

The Evolution of Successful Teamwork By Adriana Christiano

There's an array of qualities that make humans unique in comparison to other living organisms; each one of these traits can be traced to a time in evolutionary history when that trait was advantageous for that particular environment. This is true for our ability to cooperate and work in successfully functioning groups. According to Daniel Coyle, building teams comes down to vulnerability and building safety (Coyle 2019). Natural Selection is known for having the most apparent effect when times are tough, and vulnerability sets in, making safety more desirable. The successful teamwork we see in humans today began during a time of extreme environmental change when an adaptation for cooperation was selected for so hominins could fill a complex foraging niche. This paper will cover how our changing environment required cooperation for difficult food extraction, how teamwork was necessary for obtaining high calorie food for our growing brains, and how these moments of evolutionary change reflect the teamwork that is seen today.

As the environment changed from a tropical forest to an open grassland, food sources that were once heavily relied on, like fruit, began to run scarce. This meant that fallback foods, also known as a last resort food, became very important to hominin diets. Some examples of fallback foods are leaves, stems, seeds, and underground storage organs (USOs) like roots, tubers, or bulbs. The benefit of USOs is that they are rich sources of food and water and are available during every season (Lieberman 2013). To take advantage of these available rich food sources, hominins had to be able to extract them from the ground which can be a difficult task. During this time, adaptations such as bipedalism and cooperation appeared which helped hominins get access to these food sources. While the freeing of hands was not the main reason this adaptation

occurred, it allowed hominins to tap into an array of new resources and enabled them to create tools that helped them obtain food sources that needed extraction.

Although bipedalism gave hominins a huge advantage for filling a complex foraging niche, their capacity to do this went beyond the freeing of their hands. Since USOs are difficult to obtain because they lie deep under the ground, there needed to be a change in the way our ancestors foraged for food. In the past, hominins had the ability to forage the way that chimps did, “where each individual forages for food and eats it on the spot” (Tiger 2017). However, it takes a lot more energy to extract USOs than it does to grab fruit from a tree, therefore each USO was collected and shared amongst the group. The freeing of the hands also made it much easier to carry a collection of food and bring it back to one spot so there was no need to eat the food sources right away. Since the process of getting these new food sources was more difficult, not every individual was successful in gathering enough for themselves each day; this is where we see cooperation and group work come in to play. This new way of gathering food led to “a home-based social organization with all its implications for family formation, prolonged nurturance and training of the young, and sharing and communication” (Finney 1985). Each of these characteristics are elements that result in creating teamwork or are the outcome of teamwork itself. Today when we think of successful groups, we think of those that share and communicate effectively. Sharing can come in a number of forms, whether that’s physically sharing food with another hominin, or sharing information, stories, or thoughts between group members. Sharing builds a basis of culture and connection between an individual and others, and culture is one of the key components of what makes up a successful group. Today we might see a group of coworkers sharing about their weekend. By doing so, those individuals are creating a connection that makes them feel more comfortable and work successfully. This same concept can be applied

to our ancestors; if one hominin is willing to share food with another, they build a connection based on reciprocity. David Coyle argues that evolution has built us to respond to signals of connection, cooperation and direction, meaning we seek connection as a way of creating trust and reliance when it comes to teamwork (Coyle, 2019, March 1) Our ancestors were able to share food with not only members of the same kin, but also other members of their group, regardless of whether they were related or not. This form of cooperation is very different, and it's unique to humans because it doesn't really make sense scientifically. When it comes to sharing food between nonrelated group members, Coyle argues that we are impacted by signals of connection and are willing to help others that are willing to help us (Coyle 2019, March 1). If it weren't for an extreme change in environment that made bipedalism the desirable adaptation and fallback foods a necessity, there would have been little need to cooperate and share available resources with the group. The difficulty level of obtaining these fallback foods also made teamwork a necessity because it was a way of ensuring that everyone got food despite each individual's success when it came to digging for it.

As time went on, the life history of hominins began to slow, and reproductions became more frequent; this was a very unusual pattern as normally slow life histories mean long gestation periods. Food sharing and division of labor became heavily relied on to ensure that everyone was getting enough calories for survival. This was especially important for making sure that offspring were getting enough calories to supply their growing brains. Brain size became a huge factor that led to successful teamwork because it took cooperation to make sure everyone was getting enough high-quality food to fuel their big brains. The early stages of life were imperative for providing offspring with high-quality food sources because their brains were still undergoing development and still had to nearly triple in size (Hublin 2015). Offspring were

therefore heavily reliant on their parents and other group members for their nutrition. Hominins also had short weaning periods, and this is why females were able to reproduce so quickly after having a baby. This “early weaning allows mothers to share the burden of providing energy to the offspring with other adults from the group at an early stage of development” (Hublin 2015). When hominins began to shift from focusing on providing for the individual to providing for the group, mothers no longer had to spend as much energy on breastfeeding for as long and their bodies were able to prepare for pregnancy again even quick.

Cooperation and teamwork were not only necessary for getting enough calories to fuel hominin brains and their long lives, but these aspects were also important for obtaining high quality food sources. Having a big brain and obtaining high quality food sources go hand in hand. Which is why meat-eating seems to show up around the time our ancestor’s brains grew size. Meat became an important part of hominin diets because it was good source of energy and vitamins, making it a high-quality food that had positive effects on their growing bodies. Just like USOs, meat wasn’t the easiest food source to get ahold of and it took cooperation between group members to make sure there would be enough for everyone. There are many positive effects of social foraging, for example, the more people in the group that went hunting together, the greater chance there was of them capturing something (Kurland 1985). Additionally, the more individuals that worked together to hunt, the more likely they were to encounter prey, and capture larger prey all because they communicated and constantly shared information (Kurland 1985). Hunting was not an easy task, and not everyone always had a successful day, which is why when one hunter did the meat was shared amongst the group. The difficulty of hunting was also so substantial that there was a need for a division of labor so that group members could rely on gathered food when no meat was available.

Complex foraging sparked a need for cooperation and high functioning groups in ancient environments, but modern teamwork continues to reflect our evolutionary history. Coyle used the crew of the United Airline flight 232 as an example of a successful group in the book *The Culture Code*. The plane departed from Denver on July 10, 1989, and during the flight, a loud explosion came from the tail. The passengers, pilot and crew were put into a very vulnerable situation. Luckily the pilot was able to share his vulnerability by admitting to his crew that he needed help. In an “unconfident fashion... [they began to] solve a complex series of problems while flying at four hundred miles per hour” (Coyle 2019). The “makeshift crew” as Coyle calls them, was able to save 185 people from a disaster that seemed to be inescapable, all because of their cooperation and connection. When people are put into extreme situations, they’ll do anything they can to find safety, even if that requires them to reveal their most vulnerable state to others. When the environment began to change, and food ran scarce hominins became extremely vulnerable, but they were able to find safety in each other just like the crew of flight 232. This reliance on each other allowed them to get enough food to survive the difficult times and thrive when the environment became less harsh, Coyle’s depiction of teamwork today fits perfectly with the reason teamwork evolved in the past and it validates his formula for creating highly functioning groups.

When the environment changed from a tropical forest to an open grassland, hominins had to overcome a sudden shortage of food. This caused an adaptation for cooperation and teamwork to be selected for in order to fulfill a complex foraging niche. This sudden surge of teamwork allowed our ancestors to extract difficult food sources like USOs and obtain enough high calorie foods to supply their growing brains. All in all, these moments of evolutionary change explain why we have the high functioning teams that we see today.

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