

# Relations Between Intuitive Biological Thought and Scientific Misconceptions

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**Abstract:** Students enter educational settings with complex and well-established intuitive conceptual understandings of the world, which have important educational consequences. In biology, intuitive thinking can be characterized in terms of cognitive construals (anthropocentric, teleological, and essentialist thinking, Coley & Tanner, 2015). We examined relations between intuitive thinking and biological misconceptions, and how formal biology education might influence such relations. 137 biology and non-science majors completed measures of anthropocentric, teleological, and essentialist thinking, and indicated agreement/disagreement with common misconceptions and explained their responses. Teleological thinking (but not anthropocentric or essentialist thinking) predicted teleological misconceptions. Anthropocentric and teleological thinking (but not essentialist thinking) predicted anthropocentric misconceptions. Agreement with essentialist misconceptions was unrelated to intuitive thinking. Similar patterns for non-majors and majors suggests formal biology education may have little influence on relations between intuitive reasoning and misconceptions. These findings demonstrate a clear impact of intuitive thinking on learning biology at the university level.