

6. Achievements of Paradigm Shifters:

What conditions are necessary for rare individuals to make breakthroughs in a domain?

Introduction

What is a paradigm shift?

T. S. Kuhn introduced academia to the term "paradigm shift" in his book, *The Structure of Scientific Revolutions*, originally published in 1962. Even though Kuhn was writing strictly about scientific thinking, his ideas have been extended well beyond. In this survey, achievement refers to as the achievement of specialists, is similar to what Kuhn calls "normal science", or the research of scientists following established practice. He proposes that the "acquisition of a paradigm ... is a sign of maturity in the development of a scientific field" (Kuhn, 1970, p. 11).

Kuhn describes paradigm shifters as those scientists whose "achievement was sufficiently unprecedented to attract an enduring group of adherents away from compelling modes of scientific inquiry. Simultaneously, it is sufficiently open-ended to leave all sorts of problems for the refined group of practitioners to resolve" (Kuhn, 1970, p. 10). According to Kuhn, in the sciences, once a paradigm is accepted, the old one fades away.

In the social sciences and humanities although some older paradigms disappear, others may continue as alternatives to the new paradigm. Similarly, in the social sciences and humanities, diverse cultures may accept different paradigms. Even though paradigm shifts are usually accompanied by resistance, one cannot refer to a new development in any field as a paradigm if it doesn't attract followers who also accept its fundamental principles.

Copernicus brought about a paradigm shift in astronomy with his ideas about the planets revolving around the sun rather than the sun around the earth. Charles Darwin caused a still-publicly debated paradigm shift in biology with his theory of the origin of species. Susan B. Anthony and Elizabeth Cady Stanton's work for women's rights brought about a paradigm shift in law and democracy. Mahatma Gandhi's nonviolent politics brought about a paradigm shift in political activism. Florence Nightingale's innovations in hygienic patient care brought about a paradigm shift in medicine. Each of these individuals' achievements were initially faced with great resistance, ultimately gained broad acceptance, and, in some significant way, changed forever those individuals' fields of endeavor, sometimes after the death of the paradigm shifter.

Achievements of Paradigm Shifters in Art

What conditions promote unique achievements in art?

Very, very rarely in the histories of art in cultures across the globe, an individual art maker or thinker makes such a unique contribution to his or her artworld that the direction of the field is fundamentally changed. Some believe that the painter, Paul Cezanne, the art historian, Erwin Panofsky, may have been such persons in the domains of Modern European art making and art historical scholarship respectively.

There is a sense in which women's and minorities achieving recognition as full-blown members of the artworld during the long history of official and unofficial exclusion of women and minorities from European American artworld institutions, in itself, can be considered a paradigm shift (Nochlin, 1988).

The transition from Modernism to Postmodernism in art can be characterized as a paradigm shift, which was inspired by new thinking in various domains of social science and the humanities.

What do researchers say about the achievement of paradigm shifters?

According to Feldman unique achievements “represent a form of organization within a domain that has never before been accomplished in quite the same way” (1985, p.11). The sort of unique achievement Feldman refers to goes beyond the general sense in which every person’s achievements are unique because every human being is unique. He proposes that “individuals may at times fashion out new levels of organization within a domain or, in the most extreme cases establish a new or radically altered domain by transcending the constraints of an existing field or discipline to establish a major new order” (Feldman, 1985, p. 11). For Feldman not all novelties are unique achievements. He reserves the term "unique" for "novelties that effect changes in existing bodies of knowledge or establish entirely new realms of endeavor" (Feldman, 1985, p. 25).

Feldman also reserves the term "creative" for such achievements. He proposes that “while all creative advances in thought are in some sense unique, not all unique advances should be called creative. Creative advances result in substantial new contributions to bodies of knowledge; most unique advances, in fact, do *not* do this and therefore are not considered [by him] as creative” (Feldman, 1985, p. 11).

Feldman reports on research into creative abilities and finds little to guide the development of programs to foster creativity. He reports that "while different settings may provide somewhat different programs for enhancing 'creative potential,' almost all seem to draw heavily on the regular school curriculum" (Feldman, 1985, p. 96).

Feldman's views are consistent with those set forth by D. Kuhn (1999), M. Belenky (1986), W. Perry (1981), and King and Kitchner (1994). Achieving something like Belenky's Constructed Knowledge, Perry's Commitment Stage, Kuhn's Evaluative Level of understanding or King and Kitchner's Reflective Judgment would seem to be necessary (but not sufficient) to making a paradigm shift. The number of individuals who reach these levels is rather small in the general population. Those who proceed to make paradigm shifts are miniscule by comparison.