Imitation, Mirror Neurons, & Mimetic Desire:

Generative Mechanisms in Religious, Cultural, and Psychosocial Structures

Scott Garrels

Travis Award for

Excellence in Integrative Work

Imitation, Mirror Neurons, & Mimetic Desire:
Generative Mechanisms of Religious, Cultural, and Psychosocial Structures

Convergent evidence across the modern disciplines of neuroscience, developmental psychology, and cultural anthropology demonstrate that imitation based on neural firing, reciprocal interpersonal behavior, and group activity are what guide and scaffold human development. Imitation not only functions powerfully in the mother-infant dyad to bring about experience-dependent neurocognitive development, but it continues to thrive in adulthood as perhaps the most organizing characteristic of human life, even at the highest levels of culture.

Despite recent work attesting to its importance, imitation is still largely misunderstood as a secondary, rather than fundamental property of human behavior. The purpose of this discussion then, will be to illuminate and integrate some of the most pertinent findings concerning imitation and the central role it plays in human development, cognition, and culture. To accomplish this interdisciplinary task, I will begin with a survey of the work on imitation in developmental psychology and neuroscience. I will then introduce the work of cultural anthropologist Rene Girard to address the broader anthropological implications of human imitation. Girard's theories are based on the primacy of imitative desire and bear particular significance to the conflictual nature of human relationships and the role that violence and religion play in preserving mental and cultural stability. Since there have been no studies synthesizing recent research on imitation with Girard's work, it is my hope that this unique and somewhat schematic discussion will serve as a catalyst for more detailed and comparative analyses between these diverse bodies of work.

Imitation, Developmental Psychology, and Neuroscience

Plato was among the first to formally contemplate the universal phenomenon of imitative behavior, yet he was never able to fully explain its centrality to human life. Philosophical systems have long followed Plato in reducing imitative behavior to a special "faculty" of lesser significance (i.e. social learning), rather than a pervasive process vital to both the development and sustenance of human thought and culture (Girard, 1987; Nadel & Butterworth, 1999). This limited view of imitation contributed significantly to the modern notion of the autonomous self by falsely emphasizing individual strivings over social influences in human development. As a result, our modern sense of imitation was reduced to a simple caricature of a more dynamic, interpersonal mechanism.

However, recent research has begun to revolutionize our understanding of imitation and its centrality in many areas of human life. Hurley & Chater (2002) explain:

> Imitation…is often thought of as a low-level, relatively childish or even mindless phenomenon. This may be a serious mistake. It is beginning to look, in light of recent work in the cognitive sciences, as if imitation is a rare, perhaps even uniquely human ability, which may be fundamental to what is distinctive about human learning, intelligence, rationality, and culture.

Several important research findings on brain development and cognitive functioning support these claims. The first is the realization that infants are highly imitative from birth in a way that cannot be explained in terms of conditioning or the triggering of innate behaviors (Meltzoff & Moore, 1997; Meltzoff, 2002). In addition, infant imitation of another mind appears to be the primary drive and scaffold for neurocognitive development (Meltzoff, 1990, 1995, 1998a, 1998b, 1999). The

attunement and responsiveness that psychologists associate with healthy parenting is based on an active state of imitative reciprocity between parent and child. These interactions must be imitative in nature to have the cognitive and emotional salience that will produce psychological growth. For example, the importance of such responsiveness (i.e. facial expressions) is not due simply to the child being responded to in time, but the parental response must be "structurally congruent", reflecting accurately the mental state of the child, in order for an attachment and mental bond to take place.

Research also suggests that such reciprocity is the basis for the child's eventual ability to understand that another mind exists separate from its own (Meltzoff, 1995, 1999). This development of a "theory of mind" is crucial for becoming a participatory agent intending one's own actions and interpreting the actions of others within a relationship. Thus, "imitation is both a measure of self-other understanding and a prime engine in its development (Meltzoff, 2002)."

Furthermore, researchers propose that these early imitative gestures and goal directed behaviors are foundational for other essential aspects of cognitive development. For example, imitative behaviors develop into more complex cognitive abilities due to "deferred imitation" in the absence of the initial model (Meltzoff, 1999). This ability is made possible by the infant's increasing development of long-term memories. As a result, deferring imitation allows the child to adapt to novel situations and produce increasingly complex behaviors, including the appropriate use of language and cultural skills (Carpenter, Akhtar, & Tomasello, 1998).

Finally, the recent discovery of "mirror neurons" in the brain provides overwhelming support for the significance of imitation. Mirror neurons are cells that

activate both when an individual is performing a particular motor movement and when observing the same movement by another person. Rizzolati (1996) first reported on mirror neurons from his research on the premotor cortex of macaque monkeys. He found that the area of the brain that became active while the monkey was performing a particular motor sequence, such as grasping an object with its hand, would also become active when the monkey simply observed the experimenter performing the same action. Similar studies have demonstrated the same mirroring process of brain states in humans (Iacoboni, Woods, Brass, Bekkering, Mazziotta, & Rizzolatti, 1999; Jarvelainen, Schurmann, Avikainen, & Hari, 2001; Rizzolatti, Fogassi, & Gallese, 2001).

This mirror system seems to represent an immediate reciprocal link between participant and observer; a finding that is invaluable to imitation research. Rizzolati et al. (2001) explain why:

> The novelty of these finding is the fact that, for the first time, a neural mechanism that allows a direct matching between the visual description of an action and its execution has been identified. Such a matching system constitutes a parsimonious solution to the problem of translating the results of the visual analysis of an observed action…into an account that the individual is able to understand (p. 663).

Mirror neurons support the infant imitation hypothesis by demonstrating how immediate access to the mind of another is initiated at the neural level in a way that is neither accounted for by conditioning or innate behaviors.

Together, the above research demonstrates the profound significance and necessity of imitation at both the neural and behavior levels. Imitation is no longer seen as a mindless act explaining simple mimicry, but rather a fundamental and inherently positive mechanism stimulating the individual mind to develop through its relationship

with another mind. The immediacy of such reciprocity of minds, along with the ability to delay imitation, is understood as the basis for the emergence of more diverse and complex behaviors.

Mimetic Desire, The Scapegoat Mechanism, & Rene Girard

Several decades before empirical research prompted a resurgence of interest in imitation and its significance to human development, Rene Girard (1965; 1977) had already articulated a theory of imitative desire, which explained imitative phenomena and its broader anthropological implications with surprising veracity. Based on his interdisciplinary research in cultural anthropology and literary analysis, Girard illuminated two salient patterns of human behavior that accounted for both the conflictual nature of humanity as well as its stability through culture and religion.

The first and central part of Girard's theory is known as *mimetic desire.* Mimetic desire refers to the nature of desire itself; that is to say, desire is imitative or learned by a model instead of being "original" or instinctual. Girard prefers the Greek word *mimesis* instead of *imitation* because it speaks to the more unconscious nature of imitative processing, which functions on more levels of human experience than the concept of simple mimicry. Mimetic desire then, is an immediate and unconscious desire based on the desire of another. While our physiological make-up requires that we seek basic elements such as food or clothing, the specific form that each element takes originates from what is desired by those around us. Desire at this level is not autonomous, but mediated by a model.

From this understanding, the positive mimetic phenomenon necessary for human development is simultaneously the basis for rivalry and violence. In 1979 Girard criticized the corpus of work on imitation in the following manner:

> If you survey the literature on imitation, you will quickly discover that acquisition [the goal of obtaining an object] and appropriation [the goal of obtaining an object exclusively for oneself] are never included among the modes of behavior that are likely to be imitated. If acquisition and appropriation were included, imitation as a social phenomenon would turn out to be more problematic than it appears, and above all conflictual (p. 9).

Mimetic rivalry between a subject and its model results from the reciprocal acquisitive desire for an object. While the model may have initially served as the subject's mediation of desire, the desire expressed by the subject thereafter becomes a model for the model him/herself. What ensues is a perpetual escalation of desire based on the desire of the other for that object, not the desirability of the object itself. "In the absence of some interfering process, gestures of acquisition will lead naturally to widespread gestures of appropriation and then to communal acts of aggression (Watson, 1998, p.314)." How cultural stability is generated out of such potential chaos is explain by the second part of Girard's theory, the *scapegoat mechanism.*

According to Girard (1977; 1987; 1989), what makes stability, and ultimately culture possible, is the displacement of tension between mimetic rivals onto a scapegoat or surrogate victim. This is done in a similar mimetic and unconscious fashion. Instead of a gesture of acquisition, this time mimetic desire is fueled by a spontaneous gesture of accusation. A third party is identified and scandalized in some way that differentiates them from the group. "This victim…serves as a scapegoat for the social discord, and the unanimous satisfaction of violent desire dissipates the animosity. The crisis of

undifferentiation…ends with a bloody (re)differentiation between a community and its scapegoat (Watson, 1998, p.314).” The death of one rapidly brings forth life for many, and thus the construction of a community.

Due to limited explanatory tools in early human history, along with the intoxicating effects of violence, the unifying power experienced by human sacrifice is interpreted by the new community as evidence of a transcendent power. A mythological reality is thus created to fill in the gap between the event and an accurate understanding of its dynamics. According to Girard (1977), the foundation and perpetuation of primitive culture and religion was based on similar acts of violence that were later perfected on a ritual/sacrificial basis to release tensions present in the community while simultaneously strengthening group cohesion. In an effort to prevent frequent and unpredictable episodes of mimetic violence, such acts were planned, controlled, and mediated through rituals and prohibitions shrouded in sacred prerogative.

Girard (1977) asserts that, “the sacrificial process requires a certain degree of misunderstanding…The theological basis of the sacrifice has a crucial role in fostering this misunderstanding. It is the god who supposedly demands the victims (p.7).” If the scapegoat mechanism is to bring about cultural cohesion, then the innocence of the victim must be concealed in a way that allows the entire community to be united in the belief of the victim’s guilt. Without this interpretation, blame falls back on the accusers and their unjustified violence, resulting in more group tension. The community must therefore have a mythological narrative that accounts for its origin and continued rituals that at the same time does not serve to undermine its perpetuating mechanism; violence directed toward surrogate victims.

In summary, Girard's theories of mimetic desire and the scapegoat mechanism illuminate how human mimetic behavior is inherently unable to establish relational order apart from the use of violence and a false account of transcendence. Religion and culture, therefore, share the same origin and are intimately related in their service to the scapegoat mechanism upon which human relational stability is forged and perpetuated through cyclical violence.

This brief presentation of Girard's hypotheses cannot convey their vast interpretive power in regards to imitation, primitive religion, group dynamics, and especially the anthropological significance of the Judeo-Christian narratives in testifying from the victim's perspective to reveal the truth of human culpability and violence. Nonetheless, my purpose here is to illuminate the importance of his work in light of recent progress in developmental psychology and neuroscience, as well as demonstrate the invaluable contribution of imitation theory and research in understanding the relationship between religious, cultural, and psychosocial functioning. In all, Girard's work has significant implications for integration and a clearer understanding of the imitation of Christ.

References

Carpenter, M., Akhtar, N., & Tomasello, M. (1998). Fourteen- through 18-month-old infants differentially imitate intentional and accidental actions. Infant Behavior & Development, 21, 2, p. 315-330.

Girard, R. (1965). Deceit, Desire, and the Novel: Self and other in literary structure. Johns Hopkins University Press: Baltimore.

Girard, R. (1977). Violence and the Sacred. Johns Hopkins University Press: Baltimore.

Girard, R. (1987). Things Hidden Since the Foundation of the World. Stanford University Press: Stanford, California.

Girard, R. (1989). The Scapegoat. Johns Hopkins University Press: Baltimore.

Hurley, S. & Chater, N. (2002). Perspectives on Imitation from Cognitive Neuroscience to Social Science [Opening remarks]. Royaumont Abbey, France, May 24-26.

Iacoboni, M., Woods, R., Brass, M., Bekkering, H., Mazziotta, J., & Rizzolatti, G. (1999). Cortical Mechanisms of Human Imitation. Science, 286, 5449, p. 2526-2528.

Jarvelainen, J., Schurmann, M., Avikainen, S., & Hari, R. (2001). Stronger reactivity of the human primary motor cortex during observation of live rather than video motor acts. Neuroreport, 12, 16, p. 3493-3495.

Meltzoff, A. (1988a). Infant imitation after a 1-week delay: Long-term memory for novel acts and multiple stimuli. Developmental Psychology, 24, 470-476.

Meltzoff, A. (1988b). Infant imitation and memory: Nine-month-olds in immediate and deferred tests. Child Development, 59, 217-255.

Meltzoff, A. (1990a). Foundations for developing a concept of self: the role of imitation in relating self to other and the value of social mirroring, social modeling, and self practice in infancy. In D. Cicchetti & M. Beeghly (Eds.), The self in transition: Infancy to childhood. (pp. 139-164). Chicago: University of Chicago Press.

Meltzoff, A. (1990b). Towards a developmental cognitive science: The implications of cross-modal matching and imitation for the development of representation and memory in infancy. In A. Diamond (Ed.), The development and neural bases of higher cognitive functions. Annals of the New York Academy of Sciences, 608, (pp.1-31). New York: New York Academy of Sciences.

Meltzoff, A. (1995). Understanding the intentions of others: Re-enactment of intended acts by 18-month-old children. Developmental Psychology, 31, 838-850.

Meltzoff, A. & Moore, M. (1997). Explaining facial imitation: A theoretical model. Early Development and Parenting, 6, 179-192.

Meltzoff, A. & Moore, M. (1999). A new foundation for cognitive development in infancy: The birth of the representational infant. In E. Scholnich, K. Nelson, P. Miller, & S. Gelman (Eds.), Conceptual development: Piaget's legacy. (pp. 53-78). Mahwah, NJ: Erlbaum Press.

Meltzoff, A. (2002). Perspectives on Imitation from Cognitive Neuroscience to Social Science [Abstract]. Royaumont Abbey, France, May 24-26.

Nadel, J. & Butterworth, G. (1999). Immediate imitation rehabilitated at last. In J. Nadel & G. Butterworth (Eds.), Imitation in Infancy. (pp. 1-5). Cambridge University Press: Cambridge.

Rizzolatti, G. & Arbib, M. (1998). Language Within Our Grasp. Trends in Neuroscience, 21, 5, p. 188-194.

Rizzaolatti, G., Fogassi, L., & Gallese, V. (2001). Neurophysiological Mechanisms Underlying the Understanding and Imitation of Action. Nature Reviews Neuroscience, 2, 9, p. 661-670.

Watson, P.J. (1998). Girard and Integration: Desire, Violence, and the Mimesis of Christ as Foundation for Postmodernity. Journal of Psychology and Theology, 26, 4, p. 311-321.