How Does Technology Reflect and Influence our Worldviews?

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Engineering and Science Integration

Engineering:
Applying insights from science to build technology

Science Integration:
Applying insights from science to build worldviews

- Both are means of making science valuable.

- Both start with human needs.

- Both can help make our lives meaningful:

"The key to motivation is the belief that there is something worth doing, which is within your power to do."
-- T. Duncan

"How have the major concepts, insights, and developments of [engineering] influenced public perception of our 'place' in the universe?"

Engineering provides

- Tools for traditional scientific research
- Tools for the integration process
- An increase in the resources at our disposal
- Tools for pursuing goals

Engineering also provides a laboratory for exploring the constraints and limitations that we experience:

- Why don't we automatically have everything we need or want?

- Why is it that we are so often able to find a way to obtain what we need or want?

- What are the fundamental constraints and limitations that are imposed upon us?

"What problems and conflicts has this influence caused?"

Most people's greatest exposure to the results of science is through technology. This implies that

- Improving people's relationship with technology could improve their relationship with science.
- Technology may be used as a tool to teach and remind people about the science behind it.

What do people's reactions to technology reflect about their worldviews?

Pro-Technology:
- Change is good.
- We should extend our capabilities.
- We value speed, mobility, information management, and communication.
- Technology is the solution to many of our problems.

Anti-Technology:
- Change can be frightening; technology is intimidating.
- Extending our capabilities poses new dangers, especially when it occurs at such a rapid rate.
- Technology is de-humanizing and is a distraction from the things that really matter.
- Technology is the source of many of our problems.

"What can be done to facilitate better incorporation of physical science insights into our everyday lives and perspectives, in a positive and constructive way?"

1. Address the concerns people have about technology:
    - Place more importance on the ease-of-use of technology.
    - Encourage discussion of potential risks and ethical questions raised by technology. Make science integration part of the discussion.
    - Technology challenges us to become more sophisticated in our thinking about about what makes experiences meaningful and what it means to be human. It forces us to articulate our worldviews with greater clarity and detail.

2. The success of technology demonstrates that science describes the real, everyday world that we live in. Science is not just an abstract field of study.

   "There are no (scientific) agnostics at 20,000 ft."

3. The technological tools that we use can serve as reminders of the principles of the universe that are behind their design.

Conclusions

- Engineering and science integration are parallel applications of science.

- Engineering and technology play a role in science integration by providing tools for uncovering and assimilating scientific insights.

- Technology can play a role in changing people's attitudes towards science and reminding them of the scientific principles upon which it is based.

"Concern for man and his fate must always form the chief interest of all technical endeavors. Never forget this in the midst of your diagrams and equations."

--Albert Einstein