

The Knowledge Cycle: How Universities Works

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This article explains how universities work and how they interrelate to industry and government. The figure below shows the Knowledge Cycle analogous to the Weather Cycle you learned about in grade school. Most people including students mainly see the teaching role of universities: professors teach, students learn, students graduate and get jobs. True but simplistic.

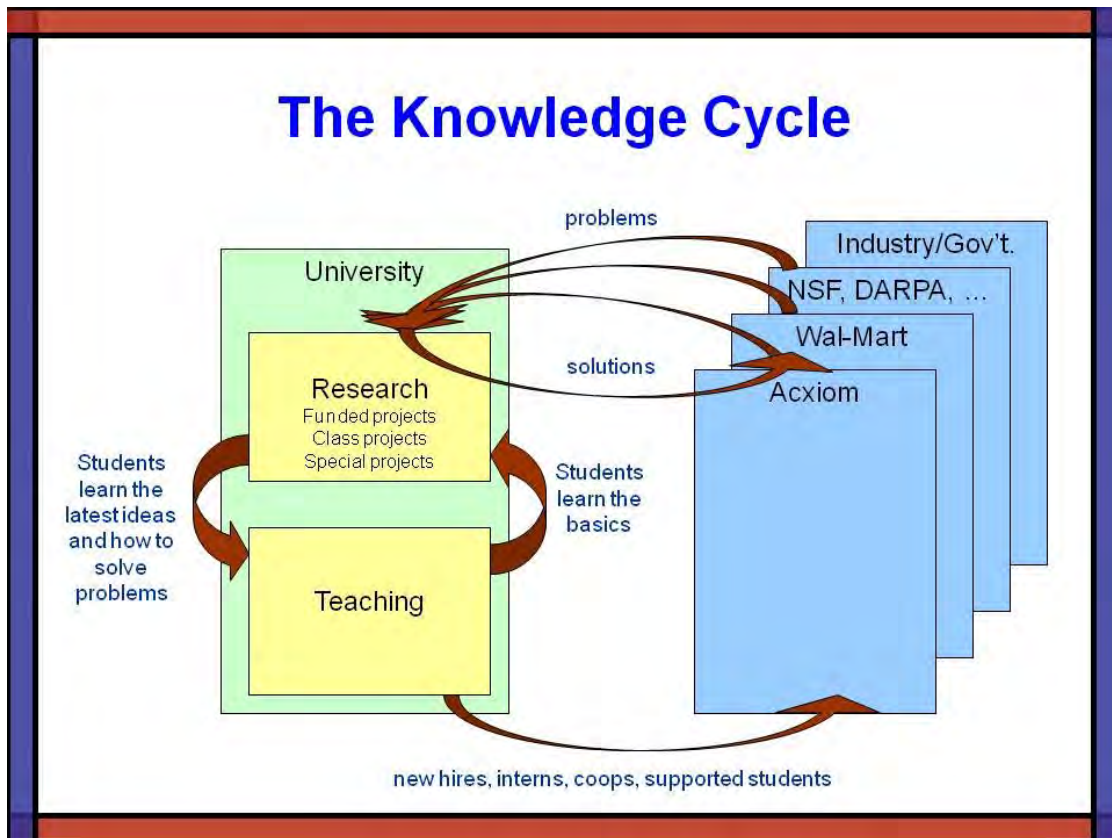


Figure 1: The Knowledge Cycle

Students may never notice that another main role of universities is research – the creation of knowledge. Indeed, sadly, it is not uncommon for a student to attend a university for four years and never really talk to professors about their research. When professors are not teaching, they spend much of their time devising new and better approaches to solving real-world problems. Generally, professors do not work solo – they are funded by industry or government and collaborate with colleagues and those students who get involved. The students may be graduate students earning a Ph.D. or Masters degree or undergraduates earning a Bachelor degree.

A university can be looked at as a business – it must be financially self-sustaining to survive and thrive. Students pay tuition and funding professor's funded research together pay for teaching and research. In return for funding, professors produce finished products – a trained workforce who have worked on or are aware of the latest industry problems as well as research results which they often publish. The Knowledge Cycle contains feedback loops:

- Students should intern or coop with industry during their undergraduate or graduate years to understand how the real world works.
- A professor's research often informs and enriches the student's class room experience.
- Students in turn can work with professors on research as part of their education. Students who get involved in research as undergraduates (via the Honors program or by talking to their professors) are more likely to go on to good graduate programs. For many students competing in today's world, the best competitive degree is a graduate degree.