

a series of longitudinal studies of schizophrenia that disproved the long-held claims that schizophrenia was a lifelong debilitating disease (Davidson et al.). Between 22 % and 65 % of participants in the longitudinal studies showed partial to full recovery, which in this context was defined as an improvement of symptoms lifting the interference of the condition on daily functioning (Davidson et al.). The second concept of recovery emerged from the mental health consumer/survivor movement. In contrast to the medical aspects of symptom amelioration, recovery in the consumer/survivor movement may see no reduction in clinical symptoms; instead, it refers to overcoming the effects of being a mental health patient (Davidson et al.). Recovery in this context may then be seen as recovery from poverty, isolation, unemployment, inadequate housing, and so on. This discrepancy in definition has led to controversy in the application of recovery-oriented services in mental health care.

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## Online Resources

- [www.cultureofrecovery.org](http://www.cultureofrecovery.org)  
[www.samhsa.gov/recovery](http://www.samhsa.gov/recovery)

## Reductionism

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## Introduction

Reductionism is one of the most important epistemological and methodological issues that arise when considering both the relationships between different levels of organization of matter and the links between different scientific disciplines (sociology, psychology, biology, physics, etc.). In the domain of psychology, reductionism is often linked with the mind-body problem. The issue of reductionism is also connected with the examination of research methods of psychology as a science, particularly the treatment of the analysis of psychological phenomena into their components as research strategy.

## Definition

Reductionism is an epistemological and methodological stance which absolutizes the reduction of complex systems or problems to their simple components or elements. The term “reduction” originates from the Latin term “reducere” which meant to lead back, bring back, and restore. Reduction is a legitimate and useful method of scientific investigation of complex systems and problems through analysis of their components. The reduction of the higher-level structures to lower-level components is constructive only when the researchers are aware of the specific characteristics of the subject of their investigation, the conditions, and the limitation of reduction. Reductionism as the opposite of holism accepts the view that all objects or systems are reducible to lower levels in the hierarchy of their constitution.

At least three types of reductionism can be distinguished: ontological, methodological, and theoretical.

Ontological reductionism is the position that the higher-level structures are reducible to lower-level structures. The world is not homogeneous, but stratified and composed of different levels of organization with varying degrees of complexity. However, ontological reductionism leads to the elimination of the higher level to a single, lower-level substance.

Methodological reductionism is a research strategy based on the presentation of analysis as the only scientific approach to the explanation of the higher level of organization in terms of the lower level. Reducing methods of psychology and other sciences to methods of physics is a typical form of methodological reductionism (Jones, 2000). Reductionism as a research strategy has at least three main characteristics: quantification, a linear-serial way of proceeding, and a deductive and analytical way of reasoning (Verschuren, 2001).

Theoretical reductionism is an attempt to explain the terms and laws of a theory of higher-level phenomena on the basis of the terms and laws of another theory of lower-level phenomena. In the 1930s, logical positivists with their program “Unity of Science” argued that all scientific sentences should be in a physical language (Ney, 2008). Science is presented by logical positivists as a single unified system, in which higher-level sciences such as sociology and psychology are reducible to basic science (physics) (Bem & Loorende Jong, 2001). Physicalism is based on a reduction of all sciences – including social sciences – to physics which pretends to provide the ultimate “explanations.” Disciplinary imperialism produces claims that the particular discipline (physics) is more fundamental than any other disciplines.

## Keywords

Reduction; analysis; structure; biological determinism; physicalism

## Traditional Debates

Philosophers and scientists are involved in heated debates on reductionistic and holistic approaches in psychology and others disciplines. The debate about reductionism focuses on the following question: Do the higher-level processes derive from the lower-level processes or not?

Some psychologists argue that reductionism could be considered as a scientific stance which contributes to interdisciplinary cooperation by bringing different theories together (Barendregt & van Rappard, 2004). From this point of view, reductionism is a way to build bridges between different scientific disciplines and various theories.

In the first decades of the twentieth century, psychology suffered from “physics envy” expressed by its tendency to reproduce the methods of physics as a “real science” (Leahey, 1991). The behaviorists from a physicalist standpoint attempted to give the status of “real science” to psychology by reduction of mental states to external behavior explained in terms of stimulus and responses.

Since the first steps of psychology as independent science, the mainstream of psychological research has become reductionist, by decomposing complex psychological phenomena into independent, separated, atomistic elements. In consequence, atomism is an implicit assumption of reductionist research strategy. Mainstream positivist psychological research promotes fragmentation reducing the qualitative properties to abstract, homogeneous quantitative units (variables) (Ratner, 1997).

## Critical Debates

There is a wide variety of criticism against reductionism. Gestalt psychologists demonstrated in a series of experiments that the reductionist approach did not adequately explain how perception works and, generally, the human mind. Gestalt psychologists offer evidence that the whole of perception is more than a sum of the parts.

Vygotsky (1987), the founder of cultural historical psychology, criticized the reduction of higher-level psychological processes to the lower-level elements. Vygotsky demonstrated the limitations of the analysis of psychological phenomena into separated elements studied in isolation. In contrast to analysis by elements, he suggested analysis by units which contained the basic characteristic of the whole. The issue of units of psychological research remains a crucial, open-ended question in psychology.

Reductionism is not a purely scientific or philosophical matter, but it has political significance in our social life. The reduction of the social to the individual is not a neutral theoretical stance, but it could diminish the importance of social relations as an explanation of psychological phenomena. The treatment of individuals as solely responsible for their problems, ignoring the wider social context of their activity, is a politically problematic approach.

From the standpoint of biological determinism, society can be reduced to a collection of individuals and the individuals to a collection of genes which provide a sufficient explanation of human behavior. Biological determinism claims that natural and intrinsic differences between individuals determine inequalities in their status, wealth, and power (Lewontin, 1982). Cultural evolution is presented as a mere extension of biological evolution through natural selection. The political implication of biological determinism is that society cannot be transformed, because the characteristics of human nature are genetically fixed, eternal, and unchangeable (Lewontin, 1982). Gould (1996) and other critical scientists analyzed various episodes of biological determinism in North America psychology (the introduction of the IQ test, the publication of book *The Bell Curve* by J. Herrnstein and Charles Murray, etc.) and demonstrated how biological determinism serves particular sociopolitical purposes (immigration restriction, racial discrimination, student classification, reduction of government spending on social programs, etc.).

In conclusion, it can be said that reductionism is a controversial epistemological and methodological stance which serves to bridge different

theories from different disciplines. Building a theoretical framework connecting the high-level structures with the lower level, beyond simplistic reductionism is a crucial issue for contemporary science.

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## Reflexivity

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## Introduction

Over the last half century, reflexivity has received attention across the human sciences although far less so in psychology than in its kindred