

Science of Science Communication
PSYC 601b

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Session 10—Teaching science (in a polluted science communication environment), part 1

Some questions to consider:

1. What is the relationship—empirically—between “accepting”/“believing in” the evolution and “understanding”/“comprehending” it? Are they correlated with one another? Does the former have a causal impact on latter? Vice versa?
2. What is the relationship—psychologically— between “accepting”/“believing in” the evolution and “understanding”/“comprehending” it? Is it possible to “comprehend” or “know” without “believing in” evolution? Can someone “disbelieve” or “not accept” evolution and still *use* knowledge or comprehension of it to *do* something that knowledge of it requires? Are there things that people are enable to *do* by “belief” or “disbelief in” evolution? If the answer to the last two questions are both “yes,” can one person use knowledge or comprehension to do some things and disbelief to do others? What does it *mean* to “believe in” or “disbelieve in” evolution? Is it correct to equate the mental operation or state of “believing” or “disbelieving” in evolution with the same mental state or operation that is involved in, say, “believing” or “disbelieving” that one is currently sitting in a chair?
3. What—normatively—is (should be) the aim of *teaching* evolution: “belief,” “knowledge,” or “both”?
4. If one treats attainment of “knowledge” or “comprehension” as the normative goal, how should science educators regard students’ “beliefs”?
5. If one treats attainment of “knowledge” or “comprehension” as the normative goal of science education, how should one regard political or cultural *conflict* over belief in evolution?

Session 10 Readings (indexed to pagination of course readings):

1. Will H Blackwell, Martha J Powell & George H Dukes, <i>The Problem of Student Acceptance of Evolution</i> , 37 <i>Journal of Biological Education</i> 58-67 (2003).	794
2. B.A. Bishop & C.W. Anderson, Student Conceptions of Natural Selection and Its Role in Evolution, 27 <i>Journal of Research in Science Teaching</i> 415-427 (1990).....	799
3. Walter, E. M., Halverson, K. M., & Boyce, C. J. (2013). Investigating the relationship between college students' acceptance of evolution and tree thinking understanding. <i>Evolution: Education and Outreach</i> , 6(1), 26.....	805
4. A.E. Lawson & W.A. Worsnop, <i>Learning About Evolution and Rejecting a Belief in Special Creation: Effects of Reflective Reasoning Skill, Prior Knowledge, Prior Belief and Religious Commitment</i> , 29 <i>Journal of Research in Science Teaching</i> 143-166 (1992).	809
5. Anton E Lawson, A Scientific Approach to Teaching About Evolution & Special Creation, <i>The American Biology Teacher</i> 266-274 (1999).	821
6. Ronald S Hermann, Cognitive Apartheid: On the Manner in Which High School Students Understand Evolution without Believing in Evolution, 5 <i>Evolution: Education and Outreach</i> 619-628 (2012).....	826
7. Mike U. Smith & Harvey Siegel, Knowing, Believing, and Understanding: What Goals for Science Education?, 13 <i>Science & Education</i> 553-582 (2004).....	831
8. On (confused, confusing) "belief-fact" distinction.....	846
9. Donald Everhart & Salman Hameed, Muslims and Evolution: A Study of Pakistani Physicians in the United States, 6 <i>Evolution: Education and Outreach</i> 1-8 (2013).	846
10. Salman Hameed, Making Sense of Islamic Creationism in Europe (2014).....	850