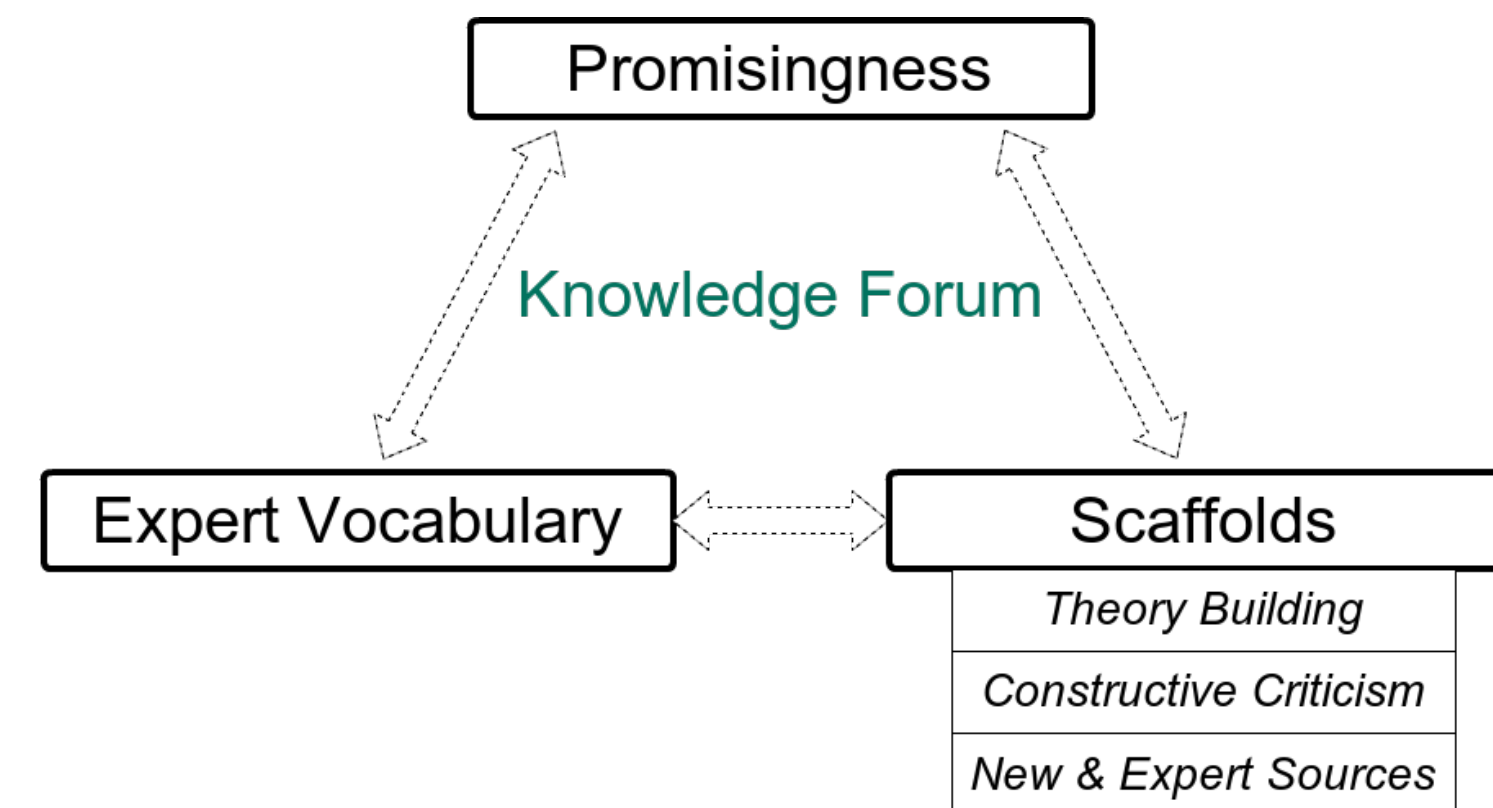
- The course had a **knowledge-building goal**—“*to create an assessment of collaborative knowledge creation*”
- Achieving this goal required students to **understand relevant literature** and **generate novel ideas**. In this course, reading and discussion were not focused on individual comprehension of articles but on collective advances in understanding the literature and generating novel solutions.
- To facilitate knowledge building, the instructor and students defined 7 related **areas of specialization**, including “Intellectual engagement,” “Sustained creative work with ideas,” “Concept development,” “Social dynamics,” “Explanatory coherence,” “Reflection, metacognition, collective responsibility,” and “Epistemic agency.” Each student could choose certain areas to focus on.



Knowledge-Building Environment Design

Knowledge Forum (KF, Scardamalia, 2004) was used to support discourse towards idea improvement and the knowledge-creation goal. Three main technological affordances were designed into KF to facilitate the process:

- 1 **Scaffolds:** 3 sets of scaffolds were created to support *theory building*, *constructive criticism*, and introduction of *new & expert sources*.
- 2 **Expert Vocabulary:** A list of 65 expert terms pertinent to seven areas of specialization was created by the instructor, and students are encouraged to use them to monitor their understanding of key concepts and to enrich their face-to-face and online discourse.
- 3 **Promisingness Tool:** Students and the instructor used a Promisingness tool to highlight promising ideas in KF notes and, if they wished, send them to one of the seven areas of specialization. In this manner, connections were constantly made between the literature, areas of specialization, and the top-level goal, with focus on identifying and refining most promising ideas.



The knowledge-building process facilitated by promisingness judgments is illustrated below:

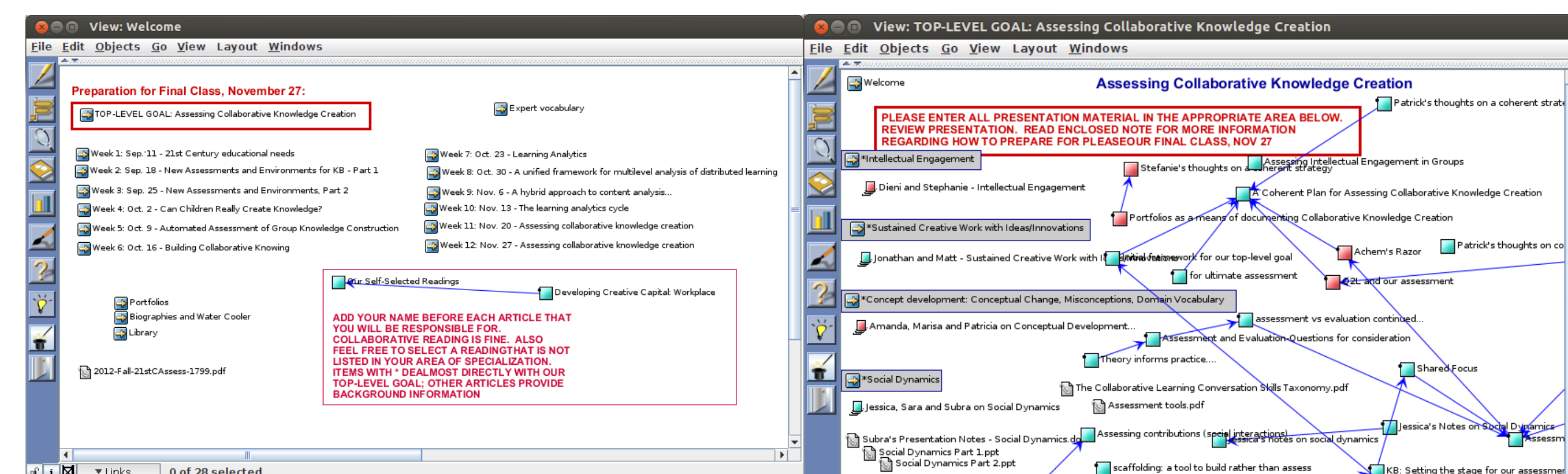


Figure 1. Welcome and Top-Level Goal views. The Welcome view contained links to weekly discussion views focusing on readings. It also linked to a “Top-Level Goal” view hosting 7 areas of specializations to be advanced for achieving this goal.

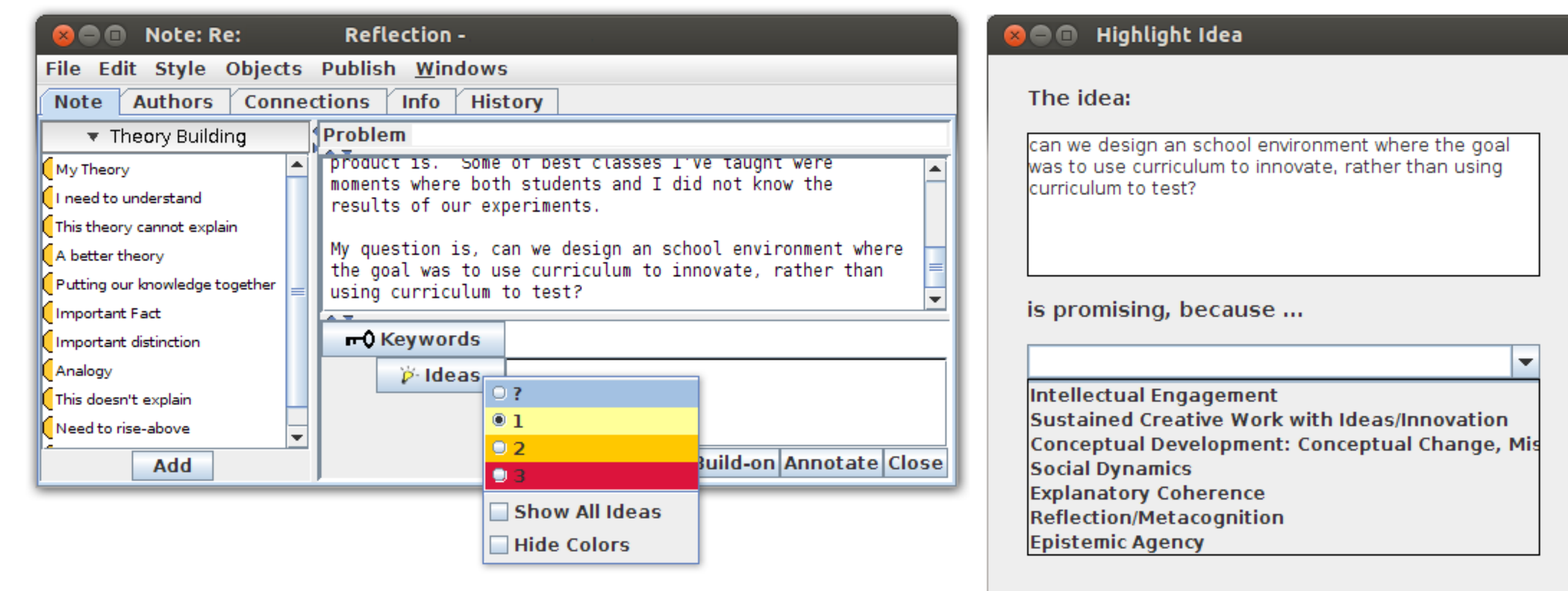


Figure 2. Highlight an idea in a note. In weekly discussion, students used the Promisingness tool to tag ideas they found promising. Colors of highlighters represented levels of promisingness, from “?–not sure”, to “3–very promising”. When highlighting, an area of specialization could be chosen to explain for what this idea is promising.

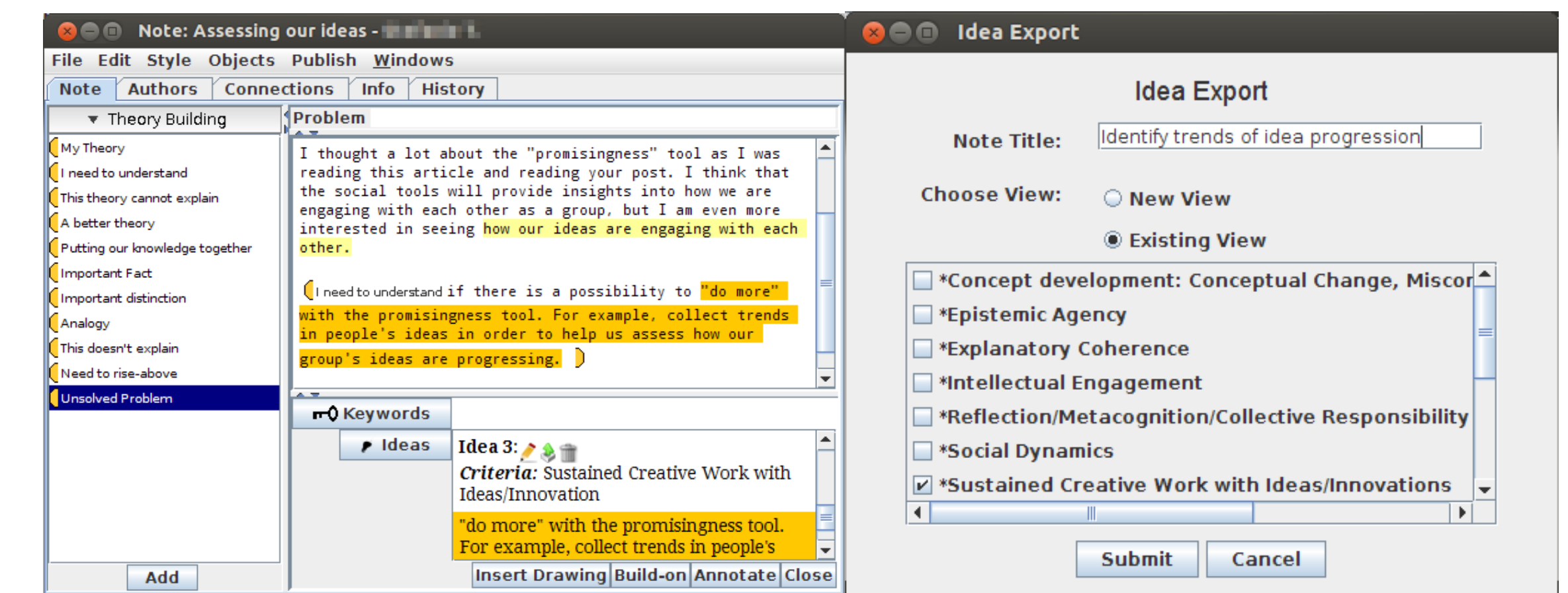


Figure 3. Review and export promising ideas in a note. An idea will become highlighted after being identified as being promising. It can be then directly exported as a new note to any view that the user finds relevant.

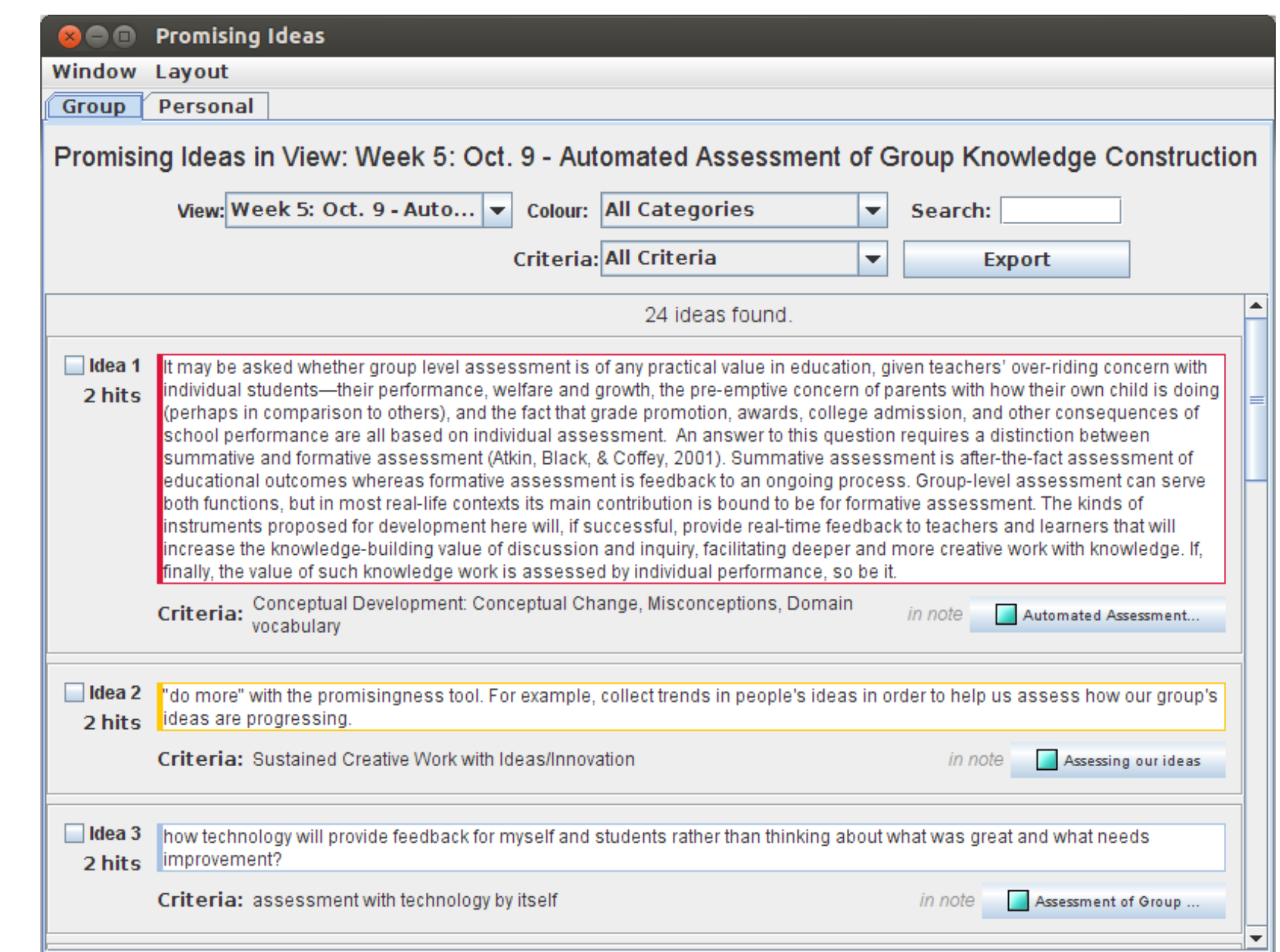


Figure 4. Review and export promising ideas in a view. All promising ideas identified in a view can be reviewed together. A user can choose related ideas and export them together to another view.

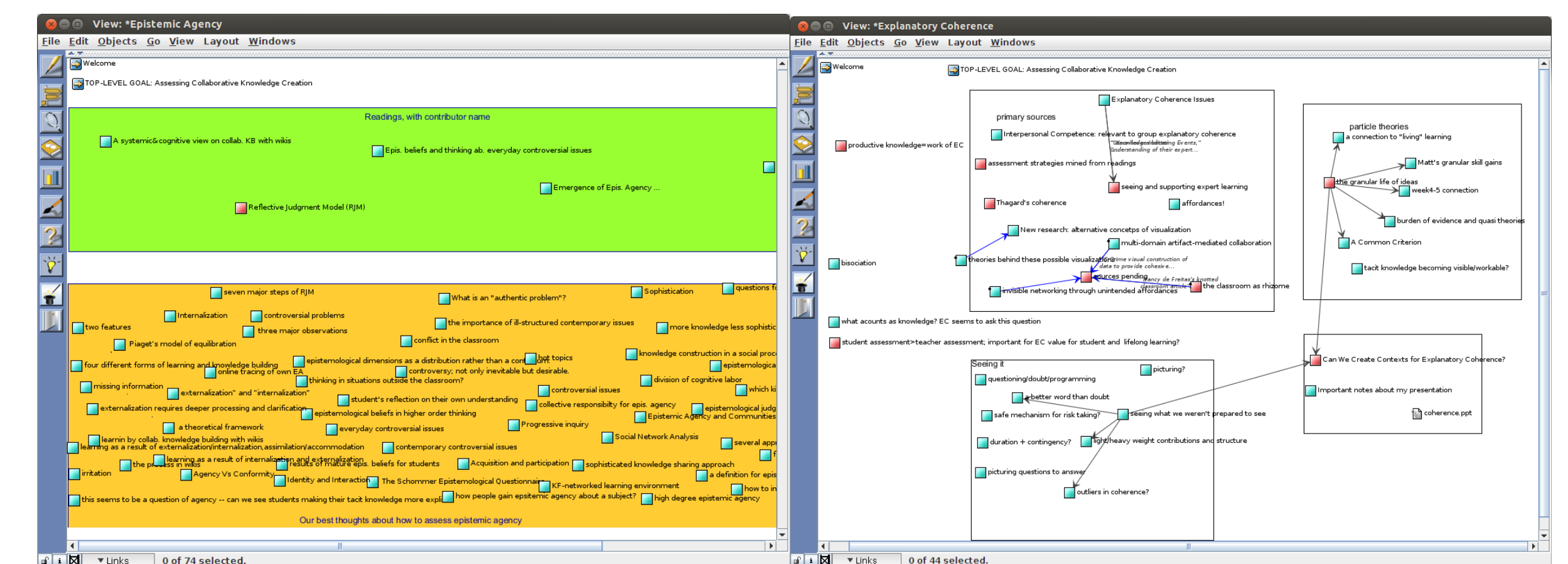


Figure 5. Continual work on exported promising ideas in specialization views. Students kept building on exported ideas in specialization views, to create even bigger and more promising ideas to tackle the top-level goal.

Preliminary Findings

- Temporal analysis showed consistent occurrences of promisingness judgments throughout the course.
- Content analysis focusing on idea quality found notes containing promising ideas with higher scores of “promisingness” ($t(109) = -2.48, p = .01$) and “idea development” ($t(114) = -2.73, p < .01$).