Rosalyn M. King, Ed.D., Professor of Psychology and Chair, VCCS Center for Teaching Excellence
Northern Virginia Community College, Loudoun Campus, Sterling, VA 20164
roking@nvcc.edu or 703-450-2629, USA -All Rights Reserved-

July 2009

Abstract

In this paper and presentation, I attempt to illustrate how psychology has represented the 3 cultures due unique evolutionary history interdisciplinary beginnings. The discussion begins with an overview of the controversy from the perspectives of C.P. Snow (The Two Cultures, 1959) and Jerome Kagan (The Three Cultures, 2009). A historical overview of the evolution of psychology and the interdisciplinary backgrounds of its contributors is presented outlining the specific contributions made from ancient Egypt to the late 19th century. Perspectives of schools and subfields embracing the interdisciplinary focus are presented. Portraits of particular psychological scientists who have integrated perspectives from across the three cultures are highlighted, along with key concepts and principles. Finally a discussion of implications and future directions for psychology is explored.

Introduction

Three Cultures: Controversy and Tension

More than 6 decades ago, C.P. Snow claimed there is a tension and breakdown of communication between the natural sciences, the arts and humanities, and religion. Further, he claims the quality of education is on the decline and few trained scientists are well versed in other subjects to broaden their perspective. Few read works outside of their discipline.

In 2009, Jerome Kagan responds to Snow's work by conducting his own assessment and analysis of the 3 cultures and their status since Snow's claims. Kagan agrees. The cultures still take on different perspectives and approaches to the meaning of truth. Natural scientists rely on intuition and social scientists seek to understand a phenomenon or a problem.

Kagan outlines the major obstacles for each culture and their strengths. Kagan also agrees to the

tensions outlined by Snow decades ago. Moreover, he claims that an even wider gulf exists today, including the status hierarchy. (See Figure 1.1, Hierarchy of the Three Cultures).

Kagan recommends how each culture can improve. He illustrates for example, how the discipline of Art could be stronger by knowing more subject matter from other disciplines.

Kagan stresses the importance and need for more interdisciplinary and multidisciplinary collaboration and teaching. Greater mutuality and understanding is needed among the members of the cultures.

He ends his assessment with an analogy for each of the cultures: ""It is time for the members of the three cultures to adopt a posture of greater humility for, like tigers, sharks, and hawks, each group is potent in its own territory but impotent in the territory of the other." (p.275)

Psychology as a Separate Science

Historically, psychology has been viewed as a separate science apart from the social sciences due to its unique interdisciplinary nature and collaborations. Present day psychology has developed on the fringe of the natural and social sciences.

Recognition as a Science

While more popularly known for its therapeutic aspects and perhaps for "pop" psychology, psychology has regained its recognition as a science—from the National Association for the Advancement of the Sciences and the National Science Foundation, among other organizations of science.

Paradigm, Methodology and Scope

There is no set paradigm in psychology and multiple methodologies. Psychology is interdisciplinary and global.

Historical Evolution and Interdisciplinary Focus

Psychology is a young science only becoming a separate discipline from philosophy in the late 19th century. It was originally in the sub branch called *mental philosophy*.

History traces contributions to psychology's evolvement by scientists and philosophers with interdisciplinary interests and backgrounds. Beginning in early Egypt and Greece and moving across the world, scholars made unique contributions and theoretical explanations about human nature.

Perspectives: Schools and Subfields Embracing Integrated Analyses

Evolutionary Psychology draws from all disciplines to understand changes in human nature over time. (See Figure 3.1, Evolutionary Psychology and its Interdisciplinary Focus.)

Comparative Psychology evolved in the late 19th century as a result of the confluence of evolutionary biology and experimental psychology. Today, biologists, anthropologists, ecologists, geneticists and others contribute to the field. (See Figure 3.2, Overview of Comparative Psychology.)

The Cognitive Sciences have been evolving from the beginning of philosophy and epistemology. The field has made as its goal, understanding the nature of mind and human knowledge. Computer science, artificial intelligence and robotics are direct outgrowths from the scientific advances and theories derived in the cognitive sciences. (See Figure 3.2, Overview of the Cognitive Sciences.)

Quantum Physics and Quantum Psychology has been emerging since the 1900s. Physics has always been an integral part of psychology from its early beginnings. Quantum physics illustrates how everything in the Universe, in all dimensions of life and reality ultimately consist of "Quanta" or energy. This energy also pervades everything and is integral to everything in existence. It is considered living mind, living consciousness. Everything in the Universe has its being within this infinite intelligent energy. Today, physicists and psychologists collaboratively explore the realm and dimensions of quanta. (See Figure 3.4 for an overview of Quantum Physics and Quantum Psychology.)

Energy Medicine and Energy Psychology is in the domain of complementary and alternative medicine and uses a variety of techniques in psychological and physical healing. The National Institutes of Health's National Center for Complementary and Alternative Medicine (NCCAM) is in the forefront developing strategies and techniques, conducting clinical trials and designing empirical methodologies to test the healing impacts, successes and failures from energy medicine approaches.

Psychologists and medical doctors are increasingly moving into the field and practice of energy medicine, combining their understanding of medicine and psychology to heal mind and body. Professionals include individuals such as *Dr. Deepak Chopra, Dr. Norman Shealy, Dr. Caroline Myss, Dr. Joan Borysenko,* and many others. (See Figure 3.5 for an overview of energy medicine and psychology.)

Portraits of Scientists Using Integrated Approaches

Carl Jung

Carl Jung is considered one of the greatest contributors to the field of psychology because of his depth and breadth of understanding and interdisciplinary knowledge. Considered a healer of souls and a healer of the culture—"an efficient servant of humanity that the world has seldom

seen." Jung had an interdisciplinary background and training across the three cultures. He has written a wide variety of treatises on the nature of the psyche from all perspectives.

Jung developed **depth and analytical psychology** and the search for individuation and wholeness.

Jung used his religious and spiritual understanding, and his knowledge of world religions to analyze the psyche of man. He also studied the teachings of the **Gnostics** (the knowledgeable ones) to understand the unconscious processes of the psyche and individuation. He outlines the Gnostic nature of the human soul and its path toward wholeness.

Jung was a scholar of **alchemy**. He understood chemistry and applied it to psychology and paralleled the chemical process to a psychological alchemy of transformation of the psyche—from darkness into light.

Jung was an **artist and literary scholar**. He wrote a treatise on the role and importance of literary scholars and artists to understand the concepts set forth in psychology to aid in the creative productivity and greater depth of their work.

William James

James moved across the three cultures to develop his Gifford lectures and publication on *The Varieties* of *Religious Experience*, analyzing pathology, neurology, and healthy-mindedness.

James outlines in great detail the outlooks and paths of the sick soul and the healthy soul. He performed this pioneering work in hopes of the development of a science of religion.

James also developed the theory of emotion outlining the organic/physiological basis of emotional expression.

James contributed much to the field of cognitive science with his careful delineation of the streams of consciousness and school of functional thinking.

Howard Gardner

Gardner is a revolutionary thinker and scholar, a cognitive developmental psychologist and has a wide interdisciplinary background.

Gardner created a scientific revolution with his theory about the expanded intellectual capabilities of man—the theory of multiple intelligences, with nine empirically-based intelligences.

Gardner has conducted wide-range research investigating the **content of the mind**: how minds develop; how they break down; how they are organized; and how they change and can be changed in productive directions.

He has conducted more than 20 years of work and research in neuroscience and neuropsychology, studying and understanding the minds of braindamaged individuals.

Gardner provides a model for the ethical responsibility of the scientist to the public and to the academy.

He stresses the importance of seeking deeper understanding and meaning in one's discipline rather than simply knowing and repeating the facts.

Gardner acknowledges the importance of interdisciplinary study to broaden understanding and for preparation for living in a global world.

Implications and Future Directions

The new training mandates will dictate that psychology become more widely interdisciplinary and multidisciplinary in the future.

Multidisciplinary research teams could contribute a more thorough understanding of human and animal nature.

Future students and professionals of psychology will be prepared for work in the global world and there will be a promotion of increasing international exchanges.

The field of psychology and its careers will continue to grow.

Many psychological scientists continue to work collaboratively and across the cultures.

Technology and improved methodologies for scientific studies has advanced the field and must continue to build upon these advances.

Psychology is one of the largest and most rapidly growing disciplines today remaining a hub science.

References

Browne, Janet. (2006). *Darwin's origin of species: A biography*. New York: Grove Press.

Cacioppa, John T. (2007). Better interdisciplinary research through psychological science. *Observer*, 20(10), 3.

Dawkins, Richard. (1976/2006). *The selfish gene*. Oxford: Oxford University Press.

Dawkins, Richard. (1993). The evolutionary future of man: A biological view of progress. *Economist*, (328)87.

De Aquino, Fran. (2007). Physical foundations of Quantum Psychology. Brazil: Maranhao State University. Online: http://htpprints.Yorku.ca/archive/00000297.

Evolutionary psychology: Psychological aspects of human evolution. Online.http://www.wilderdom.com/personality/L7-1EvolutionaryPsychology.html.

Gardner, Howard. (2002a). A blessing of influences: An autobiographical essay for Gardner under fire. Online: www.howardgardner.com.

Gardner, Howard. (1997). Extraordinary minds: Portraits of exceptional individuals and an examination of our extraordinariness. New York: Basic Books.

Gardner, Howard. (2009). How education changes: Considerations of history, science and values. Online: www.howardgardner.com.

Gardner, Howard. (1999). *Intelligence reframed: Multiple intelligences for the 21st century.* New York: Basic Books.

Gardner, Howard. (2002b). *The ethical responsibilities of scientists*. Online: www.howardgardner.com.

Gardner, Howard. (1987). *The mind's new science: A history of the cognitive revolution*. New York: Basic Books.

Gottschall, Jonathan & David Sloan Wilson, eds. (2005). *Evolutionary theories of art.* Evanston, ILL: Northwestern University Press.

Hoeller, Stephan A. (1989). *Jung and the lost gospels.* Wheaton, Ill: The Theosophical Publishing House.

Hoeller, Stephan A. (1982). *The Gnostic Jung and the Seven Sermons to the Dead.* Wheaton, III: The Theosophical Publishing

Jackson, Peter. (2002). Quantum physics and human consciousness: The status of the current debate. Working Paper. The Open Polytechnic of New Zealand.

James, William. (1997). *The Varieties of Religious Experience*. New York: Touchstone.

Jung, C.G. (1933). *Modern man in search of a soul.* Orlando: Harcourt, Inc.

Jung, C.G. (1977). *Psychology and the occult*. New Jersey: Princeton University Press.

Kagan, Jerome. (2009). *The three cultures: Natural sciences, social sciences, and the humanities in the 21*st *century.* Cambridge: Cambridge University Press.

Papini, Mauricio R. (2002). *Comparative psychology: Evolution and development of behavior*. Upper Saddle, NJ: Pearson-Prentice Hall

Snow, C.P. (1959 & 1998). *The two cultures*. Cambridge, Cambridge University Press.

The Complete Works of Charles Darwin. (2009). Online: http://darwin-online.org.uk/.

Watson, Robert I. and Rand B. Evans. (1991). *The great psychologists: A history of psychological thought*. New York: Harper Collins Publishers.

Wulff, David M. (1997). *Psychology of religion: Classic and contemporary*. New York: John Wiley & Sons, Inc.

Figure 1.1 Hierarchy of the Three Cultures

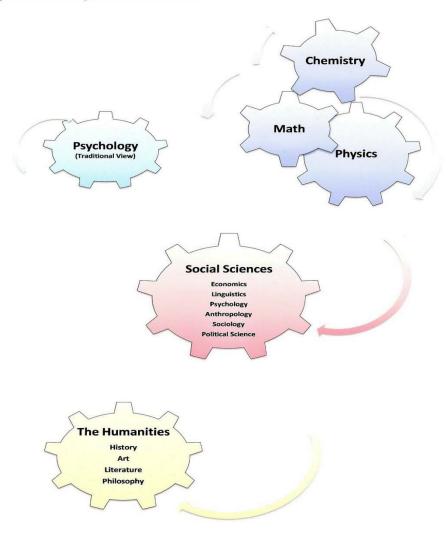


Figure 2.1 Historical Contributions to an Integrated Psychology

Early Egypt

Hermes Trismegistus- Scribe of the Gods-Wisdom, Astrology, Alchemy- The Kybalion

Early Greece

- . Homer-Literature & Psychology-Iliad and Odyssey
- Sophocles-Major Tragic Poet-Oedipus the King
- Thales-Philosophy, Physics, Math; Nature of Matter
- Heraclitus-Nature of Knowledge-Essence of Things
 Alcmaeon-Physician; Brain Seat of Thought
- Pythagoras-Philosophy- Math; Theorem-Body & Soul
 Democritus-Atomic Theory of Universe

- Hippocrates-Medicine; Theory of Humors/Disease/Temperaments
 Socrates-Philosophy; Socratic Questioning-Moral Development
- Plato-Philosophy;3 Aspects of the Psyche-Neuroscience of Knowledge-Ability to Reason

Early Greece

- Aristotle-Philosophical Psychology-Metaphysics- Botany- Zoology-Biology-Anatomy-Sensation-Perception-Cognitive Psychology; Theory of Fine Arts
- Theophrastus-Botany-Religion-Politics-Education-Rhetoric-Math-Astronomy-Logic-History-Ethics- Psychology- Meterology; Personality Sketches-Physiological Psychology-Characters
- Herophilus-Anatomy; Brain Center of Nervous System and Intelligence-**Tendons from Nerves**
- Erasistratus-Anatomy-Physiology; Nervous system (arteries, veins, nerves)-Pneuma-Motor and Sensory Nerves
- · Galen-Philosophy-Medicine-Anatomy-Physiology; Theory of Four Temperaments

Patristic Period

- . Known as the Period of the Church Fathers
- Origen-Theology; Leader of the Church-Teachings of Jesus-Christian Theology
- Plotinus-Philosophy; Morality & Ethics-Mystical Union-Supernaturalism
- St. Augustine-Philosophy-Theology;Incorporated Christian Doctrines in Psychology-Redefinition
- St. Thomas Aquinas-Theology-Philosophical Psychology-Moral Theology;Immortal Soul
- · Peter of Spain-Medicine-Theology-Logic; Compendium of Medicine-DeAnima-History of Psychology

Renaissance Period

- René Descartes-Languages, Math, Humane Letters, Physics, Ethics, Logic, Metaphysics; Mind & Body Separate
- Gottfried Leibniz-Philosopher-Scientist-History-Logic-Law; Theory of the Monad-Inventor of Calculus

Figure 2.1 Historical Contributions to an Integrated Psychology

Great Britain: Empiricism, Associationism & Mechanism

- Sir Isaac Newton-Physics;Spectrum of Color from White Light-Sensation and Vision-British Empiricism-Physical Nature, Material Particles, Motion
- Thomas Hobbes-Political Philosophy.Human Nature-Social Conduct-Matter in Motion-Nervous System
- John Locke-Greek Rhetoric-Moral & Political Philosophy-Chemistry-Meteroology-Medicine; Human Understanding-Elements of Mind
- George Berkeley-Theology-Math-Physics-Morals-Economics-Medicine; Mentalism, -Vision-Depth Perception
- James Mills-Theology, Economics. Journalism, History; Sensations & Ideas Primary to Mind
- John Mills-Philosophy-Economics-Politicaal Science-Psychology; Mental Chemistry
- Julien Offray de La Mettrie-Fine Arts, Theology, Medicine; Natural History of the

The Scottish Realists and The German Idealists

- *Thomas Reid-Minister-Philosophy-Faculty Psychology; Faculty of the Soul-Faculties of Mind-Human Thought
- Thomas Brown-Philosophy-Literature-Medicine; Observartions on the Zoonomia of Erasmus Darwin-Philosophy of the Human Mind
- Immanuel Kant-Philosophy; Reason and the Laws of Mental Functioning, Anthropology
- Johann Herbart-Philosophy; Defined Psychology as a Science based on Experience, Metaphysics and Mathematics-Interference in Learning
- Kant and Herbart contributed to psychology becoming a separate science from philosophy

Physiology, the Allied Sciences, Psychophysics and Experimental Psychology

- · Phrenology-the science of character and morphology of the skull
- Pierre Flourens-Performed experiments on the functions of the brain.
- Paul Broca-Medicine-Physical Anthropology; Brain Impairments in Frontal Lobe of Brain-Speech Impairments-Aphasia
- Herman Von Helmholtz-Physics-Hydrodynamics-Electrodynamics-Meterological Physics; Neural Physiology-Theory of Color Vision
- Gustav Fechner-Physiology-Physics-Philosophy-Art; Psychophysics-Difference Threshold-Fechner's Law
- Wilhelm Wundt-Medicine-Physiology-Experimental Psychology; Introspection-Experimental Methodology-Philosophical Studies-Structuralism-Content Psychology

Darwinian Evolution and Psychology

- Charles Darwin-Medicine-Theology-Natural Science
- Published On the Origin of Species; The Descent of Man and Selection in Relation to Sex; The Expression of the Emotions in Man and Animals.
- Predicted new role for Psychology
- Influenced psychological thought and methodology
- Pioneered the field of Evolutionary Psychology
- Made impact on Biology, Physics, Philosophy, Religion, Linguistics and Literature, and Eugenics

Individual Differences and Measurement

- Sir Francis Galton-Anthropology-Heredity-Meterology
- Brought union between psychological methods of measurement and theory of evolution
- Psychology of Individual Differences
- Published Hereditary Genius and Inquiries into Human Faculty and its Development
- Developed Statistical Procedure of Correlation
- Originator of Mental Tests

Figure 3.1 Evolutionary Psychology and its Interdisciplinary Focus



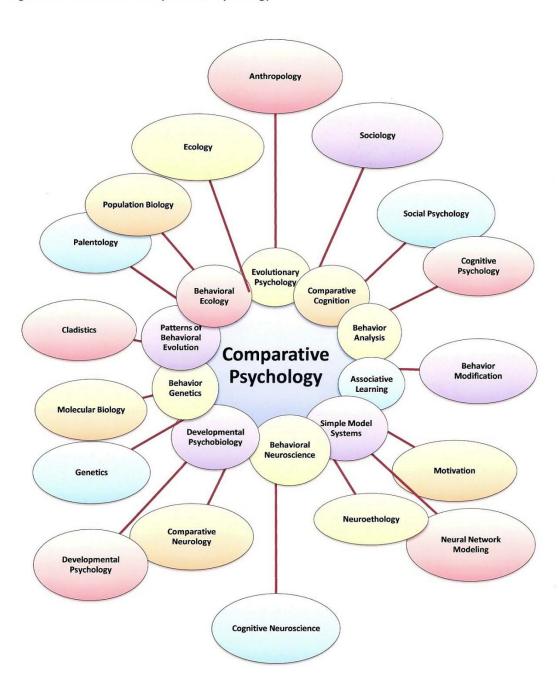
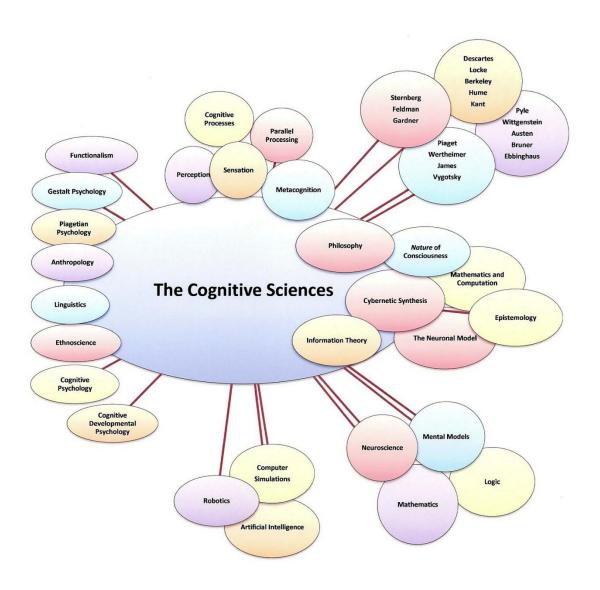


Figure 3.2 Overview of Comparative Psychology

Figure 3.3 Overview of the Cognitive Sciences



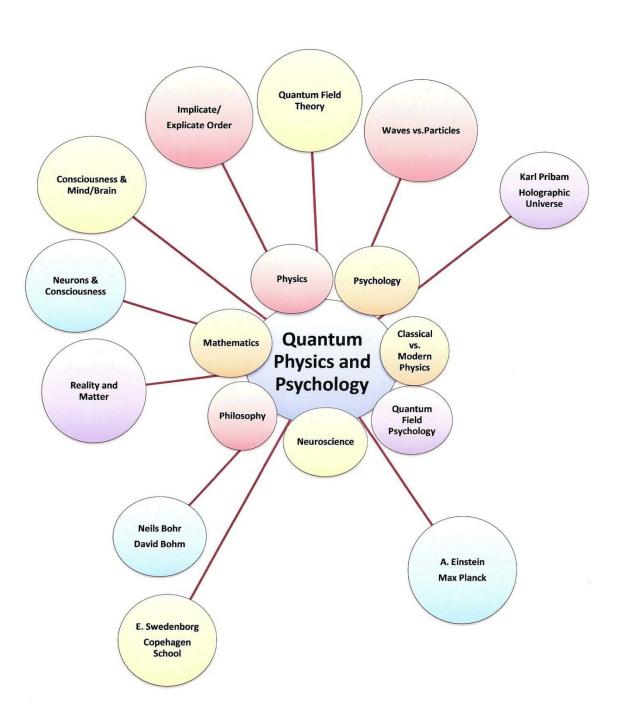


Figure 3.4 Overview of Quantum Physics and Quantum Psychology

Quantum Physics Biology Vitalism Bioenergetics Neuroscience Chemistry Cranio-sacral Therapy **Biochemistry** Mind-Body Medicine **Energy Medicine** Homeopathy and Energy Herbal Medicine **Psychology Putative Energy** Veritable Energy Medicine Medicine Yoga Magnetic Therapy Acupuncture Light Therapy Qi Gong Ayurvedic Medicine Sound Energy Therapy Whole Medical Systems **Sound Therapy Energy Field** Music Therapy Therapy Primoridial Sound Therapy Bioenergy Electromagnetic Energy **Haptic Therapy** Orgone (Touch) Magnetic Therapy Chi Johrei Ki

Massage Polarity Therapy Rolfing

Figure 3.5 Overview of Energy Medicine and Energy Psychology