

I Underlying foundations of constructive controversy

INTRODUCTION

“NO! NO! NO! NO!” yelled one artist to another as he viewed what the other had painted during the day. “You do not understand! This is not what we are trying to do!” “It is you who do not understand!” the other replied. “This is what we talked about this morning!” “This is exactly what we are trying to achieve!”

Such heated discussions were common between two of the greatest painters of the early twentieth century. They had an intense creative collaboration filled with conflict. They dressed alike, in mechanics' clothes, and jokingly compared themselves to the Wright brothers (Orville and Wilbur). From about 1908 to 1912, they saw each other almost every day, talked constantly about the revolutionary new style they were developing, and painted as similarly as possible. Many of their respective works from those years were indistinguishable. In many cases, only art experts could or can distinguish between a painting by one or the other. They were deeply committed to their goal of creating a new style. Usually, they would meet for breakfast to discuss what they planned to paint during the day, and then spend all day painting separately. Each evening, they would rush to the other's apartment to view what the other had done, which they proceeded to criticize passionately. A canvas was not finished until the other painter said it was. They engaged in intense conflicts about the nature of the new style they were trying to create and the way in which they were expressing it in their paintings. One of the painters described it as climbing a mountain together, being roped together, knowing their survival depended on each other. The disagreements and conflicts over the nature and direction of their work were intense, spirited, illuminating, and remarkable. One of the painters stated that the things they said to

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each other would never be said again, and even if they were, no one would understand what was meant anymore.

The two artists were Georges Braque and Pablo Picasso. The new style they were creating was Cubism. It was through their commitment to a mutual goal and their intense intellectual conflicts and arguments that they gained the creative insights necessary to do so. It is these two elements (commitment to a common goal and intellectual conflict) that provided the engine that powered their creativity, innovation, and productivity.

PHENOMENA UNDERLYING CONSTRUCTIVE CONTROVERSY

This book focuses on the theory, research, and applications of constructive controversy. It is one of the most effective methods of enhancing creativity and innovation, high-quality decision making, effective teaching, and constructive political discourse available. In order to present the theory and research on constructive controversy, however, it is first necessary to present the underlying frameworks of cooperation and conflict. Constructive controversy is a combination of cooperation and conflict, and while it can stand on its own, these two underlying phenomena are essential to understanding its basic nature. In this chapter, therefore, we will discuss the two underlying phenomena: cooperation and conflict. In addition, the work on constructive controversy represents a classic example of the interrelationships among theory, research, and practice, which we will also discuss in this chapter.

COOPERATION

Historically, there are scientists and others who believe that competition underlies most of human behavior (Johnson & Johnson, 1989). From the evolutionary lens of Darwin and others, on Earth there is a continual struggle for existence in which competitiveness, the striving for domination, and winning are at the very heart of nature and human existence. The fittest win the struggle for life and the weaker

perish. What we see in the world today are the winners; the losers have disappeared. This is the basic law of biology: what you see existing in the world are the life-forms that have won the contest for survival. What you do not see are the life-forms that have lost, and consequently they are gone. It all started at least four billion years ago with the first primitive cells. If one of the first little cells had an advantage over the others, it would reproduce faster and prosper, while its rivals perished. This view of life dominates the thinking of many people. Species compete over habitat and food sources. Those who lose disappear. Out of the various types of humans, *Homo erectus* and Neanderthals (who had bigger brains than we do and were much stronger physically) lost (perhaps because of their inability to cooperate) and disappeared while we survived. Competition is seen as the basic underlying mechanism of life, and even today countries and cultural and religious groups seem to compete with each other to see who will survive and who will vanish. A question is, does competition to survive contain its own seeds of destruction? There can be no doubt that competition breeds competition, which tends to result eventually in mutual destruction (Johnson & Johnson, 1989).

There is a counterview to this social Darwinism (Johnson & F. Johnson, 2013). What is lacking from the competitive struggle for survival view is that beings of every level of complexity cooperate to live. Some of the earliest bacteria formed strings, where certain cells in each living filament die to nourish their neighbors with nitrogen. Some bacteria hunt in groups, similar to a pride of lions or a pack of wolves. Ants form societies of millions of individuals that can solve complex problems, from farming to architecture to navigation. Bees tirelessly harvest pollen for the good of the hive. Crows serve as sentries to guard the members of their flock. At every level of existence, cooperation is evident.

Human society may especially thrive on cooperation. Even simple acts, such as buying groceries at a store, draw on the labors of a small army of people (e.g., farmers, transportation companies, processing plants, grocery stores, inspectors, and so forth) from many

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different countries. The procedures for cooperation and coordination are passed on from generation to generation. Great ideas are generated, communicated to others, used, embellished, and transformed from the originators of the idea to future generations through socialization. What has made our branch of the human species so successful is that we are supreme cooperators, the greatest on Earth. Try cramming ten chimpanzees in an SUV for a four-hour drive and see what happens. Our incredible ability to cooperate is a primary reason we have survived in every ecosystem on Earth (from deserts to frozen wastes) and perhaps soon on ecosystems on other planets. Our cooperation extends beyond a group of people working to achieve a common goal; it includes large-scale, long-term views of the common good of our society and species as a whole. This does not make sense when viewed from a traditional Darwinian perspective. By helping others a person hurts his or her own chances to “win, flourish, reproduce, and survive.” Your car breaks down and a stranger drives you to a gas station to get a tow truck even though it costs the stranger some money for gas and makes the stranger late for work. You donate \$100 to a church drive to feed hungry people in another country rather than spend the money on yourself. Cooperation seems to happen spontaneously without too much thinking getting in the way. The first response of most people is to cooperate, but when they stop and think they tend to be more selfish. Even the cells in your body, rather than reproduce as much as they can, will multiply in an orderly fashion to create the lungs, heart, and other vital organs so that the body as a whole can function effectively.

Many everyday situations can be viewed as choices whether to cooperate or not. Suppose you want to buy a new refrigerator. You go to an appliance store and ask the salesperson which refrigerator is the best deal. The salesperson can interpret this either as the “best deal” for him or her and the store in general, maximizing their profit. Or the salesperson can interpret this as being the best refrigerator at the

lowest price for you. If the salesperson recommends the refrigerator that gives you, and not the store, the best deal, then this is an example of cooperation. And it seems pretty amazing. Why would the clerk give up the store's profit for your benefit? That is cooperation against immediate self-interest. It makes no short-term sense. Yet even the lowliest creatures, such as bacterium, engage in such behavior.

This may be a fatal flaw in natural selection. Natural selection should motivate individuals to behave in ways that increase their own chances of survival and reproduction, not improve the fortunes of others. In a never-ending striving for food, territory, and mates in evolution, why would one individual ever bother to go out of his or her way to help another. The answer is that our ability to cooperate enhances our success in surviving and flourishing in the long term. In 1902, Prince Pyotr Alexeyevich Kropotkin (1842–1921), a Russian prince, published a book, *Mutual Aid: A Factor of Evolution*, presenting his view that besides the "Law of the Survival of the Fittest" there is in nature the "Law of Mutual Aid," which is far more important for the evolution of the species and the struggle for life. Kropotkin pointed out the distinction between the direct competition among individuals for limited resources and the struggle between organisms and the environment. It is the struggle between organisms and the environment as a whole that tends to induce cooperation among the organisms. He believed that the competitive form of struggle did exist, but argued that cooperation and mutual aid were more frequent and were being underemphasized. That is, it is not competition that is the most frequent and important factor in the ability to survive and evolve; rather it is cooperation and mutual aid. The two laws create an ongoing tension between what is good for the individual and what is good for others and society as a whole. A paradox of cooperation is that this tension may be greater in cooperative than in competitive situations. In competition, what is good for oneself and bad for others dominates behavior. In cooperation, all three concerns (what is good

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for oneself, fellow cooperators, and society as a whole) exist in the situation.

Theories of cooperation

Cooperation is such a central factor in human life that there are multiple theories about its nature (Johnson & Johnson, 1989), including cognitive-developmental theory, social cognitive theory, behavioral theory, and social interdependence theory. The dominant theory is probably social interdependence theory (Deutsch, 1949, 1962; Johnson & Johnson, 1989, 2009a).

Cognitive-developmental theory

The cognitive-developmental perspective is largely based on the theories of Piaget (1950) and Vygotsky (2012). To Jean Piaget (1950), cooperation is the striving to attain common goals while coordinating one's own feelings and perspective with a consciousness of others' feelings and perspective. When individuals cooperate in the environment, socio-cognitive conflict occurs that creates cognitive disequilibrium, which in turn stimulates perspective-taking ability and cognitive development. Cooperation in the Piagetian tradition is aimed at accelerating a person's intellectual development by forcing him or her to reach consensus with others who hold opposing points of view about the answer to the problem. Lev Semenovich Vygotsky (1978) and related social constructionist theorists claim that our distinctively human mental functions and accomplishments have their origins in our social relationships. Mental functioning is the internalized and transformed version of the accomplishments of a group. Knowledge is social, constructed from cooperative efforts to learn, understand, and solve problems. A central concept is the "zone of proximal development," which is the zone between what a person can do on his or her own and what the person can achieve while working under the guidance of older individuals or in collaboration with more capable peers. Unless persons work cooperatively, they will not grow intellectually.

Social cognitive theory

Social cognitive theory views cooperation as collective agency (Bandura, 2000), the shared belief in the collective power to produce desired results. In collective agency individuals have to work together to secure what they cannot accomplish on their own. From the social cognitive perspective, cooperation involves modeling, coaching, and scaffolding (i.e., conceptual frameworks that provide understanding of what is being learned) (Lave & Wenger, 1991). Ideally, the learner will cognitively rehearse and restructure information for it to be retained in memory and incorporated into existing cognitive structures (Wittrock, 1990). An effective way of doing so is explaining the material being learned to a collaborator. Finally, social cognitive theory places cooperation at the center of a community of practice, a group of people who share a craft or a profession.

Behavioral-learning theory

The behavioral-learning perspective assumes that individuals will work hard on those tasks for which they secure a reward of some sort and will fail to work on tasks that yield no reward or yield punishment (Bandura, 1977; Skinner, 1968). Cooperative efforts are designed to provide incentives for the members of the group to participate in a group effort. Skinner focused on group contingencies, Bandura focused on imitation, and others focused on the balance of rewards and costs.

Social interdependence theory

Social interdependence exists when the accomplishment of each individual's goals is affected by the actions of others (Deutsch, 1949, 1962; Johnson, 1970, 2003; Johnson & Johnson, 1989, 2005b). There are two types of social interdependence: positive (cooperation) and negative (competition). *Positive interdependence* (e.g., cooperation) exists when individuals perceive that they can reach their goals if and only if the other individuals with whom they are cooperatively linked also reach their goals. Participants, therefore, promote each other's efforts to achieve the goals. *Negative interdependence* (i.e.,

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competition) exists when individuals perceive that they can obtain their goals if and only if the other individuals with whom they are competitively linked fail to obtain their goals. Participants, therefore, obstruct each other's efforts to achieve the goals. *No interdependence* (e.g., individualistic efforts) results in a situation in which individuals perceive that they can reach their goal regardless of whether other individuals in the situation attain or do not attain their goals.

The basic premise of social interdependence theory is that the type of interdependence structured in a situation determines how individuals interact with each other. The interaction patterns, in turn, determine outcomes. Positive interdependence tends to result in promotive interaction, negative interdependence tends to result in oppositional or contrient interaction, and no interdependence results in an absence of interaction. The relationship between the type of social interdependence and the interaction pattern it elicits is assumed to be bidirectional. Each may cause the other. Just as positive interdependence results in promotive interaction, promotive interaction may result in cooperation.

There are three constructs that are important markers for the types of social interdependence: substitutability, cathexis, and inducibility. *Substitutability* is the actions of one person substituting for the actions of another. *Cathexis* is the investment of psychological energy in objects and events outside of oneself. *Inducibility* is openness to influence. Essentially, in cooperative situations the actions of participants substitute for each other, participants positively cathect to each other's effective actions, and there is high inducibility among participants. In competitive situations the actions of participants do not substitute for each other, participants negatively cathect to each other's effective actions, and inducibility is low. When there is no interaction, there is no substitutability, cathexis, or inducibility.

It should also be noted that a great deal is known about the relative impact of cooperation and competition on a wide variety of

variables (Johnson, 1970, 2003; Johnson & Johnson, 1974, 1989, 2009a). In essence, cooperation (compared to competition and individualistic efforts) promotes:

1. Greater effort to achieve: Cooperation produces higher achievement and greater productivity than do competitive or individualistic efforts. This finding is so well confirmed by so much research that it stands as one of the strongest principles in psychology and education. The more conceptual the task, the more problem solving required, the more desirable higher-level reasoning and critical thinking, the more creativity required, and the greater the application required of what is being learned to the real world, the greater the superiority of cooperative over competitive and individualistic efforts.
2. More positive relationships: *Cooperative learning creates more positive, committed, caring, and supportive relationships than do competitive or individualistic learning.* This is true when individuals are homogeneous and it is also true when individuals differ in intellectual ability, handicapping conditions, ethnic membership, social class, culture, and gender. Relationships among cooperators, in addition, are characterized by more professional and personal social support than are relationships in competitive and individualistic situations. True friendships develop from the joint effort required to achieve mutual learning goals.
3. Greater psychological health: Working cooperatively with others results in greater psychological health and higher self-esteem than does competing with peers or working individualistically. Personal ego-strength, self-confidence, self-reliance, ability to cope with stress and adversity, independence, autonomy, personal happiness, and general psychological health all result from cooperative efforts. Cooperative experiences result in higher self-esteem and more healthy processes for deriving conclusions about one's self-worth than do competitive or individualistic efforts. Working together to achieve mutual goals results in increased social competencies, the ability to build and maintain supportive and committed relationships, and mutual respect for each other as separate and unique individuals. Healthy social, cognitive, and psychological development results. Cooperative experiences are not a luxury. They are an absolute necessity for the healthy development of individuals who can function independently.

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Social interdependence as a context for conflict

Once cooperation is clearly established among the relevant individuals, conflicts will occur. How the conflicts are managed determines whether cooperation is strengthened or weakened. There are two possible contexts for conflict: cooperative and competitive (in individualistic situations individuals do not interact and, therefore, conflict tends not to occur).

Competitive context

Conflicts usually do not go well in a competitive context. For competition to exist, there must be scarcity. Competition is inherently a conflict, as participants seek rewards that are restricted to the few who perform the best. Within a competitive context (Deutsch, 1973; Johnson & Johnson, 1989, 2005b; Watson & Johnson, 1972),

1. Individuals focus on differential benefits (i.e., doing better than anyone else in the situation). In competitive situations, how well a person is doing depends on how his or her performance compares with the performances of the others in the situation. There is a constant social comparison in which the value of one's outcomes depends on how they compare with the outcomes of others.
2. Individuals focus on their own well-being and the deprivation of the other participants. In striving to "win," individuals focus not only on what is good for them but also on what will prevent others from winning. There is a vested interest in others doing less well than oneself.
3. Individuals adopt a short-term time orientation where all energies are focused on winning. Little or no attention is paid to maintaining a good relationship. In most competitions, there is an immediate finishing line on which all attention is focused, with little or no concern about the future relationship with the other competitors.
4. Communication tends to be avoided, and when it does take place, it tends to contain misleading information and threats. Threats, lies, and silence do not help students resolve conflicts with each other. Competition gives rise to espionage or other techniques to obtain information about the other that the other is unwilling to communicate,