

# Growing From Childhood into Adolescence: The Science of Cyber Behavior

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## ABSTRACT

*In this theoretical review paper, the authors discuss five important issues about the science of cyber behavior as a field of scientific research. First, they argue that the science of cyber behavior as a field of research is entering its adolescence after growing from its childhood, but before spearheading into its adulthood. The paper reviews the current understanding of human behavior in general and state that behavior sciences have generated extensive knowledge about human behavior theoretically, empirically, and methodologically across multiple disciplines. Next, the authors focus on cyber communication as an example to illustrate current knowledge about various types of cyber behaviors. They showcase exemplary research programs on cyber behavior in four disciplines of behavioral sciences, social psychology, cognitive psychology, communication studies, and sociology. Finally, the paper outlines future research programs in five major directions for further development of the field. Taking the opportunity to commemorate the inaugural issue of the International Journal of Cyber Behavior, Psychology and Learning, the authors attempt to draw the first sketch of the science of cyber behavior from the perspective of history of science.*

**Keywords:** Cyber Behavior; Cyber Communication; Human Behavior; Science of Cyber Behavior; Theory of Cyber Behavior

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## WHAT IS THE INTELLECTUAL STAGE OF THE SCIENCE OF CYBER BEHAVIOR?

Cyber behavior represents various activities that humans engage in while connected to the Internet. It has been studied for at least 25 years since Sherry Turkle published her seminal book *Second Self* (Turkle, 1984). From the perspective of history of science, one might ask an

important question: What is the intellectual stage of the science of cyber behavior as a field of scientific inquiry? In other words, how do we have a general assessment of the current status of knowledge about cyber behavior? How do we know about quantity and quality of research in cyber behavior? How do we reflect on the past history and foresee the future direction of the field?

A person's life generally consists of three major developmental stages, childhood, adolescence, and adulthood (Berk, 2008). Childhood is the initial stage of human development for

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individuals to develop fundamental physical, linguistic, cognitive, and social abilities. Adulthood is the final stage for individuals to perform independently in the society with matured physical, cognitive, and social abilities. Adolescence is a transitional stage between childhood and adulthood. Taking the perspective of human development, metaphorically, we could consider the science of cyber behavior as growing from childhood into adolescence. This is because the field has developed a fundamental knowledge and methodology base in the past 25 years of its childhood (e.g., currently 10-20 academic journals publishing cyber behavior articles), but has not yet fully matured intellectually and widely recognized as an independent field of research (e.g., there is no one entry covering cyber behaviors among 4,000 entries of International Encyclopedia of Social and Behavioral Sciences). Thus, we would argue that the field is currently in the transitional stage of adolescence. One of useful ways to collect evidence and substantiate this assessment is to examine both quantitatively and qualitatively the current status of scholarly journals focusing on cyber behavior.

For instance, *Computers in Human Behavior* is one of the earliest journals that published research on cyber behavior since 1985. Within 25 years, it has published approximately 1,400 articles examining the use of computers from a psychological perspective. For another example, *Cyber Psychology & Behavior* has published extensively on the influence of the Internet, multimedia, and virtual reality on behavior and society since 1998, producing about 900 articles in total. There are 10-20 journals that exclusively or frequently publish studies on cyber behavior, with an annual publication of approximately 1000 articles, including quite a few influential ones. This is a good indicator that the field of cyber behavior research has grown up from its childhood into its adolescence.

The publication of the inaugural issue of *International Journal of Cyber Behavior, Psychology and Learning* (IJCBLP) could be another timely and significant event in the history of the science of cyber behavior since

IJCBLP was born when the field is entering its adolescence. We would like to take this opportunity to look back on its childhood, look into its adolescence, and look forward to its adulthood. In this theoretical review paper, we first briefly discuss human behavior (its key features and major research), extensively review human cyber behavior (its key features and major research), quickly outline the field, and conclude with our suggestions for further development of the field.

## WHAT DO WE KNOW ABOUT HUMAN BEHAVIOR?

To best understand cyber behavior in a broad theoretical context, it is useful to distinguish three pairs of concepts, behavior vs. environment, human behavior vs. animal behavior, and cyber behavior vs. real-life behavior.

First, behavior, often in relation to the environment, refers to the actions or reactions of an object or organism in the real-life environment. Behavior can be conscious or subconscious, positive or negative, overt or covert, and voluntary or involuntary.

Second, human behavior, often in relation to animal or machine behavior, is generally defined as the collection of behaviors exhibited by human beings in the environment (e.g., driving, fighting, teaching, communicating) rather than by animals or machines. It is influenced by various factors such as culture, attitudes, emotions, values, ethics, authority, rapport, persuasion, coercion and/or genetics.

Third, cyber behavior (online behavior), often in relation to real-life behavior (offline behavior), refers to various types of activities people engage in while connected to the Internet (e.g., e-learning, e-shopping, e-gaming, e-dating, or e-war) instead of participating in the real life world. To best understand cyber behavior, it is important to understand three basic issues: (1) various forms of human behavior in the real world, (2) various forms of human behavior in the cyber world, and (3) the complex interactions and interrelations between

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