Can Critical Incident Questionnaires Help Improve Metacognitive Skills?

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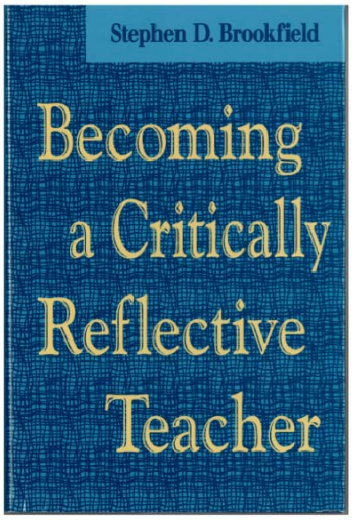
Stephen Brookfield's Critical Incident Questionnaire



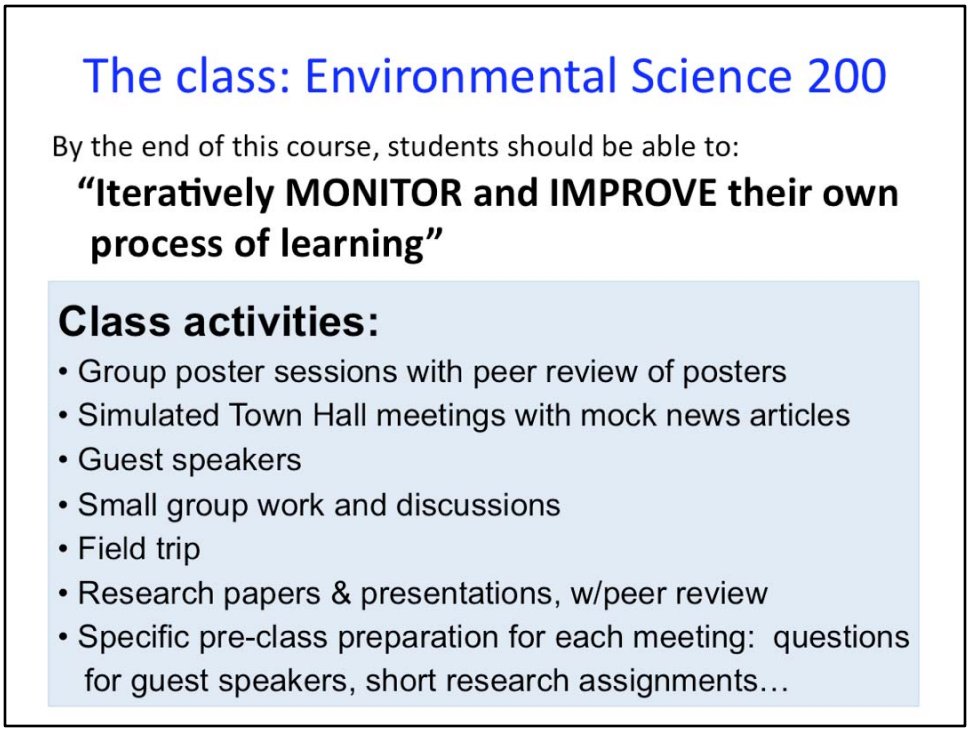
1995, Jossey-Bass

1. At what moment did you feel most **ENGAGED** with what was happening?
2. At what moment did you feel most **DISTANCED**?
3. What action that anyone (teacher or student) took did you find most **AFFIRMING** or **HELPFUL**?
4. What did you find most **PUZZLING** or **CONFUSING**?
5. What **SURPRISED** you the most?

What are critical incidents: "…vivid happenings that for some reason people remember as significant." (Brookfield, 1995)

Brookfield's intentions: Provide feedback to both students and instructors about how students are experiencing class

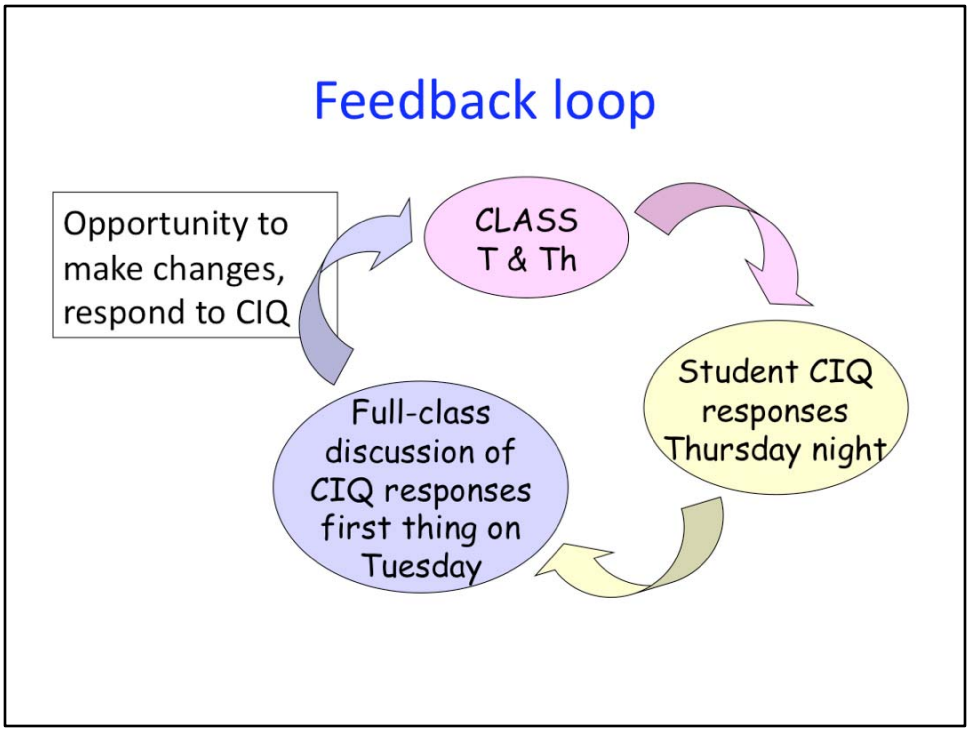
Our use (try to extend Brookfield): Examine responses for evidence of metacognition (at least, the "recognition" or "noticing" part of self-regulated learning).



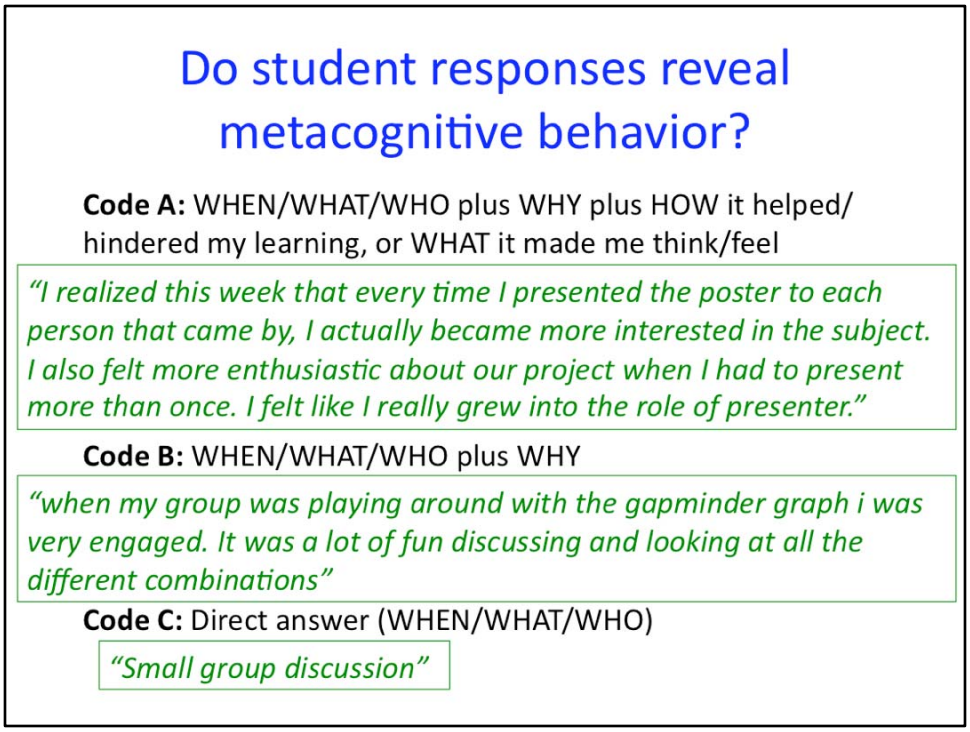
An introduction to the major global, regional, and local environmental issues facing human societies.

One of the learning goals: By the end of this course, students should be able to:
Iteratively monitor and improve their own process of learning

Class structure: Several types of activities



The weekly cycle.
Each Tuesday is an opportunity to communicate with the full class using specific student examples of CIQ responses.



Does the act of completing these surveys every week help students recognize events that are meaningful for their learning, and help them articulate why? Can they identify and reflect on why these events stand out?

(We are not dealing with whether they ACT on this recognition).

Coding:

Introduce C, then B, then A, with example from each.

C. Direct answer to the question

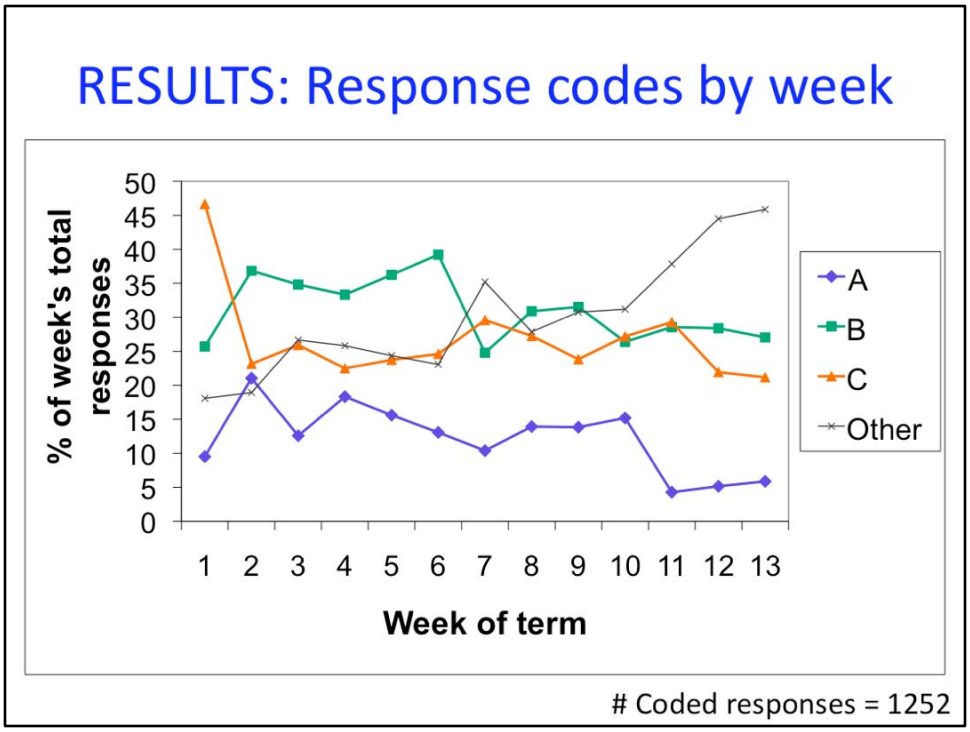
B. Direct answer plus "because"

A. Recognition that an action taken by the student helped him/her do something better. Recognition of learning and recognition that practice improved performance.

1252 total responses coded (that were not "not answered"). 1167 of those were A (203), B(521), or C(443)

%s of total responses (including blanks): As were 12.2%, Bs were 31.2%, C2 were 26.5%

Intercoder reliability: 80%. Important to use one coder's full data set. Mismatches were between adjacent codes (AB, BC)



Class averages:

Points: "Other" increases throughout term. A declines (95% conf). B&C approximately flat (slopes not sig. diff. from zero).

Week 1 anomaly: Lots of Cs. Talked about the CIQ more thoroughly Week 2.

Week 2: "Highest" coded responses.

Aside (extra info):

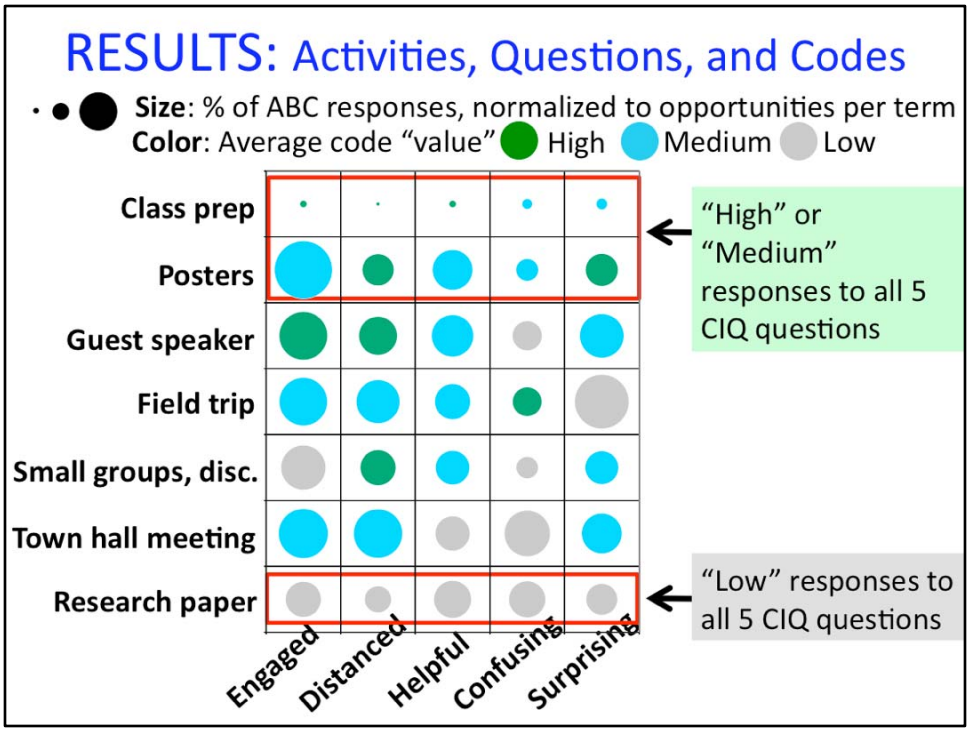
If you plot just A, B, C, normalized to ABC(total) →

A declines (Weeks 2-13, negative slope; All weeks, slope not sig diff from zero),

B flat, not sig diff from zero.

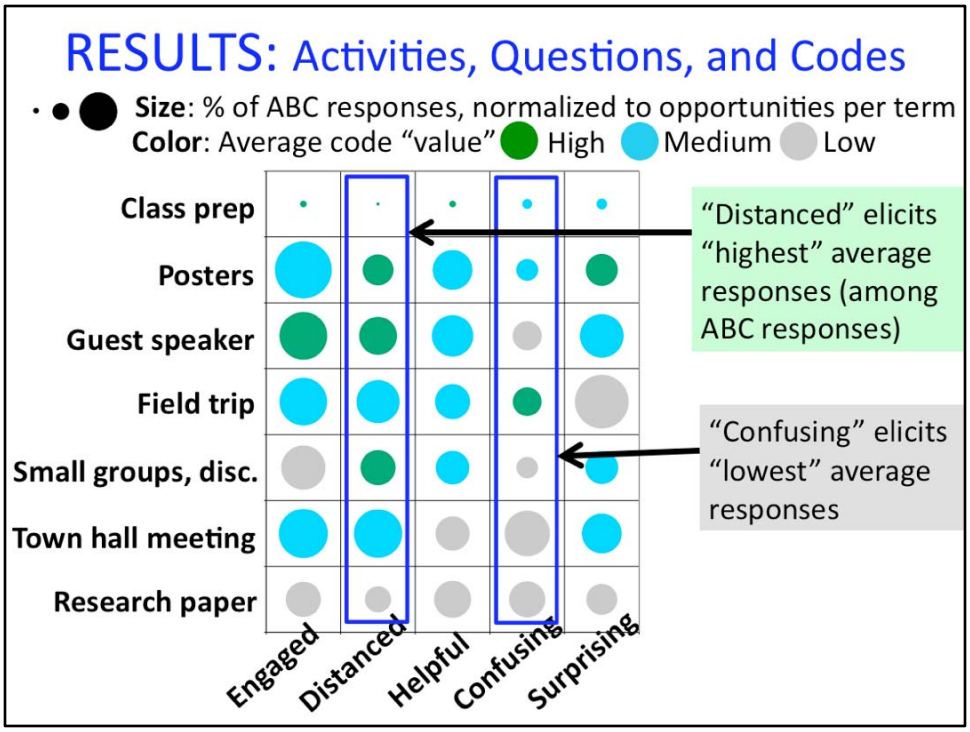
C max in Week 1, min in Week 2, increases Week 2-13 (slope +, 95% conf)

Mention individual students here (anonymous): 13 aliases had responses for 10 or more weeks. Of those, only one (Alias 3 above) showed an indication of increasing sophistication of responses as time progressed (90% conf). 3 showed an indication of declining sophistication (90% conf). At 95% confidence, all aliases showed slopes not sig. different from zero (for "average value" versus week).



Complex visual. %s are based on ABC responses in these 7 activity categories (n=985)
Size: % of total responses, normalized to opportunities per term. So, "Class Prep" has many opportunities per term, and was mentioned less than the other categories, compared to the # of potential opportunities to mention it.
Color: Average code "value" (if A=1, B=2, C=3). Green > 2; Blue 1.75-1.99; Gray <1.749 (Range of averages is 1.55-2.25)

Points: Class prep and posters elicit "high" or "medium" responses in all question categories
Research paper elicits low responses in all question categories.
"Distanced" question elicits highest responses
"Confusing" question elicits lowest responses
Posters (and class prep notes) elicit highest ratio(s) of "engaged" to "distanced"
Town hall



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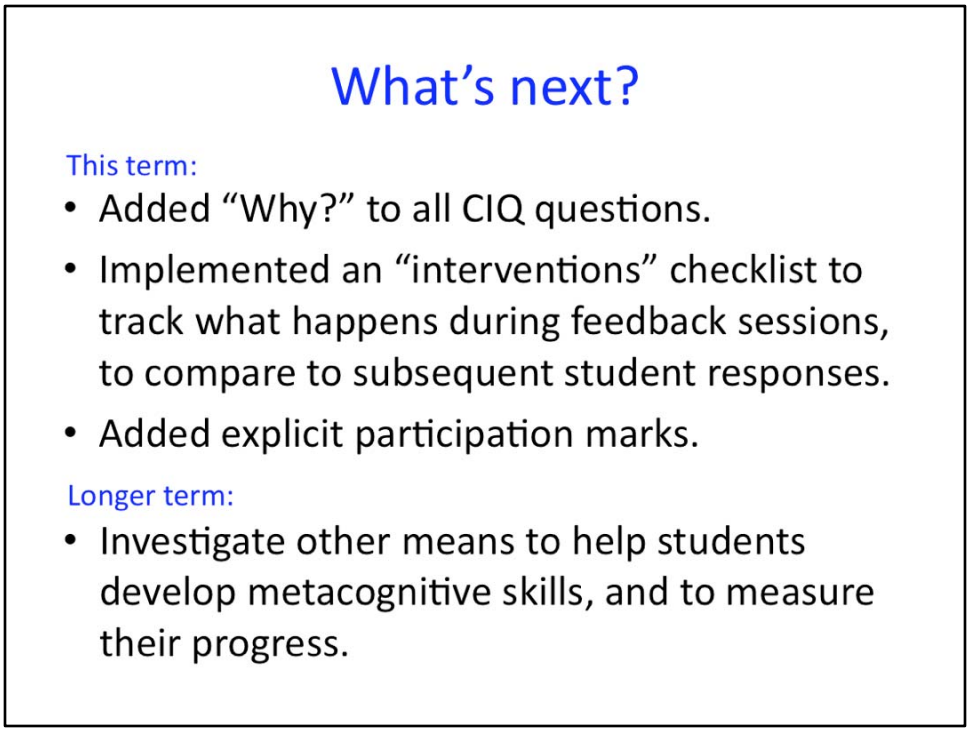
Conclusions

As implemented in this class…

- **CIQ responses did not produce direct evidence that students improve their metacognitive skills over a term.**
- **Some class activities elicit more sophisticated responses than others.** These may be ideal for targeting metacognitive skill development.
- **Some CIQ questions elicit more sophisticated responses than others.**



Adding "why" may push students out of category "C".
The interventions check list may allow us to match specific interventions with increased thoughtfulness/depth/sophistication of subsequent CIQ responses

If this is important, we need to check out other ways to both help students develop metacognitive skills, and successfully measure that improvement. Perhaps measuring metacognitive skills requires that we are more explicit about how we ask students to demonstrate their ability to be metacognitive. The CIQs, as deployed last year, simply may not have been appropriate for learning about a person's metacognition.