

TRANSFORMATIVE LEARNING

The Transformative Realization that Certainty is Rare

One of the biggest transformations in students' thinking concerns a shift from a dichotomous yes/no, right/wrong, black/white view of what knowledge is and the decisions made based on such knowledge to understanding that even experts in a discipline sometimes violently disagree on key disciplinary precepts. Grappling with this and learning to be better thinkers will lead students to understand that an answer in one context is not necessarily the correct answer in a different context.

"Comfort with ambiguity" is a key transformation in students' thinking. The problem is, sometimes students come to us looking for an absolute answer that neatly fits into one of the boxes their worldviews accommodate.

It's frustrating enough for them to come 'round to thinking there won't always be an absolute right answer to a given test question, yet they're still responsible for answering intelligently in order to demonstrate understanding and to receive a good mark on their response to that question.

Imagine their frustration at realizing that *many* decisions must *also* take into account this frustrating "ambiguity" thing.

How do we help?

Gelatt (1989) takes an interesting approach to the idea of decision-making, including how and why he's changed his mind about the decision-making process. Invoking quantum physics as an example about how physicists must approach certainty — indeed, one of the most famous of principles in quantum physics is the Heisenberg *Uncertainty Principle* — Gelatt makes the point that being comfortable with ambiguity and knowing the pace of change is accelerating are required now in good decision-making. He cites his decision-making strategy of a quarter-century earlier, with its definite decisions derived from rational thinking informed by current knowledge as always yielding a correct answer as no longer the best strategy:

A quarter century ago the past was known, the future was predictable, and the present was changing at a pace that was comprehensible. The rational, objective decision-making frame of reference for counseling was appropriate then. Today the past is not always what it was thought to be, the future is no longer predictable, and the present is changing as never before. In fact, today even the status quo is in a state of flux. If everything is changing, ought not the strategy for decision making and the counseling frame of reference be changing? (Gelatt, 1989, p. 252)

Even though Gelatt is talking about counseling practice, his point is well taken about the accelerating pace of knowledge generation and how that pace can make one less

certain that a decision based on today's facts will be correct tomorrow when more facts come to light.

And Gelatt's piece was published in 1989. If anything, the points he makes are even more applicable in today's scientific, educational, and societal mixes.

Holmes' excellent essay (2015) makes the point that we need to teach students the correct approach to ignorance, citing Michael Smithson's metaphor about ignorance and knowledge in the process:

Presenting ignorance as less extensive than it is, knowledge as more solid and more stable, and discovery as neater also leads students to misunderstand the interplay between answers and questions.

People tend to think of not knowing as something to be wiped out or overcome, as if ignorance were simply the absence of knowledge. But answers don't merely resolve questions; they provoke new ones.

Michael Smithson, a social scientist at Australian National University who co-taught an online course on ignorance this summer, uses this analogy: The larger the island of knowledge grows, the longer the shoreline — where knowledge meets ignorance — extends. The more we know, the more we can ask. Questions don't give way to answers so much as the two proliferate together. Answers breed questions. Curiosity isn't merely a static disposition but rather a passion of the mind that is ceaselessly earned and nurtured. (Holmes, 2015)

Ignorance as the launch pad for knowledge is a good thing, yet "ignorance" is often viewed pejoratively by students, and many believe they come to college to have us "de-ignorance" them.

We live, however, in the age of the *Routledge International Handbook of Ignorance Studies* (2015), whose editors begin thusly:

New knowledge always leads to new horizons of what is unknown. New knowledge unsettles the contours of individual and collective understanding; it perturbs more than it settles, engendering fresh debate over the appropriate way to respond to sudden or incremental awareness of earlier unknowns: *when* to respond; *who* may respond; *who should* respond but is incapacitated from doing so. (Gross & McGoey, 2015, p. 1)

Students often want us to tell them the answers. Sometimes those answers are nuanced.

Sharing with students the history of your discipline during stretches of intense debate when leading researchers argued interpretation of fact is one important way we help

students reach the transformative understanding that ignorance, while not bliss, can at least be interesting as an acceleration point on the path to more knowledge.

Even more impactful can be sharing personal stories about your own a-ha moment when you realized a more mature understanding of a topic came only after understanding there wasn't at that moment, and might not ever be, a definitive answer that was correct in all circumstances, including the circumstance of writing something down on an exam.

Employers need new hires that can move forward in the face of ambiguity. Our nation needs citizens who can vote intelligently for candidates when there is clearly no right answer on the ballot. Families need parents who can successfully navigate the challenges of no-easy-answer compromises among siblings.

Reaching the transformative realization that not having a clearly delineated, dependable-in-all-circumstances answer isn't a failure of researchers or science or human nature is important for students. We can help them make the shift to this mindset.

References

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