

The Story of the Climate Change Resource-Linked Concept Map

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The climate change resource-linked concept map has developed over decades morphing with new tools, colleagues and insights. My educational research was the application of concept mapping as a learning tool. The development of *CmapTools* made the creation and editing of concept maps easy in today's digital world. I had taught introductory environmental science at the college level. It was clear that climate change was a really difficult concept for people to wrap their minds around. Meanwhile, my husband, Gene Fry, was inspired by the work of David Rind in 1990, whose projections of the consequences of climate change with "business as usual" indicated extended drought and impacts on the world food supply. Gene dug into the data, looking for reasons for the cooling of the global temperatures in mid-twentieth century and looking for the human fingerprint. When we travelled, Gene would drive and we would talk while I sat in the passenger seat, tapping away on the keys of my first Mac laptop. Sadly, I had a computer meltdown, and the first generation was lost.

But the need was still there. I recreated the map of climate change. By then, climate change had become a controversial topic and the country was actually polarizing about the existence of climate change and, if it was happening, whether it was due primarily to natural or to human causes. Slowly the data came in supporting the human fingerprint as the primary cause for the last century of warming. BUT still there was considerable debate. Media and teachers tried to be balanced in their views, but the evidence became increasingly clear. Nonetheless, there was plenty of disinformation available on the internet.

Meanwhile, the science, technology, and engineering framework of Massachusetts and the Next Generation Science Standards were undergoing revision and development. Climate change would be addressed in both sets of standards. I knew it would be difficult for every teacher to understand climate change and to find and develop worthwhile resources. I started collecting resources. *CmapTools* enabled linking of digital resources to all of the concepts. I found resources at state and national conferences; at webinars; from Cornell's MOOC on Big Wicked Problems (including climate change). Gene developed his website *Global Warming: So What?* which incorporated up-to-date scientific developments. Mass Audubon collected climate change education materials and shared them with me. More links came through my participation on the Climate Literacy and Energy Awareness Network and CLEAN teleconferences.

Finally, following 3 state environmental education conferences targeting various aspects of climate change, I felt the cmap skeleton was worthwhile. More feedback resulted in a change of colors, the development of visuals rather than just words on the homepage, and the switch from a vertical to horizontal orientation of the homepage. This is a living resource. It should continue to morph as our knowledge about science, pedagogy, and technology develop.

Use and enjoy. Live and learn lifelong.