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Social Learning and Gender

> *For adults who work with children, it is important to recognize that "nature" and "nurture" are not parallel tracks. Instead, the tracks are woven together and influence each other's pathways in ways that may vary greatly depending on the individual child. The adaptations that occur as a result of these mutual interactions mean that the early experiences and early learning environments that adults provide can affect all domains of human development. (*Committee on the Science of Children Birth to Age 8)

Introduction

One of the most controversial topics in biology, psychology, and anthropology is the relationship between biology and gender, specifically regarding the extent to which biology influences the expression of gender as it is shaped by culture. To examine this relationship, we often turn to the age-old debate of nature versus nurture. "Nature" argues that the behavioral differences expressed by different genders is predetermined by evolution, genetics, and biology. "Nurture" tends towards the argument that individuals are taught how to express gender through societal norms and expectations. One way to observe whether gender expression is a result of "nature" or "nurture" is to analyze how children learn cultural norms from an early age,

comparing their social learning to that of our primate relatives, and understanding how early education ultimately influences gender and the role it plays in modern society.

Culture and Education

Christophe Boesch wrote that while there is much debate among anthropologists as, indeed, members of other scientific fields over the definition of the world "culture" and who that definition applies to, there are several basic concepts of culture that almost all can agree on. The first concept is that culture is based on shared meaning between a group or a collective. The second concept of culture is that it is practiced collectively, and that practice is usually distinctive enough so that individuals can be traced back to their original group or culture by their distinctive social practices. Finally, the most important consensus reached about culture is that it is learned. No matter how we define culture, it is generally accepted that a culture is something that must be transferred from individual to individual, from generation to generation, in order for it to survive. It may change over time, but cultural ideas and behaviors are preserved through social learning. This means that we must also accept that culture is not transmitted genetically: there is not a single gene that determines culture. We must also accept that, while culture can be influenced by environmental factors, it does not necessarily represent an adaptation in the evolutionary sense. Rather, it is transmitted socially, which means that "cultural practices have the potential to change rapidly if a new social model becomes available." (Boesch)

In human societies, cultural traits are acquired through social learning. It is that method of learning that makes humans so unique as cultural beings, and it allows for incredibly complex behaviors and rituals. There is, however, evidence to suggest that chimpanzees also participate in

social learning. Chimpanzees are our closest primate relatives, sharing almost 98% of DNA with us. Primatologists have long argued that chimpanzee behavior is a compelling case for the acceptance that primates other than humans can express culture. As Boesch writes, “what we observe in different chimpanzee groups nicely matches our definition of culture as a set of behaviors learned from group members and not genetically transmitted, mainly independent from ecological conditions, and shared between members of some specific groups.” (Boesch) There is not much evidence surrounding chimpanzees and culture, as there are only a limited number of studies conducted since the 60s, but what evidence exists makes the case that our early ancestors would have experienced a similar way of social learning.

The most compelling studies that show chimpanzees implementing social learning all concern Taı̈ chimpanzees and their nut cracking abilities. The chimpanzees use a variety of tools, namely stones and branches with an anvil made from large roots, to crack these nuts. Chistophe Boesch conducted his own analysis of this behavior, and concluded that there are three phases in which this behavior is learned. (Boesch) In the first phase, the young chimpanzees attempting to learn these skills make unsuccessful attempts. They repeatedly hit the nuts and fail to crack them, making crucial mistakes such as using the wrong tools or the incorrect amount of force. Boesch writes that this is because they “do not understand the relationship between the various components of the task.” (Boesch) At around three years, the young chimpanzees finally make a breakthrough in which they understand the relationships between all the elements of nut cracking. With the understanding of the process, they are able to crack the nuts, though they still lack the physical strength to do so. The final phase occurs when they are old enough and strong enough to break the nut open on their own. The young chimpanzees seem to progress through

these phases fairly quickly, and in fact achieve 42% of adult efficiency for the nuts within two seasons. (Boesch) This achievement is only obtained through observational learning. The young chimpanzees observe the methods used by adults, and are able to copy them in order to achieve success. The tools the adults use, the way the adults position the nuts, and the movement the adults use to effectively break the nut are all observed and replicated by the young chimpanzees. Social learning is an important part of the process for young chimpanzees. Chimpanzees are not the only primates who rely on social learning to acquire certain behaviors and characteristics.

Humans and chimpanzees share many characteristics, and it is those similarities that can support how we imagine life for our earliest hominid ancestor. In most primate groups, including humans, the young learn how to function as part of the group by watching how adults act. We have already discussed studies that show evidence of chimpanzees using observational learning. Observational learning is also used by modern humans. According to Boesch, "observational learning is the primary mechanism used by apprentices to learn skilled and complex weaving techniques in different South American, African, and Arabic societies." (Boesch) The behaviors they then imitate go beyond simple tool use; they imitate the social behavior of the adults in their group. The young act the way they have seen adults act in their play groups, reinforcing the social status quo. These play groups, usually made up of individuals of a similar age and status, are also essential for social learning in many primate societies. We see these play groups in modern human societies, where children are able to play a variety of games and reenact behavior they have seen from adults. With their peers, they are able to imitate not only general tasks such as cooking, cleaning, and using tools, but also incorporate morality, relationships, and social

behavior into their play. Anthropologists have found evidence of this in non-Western communities as well. The cultural anthropologist Gladys Reichard writes,

> "One reason why it is difficult to study… education [in non-Western societies] is that one method used to teach… is intangible. It is a method as old as the life of man but one which our self-conscious analysts often forget: simply that children do not do what adults tell them to do, but rather what they see adults do. [Non-Western] people do not lay stress on telling. In many languages, the word for 'teach' is the same as the word for 'show,' and the synonymity is literal. One of the things which amuses natives… is the habit… [anthropologists] have of asking questions: 'What are you going to do next?' 'What are you doing that for?' The craftsman or hunter always knows what he is going to do next, but he may not be able to give orally the reason for doing it… all these things… [a] child picks up by constant observation and by imitation." (Reichard)

Variations in Learning

There are many similarities between the way chimpanzees perform social learning and the way humans do. There are, however, some differences. The most significant perhaps comes from a biological standpoint. When hominids were first showing signs of being bipedal, the structure of hips changed significantly. As a result, birth canals became narrower. At the same time, hominids were evolving larger brains and, of course, bigger heads. A human infant's head needed to be smaller to fit through a narrow birth canal, but the head was also becoming bigger. So, humans gave birth earlier so that a premature infant could be born without complications, and then being allowed to develop the bigger cranium outside of the womb. Because they were being born earlier, the human developmental period between birth and adolescence was longer.

This is an example of a “just-so” story, but the biological evidence seems to fit. Additionally, the text “Human Biology and Behavior: An Anthropological Perspective” makes the point that “the prolongation of childhood in the hominins may be related to the amount of learned behavior that must be communicated to the younger generation. Hominin evolution is closely related to the development of a wide variety of complex behaviors.” (Weiss, et al)

That is how humans may differ from nonhuman primates, but there is further variation still between human groups. For example, modern human society is almost completely different from that of our ancestors, especially in Western societies. The most dramatic difference is the size of the group. Early societies, as well as those who operate as a “hunter-gatherer” society, have a smaller group size than those found in modern, Westernized cities, but children still learn as if they are in a smaller group size. The basic higher primate patterns of learning may have been retained by humans because much of our evolutionary history was spent in small groups. (Weiss, et al) As a result, humans may have evolved to operate and learn in a small-group setting. In these small groups, learning by imitation simply makes sense. Every adult in these small groups is able to come into contact with a younger individual, and so the behavior imitated by the youngster is reflective of the entire group. In larger groups, however, the young individual only comes into contact with a select few adults, mostly teachers and relatives, but they still learn by observation and imitation. (Weiss, et al) This means that individuals in larger groups only perform behaviors they are exposed to on a regular basis. In agricultural societies and especially in Western societies, children are often only exposed to adults of a certain social and economic class. The people in their lives are usually of the same race and religion due to the nature of large groups to divide into smaller subgroups. Not only that, but individuals are often raised into a

certain moral and political mindset. It is not such a wild assumption to connect this way of limited social learning and the way children learn certain expectations of social performance and gender expression.

Early Learning and Schemas

One of the most influential figures in early education is Jean Piaget, a Swiss psychologist known for his theories on child development. One of the most important contributions Piaget made to this field was the theory of "schemas." Piaget defined a schema as: "a cohesive, repeatable action sequence possessing component actions that are tightly interconnected and governed by a core meaning." (McLeod) Essentially, a schema is a personal learning plan held by a child. This concept has an incredible impact on the nature versus nurture argument. In fact, schemas tend to support a nurture *via* nature approach to education and social learning. Piaget theorized that infants have "innate schemas," which are the cognitive structures underlying innate reflexes. (McLeon) All reflexes that seemingly do not need to be taught are a form of neonatal schema. The sucking reflex, for example, is a schema in which a baby will instinctively attempt to suck on anything that touches its lips. The reflex an infant has to attempt the gasp anything that touches its palm is another schema. Interestingly, other primates also have the grasping schema. These schemas are biological in nature, but also shape the way young children navigate social learning. A child who wishes to hold a plastic cell phone to their ear and speak into it is carrying out a schema, and another who makes a ritual of rocking a stuffed doll to sleep in performing another schema.

Piaget also viewed education and social learning as an adaptation. This adaptation was carried out in three ways: assimilation, accommodation, and equilibration. (McLeon) Assimilation is used when an existing schema is used to deal with a new object or situation. Accomodation happens when that existing schema fails and needs to be changed in order to deal with a new situation. Equilibration is the most important method of adaptation. It is seeking a balance between assimilation and accommodation, trying to use previous knowledge and gaining new knowledge for new situations. It is what drives growth and development in a child. It is also, arguably, what separates early learning in humans from that of primates. Whereas primates rely almost entirely on observational learning, humans are constantly changing their approach to new challenges when an old method that they have learned from an adult has failed. These concepts help lay the foundation for modern education and social learning.

Applied Concepts in the Classroom

Based on Piaget's theories, primatology, and biology, it is reasonable to assume that in modern society and in the society of our hominid ancestors, young children have learned how to participate in society by imitating adult figures. In a modern classroom, anecdotal evidence for this is plentiful. I spoke with an educator currently working at the Fisher Early Learning Center at the University of Denver. She told me several stories of time she has observed the infants in her classroom imitating adults. The first is during storytime. The educator will read a book aloud to the child sitting on her lap, and she will guide their finger towards the illustration to help the child understand the connection between the words and the image. She does this every time. In this instance, she had two children on her lap. As she read aloud, one child took the other's hand and guided it towards the illustrations repeatedly, placing it on the correct illustrations as the

educator said the word. Another example is how children will imitate the educators when encouraging other children. When a child is struggling with a task, the educators will offer words of encouragement. In one instance, a child was seen repeating the same words to himself as he took shaky steps across the infant playground. Finally, the classroom is outfitted with a kitchen playset. Most of the children do not interact with it, but one child has taken a particular interest in the kitchen set. He will often imitate the action of stir frying in a large pot, stirring vigorously. None of the other children or educators interact with the kitchen set in this manner. However, the child who imitates specialized cooking has a parent who also enjoys cooking, especially food from his home in Hong Kong.

Anecdotal evidence is admittedly not the strongest evidence, especially when there is more compelling evidence to rely on when talking about social learning in young children. However, anecdotal evidence does have its place, especially when so much of social learning is very much qualitative evidence that is observed best by those who work closely with young children. From the observations of an early educator, we know that social learning varies from child to child based on which adults they may interact with. Despite these differences, however, the behaviors imitated by children all embrace the same basic concepts. Tool use, social reinforcement, and language are all imitated by children as they develop into adults.

So now that we understand the crucial role social learning plays in child development, we can now discuss the relationship between gender and social learning and the impact it has on society and politics.

Education and Gender Roles

There are many studies on the emergence of gender at certain stages of childhood development. One study suggests that infants as young as three to four months can tell the difference between male-presenting and female-presenting faces. (Quinn et al) By ten months, studies suggest that infants are able to form associations between those faces and gendered objects, which implies that they are able to form gender-based stereotypes. (Levey & Haaf 1994)

A study also analyzed videotapes of the children at 17 months and 21 months playing with a set of toys varying from high to neutral in gender typing. The results showed that 25% of children used gender labels by 17 months and 68% by 21 months. On average, girls produced labels at 18 months, one month earlier than did boys. (Martin 2010)

While these studies may suggest the gender bias exists at a very early age, it is perhaps more appropriate to interpret the results of these studies as suggesting that young children only show limited awareness of gender when presented with specific contextual cues or previously learned schemas. However, according to a paper published by Carol Lynn Martin, there may be "individual differences in overt "sexist" behavior as early as preschool, and that the actions of these gender "police" contribute more broadly to the maintenance of gender distinctions in the classroom." (Martin 2010) Gender roles and bias in children develops earlier than most would assume and increases over the span of childhood until boys and girls have been described as growing up in separate cultures. (Martin 2010)

This appearance of gender roles and bias in young children is odd, considering children do not show physical differences between sexes until later on. In fact, there is more evidence to refute the assumption that young girls and young boys behave differently because of their

biology. That is where social learning comes into play. There have been countless instances where young children have actively been discouraged from participating in activities that are "for the other gender." Boys are discouraged from playing with dolls and being sensitive, girls are scolded for being rambunctious and loud. Not only that, but if children learn by imitating adults in their lives, then it is reasonable to conclude that most of the gender-conforming behavior comes as a result of imitating that very same behavior in adults. Young girls want to be like the women in their lives, while boys want to be like the men. Society encourages this behavior inside and outside of the classroom, and the cycle repeats itself over and over again.

Conclusion

Gender roles appear in young children when they imitate the adults in their lives. This imitation is natural, an evolutionary process to help children develop and grow within their social community. The fact that other nonhuman primates also engage in this behavior tell us that our ancestors probably would have used social learning, observational learning, and imitation learning as methods of helping children understand how to be a part of the social group and contribute to the success of the group as a whole. This evidence does not support nurture over nature in that great debate, but rather, supports a "nurture *via* nature" outlook on how young children express social behaviors, especially when it comes to gender. Social learning is a valuable part of passing on knowledge, culture, and tradition, but it can also lead to unintended consequences. When gender roles play too much of a part in early development, it can influence the way adults think about members of the opposite sex. It restricts what activities society allows certain sexes to participate in. Schools and education centers in Western cities have already started to implement teaching styles and methods that support social learning without forcing

gender roles and bias on young children, but there is still a lot of work that needs to be done to ensure that, throughout childhood, young children are able to explore their place in their communities freely.

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