

Intercultural Communication

*An Interdisciplinary Approach: When Neurons, Genes,
and Evolution Joined the Discourse*

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1. The Survival of the Most Cultured

Objective

At the end of this chapter, you should be able to:

- Explain the nature of culture and its roles in the evolution of human species.
- Identify the role of cultural diversity.
- Discuss and illustrate with examples the dynamic interaction between culture and other factors: environment, genes, brain, and behaviors.
- Describe the process of globalization from evolutionary biology's perspective.
- Distinguish the unique characteristics of globalization in the modern era.

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We are often amazed at the incredible tapestry of our cultures on this planet. They are not only rich, but also incredibly transferable, to the extent that humans from one corner of the world can benefit from inventions and traditions that originated from another, distant land.

While the flow of cultural exchange is incredible and beneficial, similarities and differences have dynamically pulled and pushed the interaction, acting as anything from opportunities to obstacles, relentlessly shaping and reshaping our lives throughout the history. This raises questions, such as why are these cultural boundaries in language, values, religions, and practices so persistent, yet also malleable? Why do they even exist in the first place? Why are we so different from each other, yet, so similar? And why are we so eager to learn from each other, yet so aggressive towards each other that we sometimes want to destroy those who don't think in the same way as us?

If we look at human beings from a biological point of view, we are genetically similar. Human beings are such a young species that, in fact, race does not exist. We may have different skin color or body structure, but genetically, we are not different enough to justify more than one distinct race among us. In terms of DNA sequence, we are up to 99.5% similar to any of our fellow humans.¹

Race is a social construct with no genetic or scientific meaning, and it is also a new concept of the modern era. Ancient and classical civilizations tended to see differences in tribal affiliation, rather than skin color and physical appearance. Indeed, many African officers and soldiers patrolled Hadrian's Wall 2000 years ago.² Roman emperor Septimius Severus was born in Libya, and thus, he was the first black man to rule England. "Race" only entered our vocabulary during the 16th century,³ as an attempt to classify human groups at a time when knowledge about genes did not exist.

UNESCO, supported by scholars such as Lévi-Strauss – a founder of ethnology – insisted that the term "race" should be replaced by "culture," and "racism" by "ethnocentrism." The diversity we see in human beings comes from geographical, historical, political, economic and social factors.⁴ There is no inherent superior or inferior implication for advancement in our biological make-up, because all human beings belong to a single species.

While the above-mentioned statements are correct, genes are not mere onlookers in the dynamic evolution of culture. In this chapter, we will explore the role of biology and culture, and the many ways they have joined forces to shape the incredible state of our existence and advancement on this planet. We will discuss why diversity continues to divide us and why globalization seems so unstoppable. Only by understanding these core

issues from such an interdisciplinary point of view, can we comprehend the immense dynamics represented in cross-cultural communication without risking oversimplification, or assuming the static nature of its components in order to make sense of everything.

1.1 The nature of culture

We must begin the reading of this book with an understanding of what “culture” actually is. However, “culture” is a complex word. There are as many definitions of culture as there are authors who have ever studied the subject. Rather than limit our investigations by selecting one definition of “culture” at this stage, we will first look for insight from a different angle, a discipline that forms part of our discourse in this book: evolutionary biology. In our search for an explanation for why culture exists, this approach will provide us with a better understanding of the nature of culture and its definition in our study’s context.

1.1.1 A Power Transition from Gene to Culture

In the 18th and 19th centuries, the study of human diversity was accelerated by the emergence of two disciplines: evolutionary biology and anthropology. However, the development in these two fields has been highly divergent. Recently, some of the most impressive studies on culture have been conducted by natural scientists, who point out that culture is an integral part of biology.⁵ As commentator McGrew admits, it is “a wee bit of irony”⁶ that it takes colleagues from the natural sciences to convince us that nothing about culture actually makes sense, unless it is put under the interdisciplinary spotlight with biology. So how are culture and genes related to each other?

1.1.1.1 *Genes or Culture?*

Let’s start with an example.

In 2006, Ms. Sandra Piovesan, 50, was found bleeding to death after being mauled by a pack of nine hybrid wolves, which she had raised as pets. The pups grew up in her backyard, were treated like her children, and, according to Ms. Piovesan, had given her “unqualified love.”⁷

Unfortunately, such cases are not uncommon. No matter how close the human-animal relationship is, a wolf is a wolf and its genes tell it to hunt and attack, possibly even the human who raised it. Information stocked in

its genes determines what it eats, how it moves, and what sound it makes. In short, a wolf does not behave like a human even if it lives with humans. Its genes overrule the social environment.

Now consider the reverse. In 1920, two little girls were found living with a pack of wolves in Northern India. They showed no trace of humanness and seemed to have the minds of wolves. According to the diary of the man who found them,⁸ the feral girls “were more ferocious than the cubs, making faces, showing teeth.” They “would run very fast, just like squirrels.” Their eyes were “wide open at night,” with “a peculiar blue gaze, like that of a cat or dog in the dark.” They could “smell meat from a great distance like animals.” It was clear that the girls were more like wolves in a human body. Their human genes somehow failed to tell them that they were human, that they should stand on two legs, speak a certain language, and behave in a human way. In sum, while a wolf living with humans does not behave like a human, a human living with wolves tends to behave like a wolf. For the wolves, their *genes overrule the social environment*. For humans, the reverse is true, their *genes give way to the social environment*.

1.1.1.2 Culture as a Survival Strategy

What does this tell us about the crucial role of social environment? The answer is, it tells us nearly everything that separates humans from other animals. In 2013, Mark Pagel published a ground-breaking book titled *Wired for Culture*,⁹ praised by the prominent journal *Nature* as “the best popular science book on culture so far.”¹⁰ Approached from evolutionary biology, Pagel argues that social interaction, or culture, is the last stage of replacing genes in order to enable humans to deal with survival issues. Unlike other animals, we are much less dependent on our genes to tell us what to do. Instead of taking information from the pool of DNA that we inherit from our parents, we gain most of our survival information from culture: the food we eat, the clothes we wear, the tools we make and use, the language we speak, the Gods we believe in, the people we consider as friends and the enemies we should fight and kill in a war. Basically, all human beings are born with a receptive mind that absorbs the first culture seen; consequently, humans become actors in that culture. This is why the aforementioned feral children behave according to the wolves’ culture, and not according to their human genes. A wolf brought up by sheep (or humans, for that matter) will remain a wolf and inevitably turn on its benefactors, because, for the wolf, it is the rules of the genes that count. But for a newborn human, it is the rules of the culture that count. It must be ready to join any cultural group on Earth, and behave according to that culture – cold Iceland, hot dry Central Africa,

tropical Guyana, nomadic Arabia, or even a wolves' den, deep in the Indian forest – and to speak the language of that culture. Why? Because that is the only way this human can survive.

In animals, genes evolve to guide their behaviors and their survival. In human beings, genes have been largely replaced by culture. Culture evolves and guides our behaviors and teaches us how to survive.

1.1.2 How Did This Power Transition Happen?

According to Pagel,¹¹ our world is 4.5 billion years old, but culture appeared only around 200,000 years ago, with the *ability to learn from others*. It started with symbolic thinking in the form of art and adornment, which allowed us to communicate ideas to others through the meanings attached to each object or symbol. The ability to observe, copy, pick the best practices, and transfer them to others created an entirely new sphere of evolution. Of course, animals can observe and imitate others, but humans differ in the way that we are *conscious* of what we are copying and why we are doing so. We do not just mindlessly imitate others, but rather pick the best bits and teach them to someone else.

Culture was initially formed this way as its elements (i.e. ideas, languages, music, art, innovation, etc.) could act like genes, albeit much faster than genes. For example, genes can only make changes and improve when we reproduce the next generation in a different body. This takes a long time. Unlike genes, cultural elements can jump directly from one mind to another, circumventing the normal genetic routes of transmission. We must wait many generations to see some “good” genes become dominant in a population. However, culture allows us to acquire knowledge, belief, ideas and practices by watching, imitating and learning from others in a split second. While genes are rather fixed, i.e. from birth, we cannot really change a lot the sets of genes given to us by our parents, culture is a vast store of continuous and rich information, improved technologies, broadened knowledge and wisdom. Throughout your lifetime, you can sample from this sea of evolving ideas, adopting, considering, changing, rejecting, improving, accumulating, etc.

Clearly, culture is a superior guide of behaviors than genes. Not surprisingly, then, for the sake of our species, culture has gradually evolved to become a survival strategy. It has gradually taken over the running of

our day-to-day affairs from genes, and has been providing us with many solutions to the problems of our existence. With our capacity for social learning, we no longer wholly rely on genetic improvement, such as better wings, feathers, shells, claws, toxins, etc. to ensure our survival. We have cultures with accumulated ideas and knowledge that are shared and passed down through generations. This makes us a powerful species. We may not have a genetic physicality suitable for living under water, but we have created submarines. We may not have the genes to fly, but we have flown to the moon and beyond. Humans have not only migrated from Africa to populate the whole world and radically alter the earth's biota, but we are also on the way to conquering outer space. We are no longer confined to one environment, but are able to transform the environment to suit our needs. As Pagel observes, if we fast-forwards a million years, our close genetic relatives the chimpanzees will still be sitting in the forest, using the same old stone cracking the same old nut. This is because their genes tell them to do so. They may be able to learn and imitate a certain act, but they cannot understand why; they cannot pick the best practices, cannot learn from mistakes, cannot improve an idea, and cannot teach it to others. Meanwhile, thanks to culture, which is essentially the ability to learn from others, humans have built skyscrapers and spaceships.

At this point, it is clear that, for our purpose, the definition of culture should contain the recurring theme of survival strategies through social learning. We have therefore chosen a definition from Triandis,¹² because it is the closest to what we are looking for, and adapted it as follows: "Culture is a set of evolving man-made elements that have increased the probability of survival, and thus become shared among those who could communicate with each other."

Culture is initially formed by the ability to imitate, to select the best practices, and to transfer them to others. Instead of waiting for a change in genes so humans can evolve wings to fly (which may never happen), culture allows us to pull ideas together and build air planes.

1.2 Cultural diversity

Language is one of the defining traits of being humans, but it also means that we are probably the only animal that can find itself in a situation where two individuals might not be able to communicate with each

other, as if they were two different biological species. Even when we seem to speak the same language, different accents can make mutual understanding challenging. Hence, we make the mistake of, for example, assuming that people in the Middle East naturally understand each other because most of them speak Arabic. By comparison, an elephant would have little trouble knowing what to do if it is placed amongst another herd of elephants. In sum, we may be one species physically, but language seems to tell us that we are not. If, as we have suggested, that culture is a survival strategy, why, then, do all humans on this planet not share the same culture? Why do we need such vast diversity in language and many other aspects of culture? In this section, we will briefly explore the answers to these questions.

1.2.1 The Interaction of Environment – Culture

The biodiversity on our planet is impressive, and humans have used the capacity of culture to be able to live in all kinds of environment. Our species lives deep in the jungles, floats on the water, survives extreme cold, and conquers the desert.¹³ This is why “biodiversity” is often used as a hypothesis to explain the “cultural diversity” among humans. But is this hypothesis correct?

1.2.1.1 *Environmental Determinism*

The natural environment has long been used to explain people’s characters since the time of Greek, Roman and later Arab scholars. Aristotle, for example, argued that Europe’s cold climate produced brave but unintelligent people who could not rule, while Asia’s warm climate made the people there intelligent but demotivated, and therefore subject to slavery. He believed that his homeland Greece, the middle place, combined the best of both worlds and would be the center of power and knowledge.¹⁴

In the 19th century, Darwin and his monumental work on natural selection¹⁵ laid the foundation for a theory called *environmental determinism*. It posits that living environment is the major reason why our societies developed in different ways. However, this theory was also used to justify imperialism and racism.¹⁶ For example, African colonization was legitimized by the logic that tropical climates made people lazy and uncivilized, while the frequent variability of cold climates triggered hard work and thus led to more developed societies.¹⁷ Environmental determinism also underlines Hitler’s idea of race and superiority.¹⁸

Later, the theory of *neo-environmental determinism* steered away from issues of race and ethnicities and focused on the impact of environment on economic and political development. Jared Diamond, for example, argues that the number of wild plants and animals suitable for domestication in each continent was the initial deciding factor that led to surplus food production and, consequently, to a growth in human populations and other economic developments.¹⁹ Domesticated animals and plants were most abundant in the Fertile Crescent (modern Egypt, Iraq, Israel, Palestine, Syria, and Turkey) followed by China, Mexico, and the Andes (modern Venezuela, Colombia, Ecuador, Peru, Bolivia, Argentina and Chili), while the least numerous and least productive suites arose in the eastern United States, New Guinea, and Ethiopia.



According to Jared Diamond, Europe became a power base because its nations grew out of the first farming societies, with the world's most easily domesticable animals. This gave them a head start to later conquer the rest of the world. The West is simply geographically privileged. However, Papua New Guinea is an exception. The crop here was not as productive as wheat crops in other early farming regions. They rot quickly and have to be eaten in a short time. The only big domestic animal was the pig, but it is not as productive as oxen or horses: no milk, wool, leather, hides, or the ability to pull ploughs. That is why despite being a cradle of agriculture, Papua New Guinea did not develop as far as other farming societies. To this day, pigs have a strong social significance and convey social status of a person.²⁰ A fully grown swine can cost over USD \$2000, and it is not unusual to see people taking their pigs for a walk, or women breastfeeding young piglets. The Kuma people believe that their ancestors used to be half-human half-beast living in the mud under the ground. One day, they followed their pig outside, saw the sun for the first time, cut of their tails, developed to full human and escaped the dark age/"A man with his piglet in the market at Tari, (Papua New Guinea)," MAI NGUYEN-PHUONG-MAI.

1.2.1.2 *Environmental Possibilism*

Environmental determinism theory clearly cannot explain phenomena such as the Kikuyu and Maasai tribes of Kenya, who live side by side but differ profoundly in terms of their physical measurements and culture. The Kikuyu are farmers and the Maasai are cattle raisers. Another puzzling example is Papua New Guinea, a small country in the western Pacific where more than 800 different languages are spoken. Within just a few miles, you can find tribes that have a language and culture of their own. In fact, cultural diversity is actively pursued here. The anthropologist Don Kulick gave one example of the Buian tribe, which purposely fostered linguistic diversity by switching all its masculine and feminine gender agreements, so that their language would be *different* from their neighbors' dialects.²¹



The San Bushmen are hunter-gatherers whose territories span Botswana, Namibia, Angola, Zambia, Lesotho and Zimbabwe. Their harsh and dry home ranges have significantly influenced their social, economic and spiritual relationships/ "Drinking water from the bi bulb plant found deep under the sand," DVL.²²

Environment undoubtedly influences human societies, likewise, humans have dramatically changed the environment as well. Humans have flattened forests, dried up rivers, reclaimed land from the ocean, and, for the first time since the dinosaur disappeared, humans are driving animals and plants to extinction faster than new species can evolve.²³ The interaction between the environment and humans is so intricate and dynamic that it has triggered the development of the *environmental possibilism* theory. This posits that human beings are active rather than passive agents, who see numerous possibilities in nature and actively shape it to suit our need for survival. This theory clearly goes in the opposite direction to environmental determinism, so much so that it has been criticized for underestimating the influence of nature. In short, environmental determinism goes too far, but environmental possibilism gives up too much.²⁴ This has, in turn, triggered the concept of *probabilism* – a mid-way view that sees physical environment not as deterministic, but as the most influential factor.²⁵

1.2.1.3 Cultural Ecology

For many, Julian Steward's book *Theory of Cultural Change*²⁶ was the first synthesis of the discoveries of human diversity and uniqueness using ecological and evolutionary ideas. It combined different approaches and, while not without critics, it gave a simple, workable model with which to understand the dynamic interaction between environment and culture.²⁷ The most important tenet of cultural ecology is that humans are part of the environment, intrinsically embedded in earth surface processes, neither “victims” of its force (which is determinism), nor an outside force making an impact on it (possibilism). In this interdependent relationship, culture is not a “consequence” of nature or a tool to “control” nature, but rather a *strategy to interact* with nature.

An example of cultural ecology can be found in the worship of cows in India. The important role of cows in agriculture and transportation led to the development of a belief that cows were sacred and should not be eaten.²⁸ This belief was a good cultural strategy to ensure that people in India did not kill the animals that were crucial to their survival. In short, humans are expected to develop a sustainable and harmonious cultural relationship with the environment in which they live. This dynamic interaction leads to diversity in culture.



All parts of the cow are sacred, including cow dung and urine, which are often used in religious rituals and commercial products. All deities are believed to reside in "The mother of cows" Kamadhenu/ "Traffic gives way to a cow in Mumbai, (India)," MAI NGUYEN-PHUONG-MAI.

1.2.2 Cultural Diversity as a Tool for Resource Management

While it is clear how the world can be seen as a bio-culturally collaborative product, the question of why humans have formed so many different cultures to interact with an identical environment remains open.

The fact that we tend to diverge into sub-groups in densely populated areas can be puzzling, but, as Pagel argues, becomes understandable if we add the element of resources to the big picture. Bearing in mind that since culture is a survival strategy, the capacity of having a culture (i.e. learning from others) also means ideas, knowledge and resources can be stolen by one group at the expense of the other. If you see that my tool is catching more fish than yours, you can steal my innovation just by studying my tool carefully, and then making the same one, even better. That is not very fair to me, it seems. So what can I do to protect my cultural ideas? Basically, I have two choices: (1) to retreat into my small family group and only share knowledge with my relatives; (2) to develop a system that I can communicate with you and convince you that cooperation is actually better than stealing.²⁹

Fortunately, our ancestors did not choose the first option, since that would have been the end of culture – the very mechanism that advances humans as a species. Culture is possible only by learning continuously from others, and small groups only offer a few ideas. Small groups can also completely disappear as a result of attacks, accidents or diseases, which means that any ideas and innovations are wasted.

We took the second option and, consequently, language evolved as a crucial mechanism for dealing with the possibilities of ideas being stolen.³⁰ I now have the ability to convince you to exchange my fish-catching tool for your technique for making clothes. If you agree, we can then start a good business relationship. If you don't, I will sell my innovation to someone else.

Language facilitates deal making, negotiation and agreement. And because its purpose is also to safeguard knowledge and information in competition with other groups, many languages were formed. When we don't know each other and I am not sure of your intentions, my distinctive language helps to keep any innovations within my own group and my own culture. It would be very difficult for you to steal my ideas if you don't know my language and the complex code of behavior that it governs. But once you have shown your intentions to be good and fair, we will somehow overcome the language barrier in order to cooperate. Trading across the globe has operated in more or less this way, with linguistic and cultural diversity as an inherent *regulator*, used by one group to safeguard and negotiate cultural resources with another. In fact, you don't need to look far to see the similarity of language evolution with what we still do every day: kids creating a secret language to write their diary or communicate with friends, codes and cyphers used by military and diplomatic forces to exchange confidential information, and businesses who send data that has been encoded to protect trade secrets.

The desire to manage cultural resources not only enables diverse languages to evolve, but also channels people into different sub-groups. As we band together to exert our authority over certain resources in competition with another group, *cultural diversity becomes an element for us to recognize an ingroup we can trust*. It rests on the notion that because this person has the same cultural traits (the way [s]he dresses and communicates or the values [s]he holds dear), it is highly likely that we share the same survival strategies, live in the same group and therefore this person is more trustworthy than others. This tendency to have a bias towards one's own group is crucial in understanding human behaviors across cultures. It can be uncomfortable to know that our cultural nepotism or *ingroup bias* (favoritism for those in the same group) is evolutionary.³¹ However, we need to keep in mind that

this is rooted in the notion that our culture is our survival strategy, and, for our own sake, we evolved to love it, to protect it, even to see our culture as superior than that of others (ethnocentrism). This will be a recurrent theme, which you will see from other points of view in this chapter and throughout the book.

Cultural diversity can be explained by:

- *The impact of environment, with theories ranging from a deciding factor (determinism), an influential factor (probabilism), a source of possibilities (possibilism), to an entity inseparable from the human species (ecology).*
 - *The role of linguistic and cultural diversity, which are regulators for (1) safeguarding cultural resources, recognizing who we can trust; and (2) negotiating cultural resources with other human groups for mutual interests.*
-

1.3 Diversity pathways

The interaction between environment and culture is dynamic, but it is far from sufficient in terms of explaining human diversity. The complexity of our culture must be seen from a bigger angle, one that involves the physical and genetic make-up of our body. In this section, we will gradually add genes and neurons to the big picture. Each new interaction will reveal different pathways that contribute to the incredible diversity we see in our cultures today. To aid your understanding, a *Diversity Pathways* diagram will be constructed in steps and then patched together at the end of the section.

1.3.1 The Interaction of Environment – Culture – Genes

In the first section of this chapter, we discussed the transition of power from genes to culture. From this point of view, it may not be a strange idea to question the role of genes: What do they do now? If culture is so important, is it not handy for everyone to have the same genes? With regard to the role of the environment, if it is not a deciding factor, as environmental determinism insists, to what extent does it affect culture and genes after all?

Genes are the fundamental physical and functional unit of heredity. Therefore, the power transition from genes to culture is not mutually exclusive. In fact, genes are crucial mechanisms for *turning useful cultural values into genetic traits*, and vice versa. The *gene–culture co-evolution theory*

is crucial in understanding human diversity. It posits that while culture shapes the expression and selection of genes, genes also influence the adoption and formation of certain cultural values.³² Nature and nurture are both active in shaping the diversity of human cultures and behaviors. To gain a better understanding of how dynamic genes, culture and environment can interact simultaneously, let's have a look at the following case study.

CASE STUDY

Serotonin – a chemical found in the human body – is responsible for maintaining mood balance. Genes that carry serotonin have a shorter variant (5-HTTLPR), and this short allele is connected with depression.³³ In East Asia, people have almost twice the rate (70-80%) of a short allele or “depression gene” that white Westerners do (40-45%). However, they suffer less than half the rates of anxiety and depression.³⁴ Try to tackle this paradox with the following information:

1. Genes–Culture: Those who carry the short allele need more social support to maintain their well-being, without which they would have a 4.5 times greater risk of depression. Hence, they need to be surrounded by a close-knit network of friends and families. The short allele not only causes depression, but also makes people more sensitive. Hence, they are also more group-oriented, capable of recognizing and reacting to others' emotional states. In other words, short allele people both need and fit well in societies with richly interconnected networks. According to hypothesis 1: The depression gene was there first. Group-mindset culture became an established and strategic cultural value to cope with the depression gene.
2. Environment–Culture: Pathogens – infectious agents such as bacteria and fungus that cause disease – are historically high in warm and moist climates. In order to cope with the constant risk of infection, our ancestors who first migrated to these regions didn't wait for genes to evolve an immune system to battle diseases, as is the case in animals. Instead, they slowly developed a cultural strategy to deal with high pathogen loads: a group-oriented mindset that conforms to collective rules regarding sanitation, food preparation, etc. Over a period of time, those who followed the cultural rules of group conformity had a higher chance of survival. This gives us hypothesis 2: Group-mindset culture became an established and strategic cultural value to cope with pathogens.
3. Culture–Genes or Genes–Culture: The end result is that both “group-mindset” and “depression gene” still prevail in East Asia. Which came first, and which caused which?

- a. People with depression genes need and fit better into the group-mindset culture, so their gene became dominant to support this value. Thus, a culture with a group-mindset was the consequence of the depression gene. In other words, the depression gene came first and culture became the strategy to cope with this gene.
- b. A group-mindset culture was needed to cope with pathogens and hence it favors those with the depression gene because this gene helped people conform to the group's rules. In other words, culture came first and the depression gene prevailed as a consequence.
- c. Both group-mindset culture and the depression gene gained ground together as a dual solution to high pathogen loads in the environment. Group-mindset and short allele were compatible as they reproduced each other to eventually develop a collectivistic culture that (i) is effective at coping with pathogens, and (ii) outweighs the negative impact of increased numbers of depression gene by providing more social support.



The Happy Planet Index measures elements that contribute towards a happy life in 140 countries and looked at factors such as life expectancy, well-being, inequality and ecological footprint. In 2016, Costa Rica topped this list, followed by Mexico, Columbia, Vanuatu and Vietnam³⁵ – all of them have a “group mindset culture.” However, this index is different from several other studies in which the same countries score much lower. For example, a major discontent in Mexico is the bad reputation of the police. 63 per cent of Mexicans have little or no trust in their police force while 66 per cent view them as corrupt.³⁶ The complexity of this issue shows that we should interpret a phenomenon by taking into account the dynamic interaction of many factors, as we will continue to explore in this chapter/ “Riot police ready for action in Mexico City, (Mexico),” MAI NGUYEN-PHUONG-MAI.

The dynamic of the culture–genes coevolution shows us that it can be problematic to structure our understanding along the traditional binary spectrum of nature–nurtured opposites. As the case study shows, the interaction culture and gene is very dynamic, and is better understood as a vicious circle of cause and effect. What has been culturally “nurtured” for long enough (group mindset) will slowly become “nature” with genetic traits (depression gene). In turn, nature with genetic traits (depression gene) reinforces those behaviors that are part of the culture (group mindset). This dynamic interaction aims at the ultimate goal of evolving a culture that provides a survival strategy that allows humans to advance.

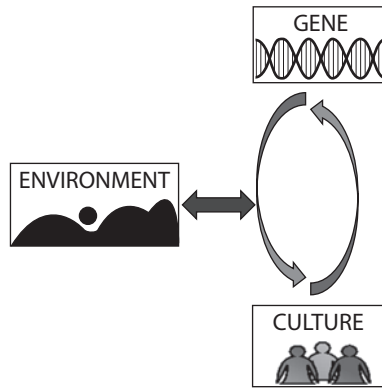


Figure 1.1. The interaction of Environment – Culture – Genes

The selection of genes depends on the coevolution with culture: a specific cultural value may prefer a certain gene, and a certain gene may slowly reinforce a certain cultural value.

1.3.2 The Interaction of Environment – Culture – Genes – Brain

Now that we have gained understanding of how environment, culture and genes dynamically interact with one another, it is time to add the brain to the picture. The brain is the central hub where these interactions converge and translate into behaviors that we see in our fellow humans every day. How do behaviors affect the neuro-mechanism of the brain? Is the brain wired differently across cultures, professions and genders? What role does

the brain play in creating different diversity pathways? These are the questions we will discuss in this section.

1.3.2.1 Culture's Influences on the Brain

A brain consists of about 100 billion neurons connecting with each other to form complex circuits that carry electrical and chemical messages to make memories and govern behaviors.³⁷ However, brains across different cultures and contexts do not work in the same way, as the neural functions are shaped by culture and social experience. For example, experiments show that when solving simple arithmetic problems, despite ending up with similar result, English-speaking people relied on language processing, while Chinese-speaking people engaged a visuo-premotor association network,³⁸ which may be related to the logograms used in Chinese characters.³⁹ Religious beliefs also modulate neural mechanisms that underlie the perception of self. Buddhists, for instance, showed *reduced* neural processing of self-relatedness, arguably due to the doctrine of “*anatta*” (no-self) in Buddhism.⁴⁰ Although the study of cultural neuroscience is in its infancy, there is a plethora of evidence for similar cultural influence on brain function with regard to cognition,⁴¹ emotion,⁴² interpersonal perception,⁴³ self-awareness,⁴⁴ and empathy,⁴⁵ etc.

From a practical point of view, the culturally patterned brain enables us to voluntarily take actions that are appropriate in a specific culture.⁴⁶ Newly arrived or visiting people, whose brains are not (yet) equipped with the necessary neural basis, may find it challenging to conform to the behavioral scripts and social rules in the new social environment.

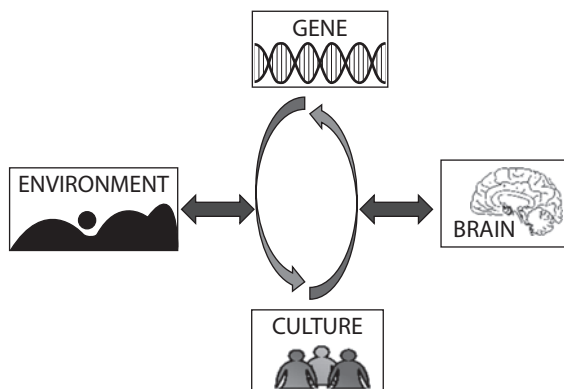


Figure 1.2. The interaction of Environment – Culture – Genes – Brain

1.3.2.2 The Brain's Plasticity

The neurons in our brain are separated by empty spaces called *synapse* clefts. When two neurons communicate, they do not physically touch each other but shoot neurotransmitters across the synapse cleft, from the axon (sender) of neuron A to the dendrites (receiver) of neuron B. Each neuron usually has only one axon, but, as the picture shows, many dendrites.

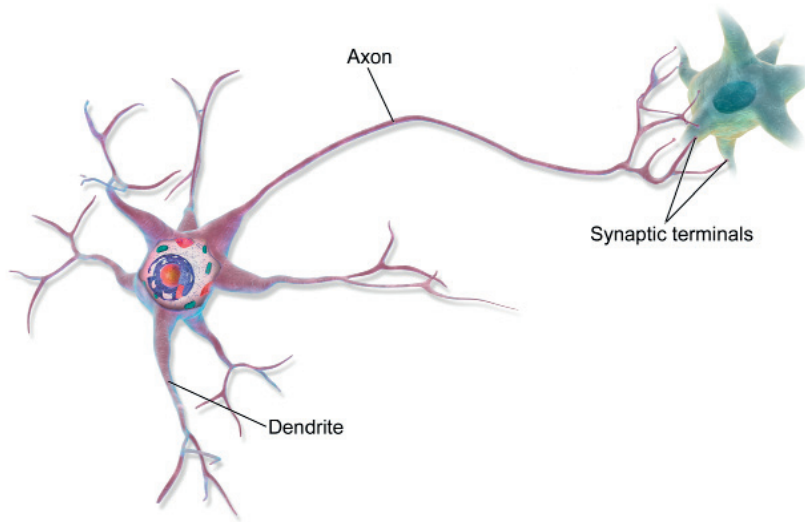


Figure 1.3. Thought is conducted by electrical impulses, sent from the axon (sender) of one neuron to the dendrites (receiver) of another neuron/“Anatomy of a multipolar neuron,” BRUCEBLAUS.⁴⁷

Now look at figure 1.4. This is what happens when we have a repetition of a thought or when we practice something over and over again: the more neurotransmitters are shot through the synapse, the more receptors are created to receive the signals; eventually, the neuron will grow additional dendrite branches to make our thoughts easier. Around the axon (sender), glia cells will create a supportive layer to speed up the electrical impulses. The two neurons will also physically move closer together in order to decrease the distance the neurotransmitters have to travel. Thoughts that dominate your mind are those that have the shortest distance to cover and the easiest way to travel, a “cell assembly” of neurons that fire together rapidly without much effort.

This means repeated thoughts will be experienced more easily each time you have them. Conversely, thoughts that are triggered less frequently will disappear. How does this happen? Synapse connections that get used less are marked by a protein. When we sleep, our brain cells shrink by up to 60 per

cent to create space for supporting glia cells. Glia cells are not only responsible for speeding up signals between neurons, but also for detecting the protein mark and destroying the “forgotten” synapses. This is why we often wake up from a sleep or a power nap feeling fresh, ready to take in new information. Our brain physically rewires itself so we can forge new pathways, create new habits and respond to the various demands of the cultural environment.

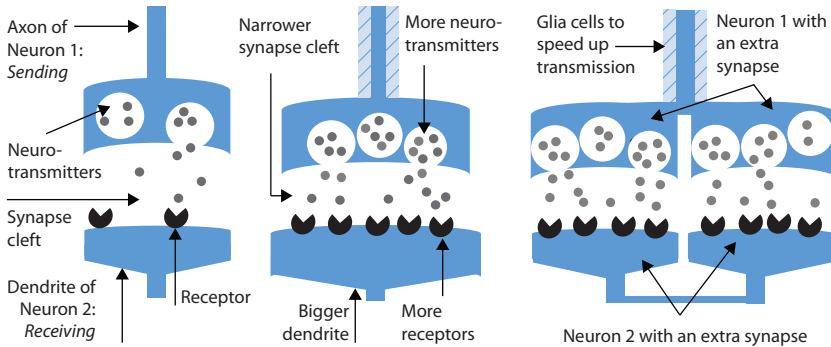


Figure 1.4. This is how learning changes the structure of our brain. Neurotransmitters are shot through the synapse cleft (stage 1). With many repetitions, neurons grow bigger dendrites and increase the number of neurotransmitters and receptors (stage 2). Finally, there are additional dendrites to make thinking easier, and electrical impulses are sped up along the axon by the support of glia cells (stage 3). The more connections there are, the easier it is for a group of neurons to fire together, then wire together, and move closer together. When such a change happens, our actions become automatic because there is a long-lasting effect between two neurons/ “Long-term potentiation,” MAI NGUYEN-PHUONG-MAI.

The constant morphing and shifting of the brain tells us that our neural machinery system is intrinsically malleable or has “plasticity” – a term coined in 1894 by pioneering Spanish neuroanatomist Santiago Ramon y Cajal. Just like a muscle can change with exercises, we can develop our brain and induce changes in both its functions and structures. For example, when a person is blind, occipital regions can be recruited to process *sound* instead of *vision*, enabling people with impaired vision to have enhanced hearing ability.⁴⁸ Hence, historically, the image of blind musicians and poets is an important touchstone in many cultures: the travelling *biwa hoshi* in 20th century Japan, the *kobzars* of Ukraine, Homer of Greece, and many piano tuners in France and England during the 19th century.

Beyond recovering from impairment, our neural mechanism has an astounding capacity to rewire and adjust to high-level cultural experiences. London cab drivers,⁴⁹ who receive intensive training for between two to four years, learn to memorize and navigate 25,000 streets in order to obtain a license. As a consequence, the volume of their grey matter in the posterior

hippocampus is enlarged. The longer they drive, the bigger this volume became. Similar changes in both neural structure and function of the brain has been found in people who juggle,⁵⁰ meditate,⁵¹ or dance⁵² as a profession or regular practice.

In fact, we don't need intensive training to see how malleable the brain is. Even very simple or subtle cues, such as an iconic building or the difference between using plural pronouns (e.g. "we" and "our") or singular pronouns (e.g. "I" and "me") can activate relevant cultural mindsets and their associate networks. People who are primed by these cultural cues, even just by looking at them briefly, will have responsive neural reactions that correspond with those cues, regardless of their original backgrounds.⁵³ Our brain is so flexible that we are capable of representing *multiple cultures* in our mind and switching between values simultaneously, depending on the given priming culture.⁵⁴⁻⁵⁵⁻⁵⁶ Consequently, people can be very self-centered when primed with "I" and "me," and think more collectively when primed with "we" and "our." The ventro-medial prefrontal cortex (vmPFC) – our selfhood loci in the brain⁵⁷ – can be active in both priming variances.

The plasticity of the brain shows us that our neural mechanism is able to adapt to a new environment that is as subtle as some cultural cues. Repeated behaviors can significantly rewire the brain and change both its physical form and functional features. The idea that the brain recreates itself and that there is no fundamental core of identity in the brain means that we can train the brain and learn new tricks, adapt to new environments, adopt new cultures, reshape and discover many different aspects of our identities and personalities.⁵⁸⁻⁵⁹

Neurons that fire together, wire together. Our thoughts change our brain physically. The brain's plasticity means that we are capable of adapting to new environments and representing multiple cultures in our mind, depending on the context.

1.3.2.3 *The Sexist Brain?*

Although studies have shown that the brains of men and women work slightly differently,⁶⁰ researchers have also argued that this difference is not as distinct as many want to believe,⁶¹ and may be due to a difference in *size* rather than a difference in *gender*.⁶²⁻⁶³ In any case, unlike genitalia, brains do not come in male or female forms.⁶⁴⁻⁶⁵ Up to 53 per cent of brains cover both male-end and female-end features.⁶⁶ This means you can be highly masculine when undertaking one task, but highly feminine undertaking another. One can seriously challenge the assumption of "left brain for men"

and “right brain for women” by pointing out that removing even half of the brain will *not* significantly affect how one mentally develops.⁶⁷ At the very least, men and women are no different than two men with unique emotional styles.⁶⁸

If neural differences between men and women exist, regardless of the degree, they should always be seen in specific cultural contexts.⁶⁹⁻⁷⁰ A woman’s brain may show high levels of connectivity between two hemispheres, which allows her to be better at multi-tasking. But she was *not* born that way. Her brain is structured that way simply because her culture expects that of her, so she uses that part of her brain more often. The same is true for other stereotypical beliefs, i.e. that men are “hard-wired” to do better at jobs related to maths, cars and engineering. An array of brain studies have been criticized for *neurosexism* and failing to recognize the plasticity of gender differences⁷¹ and thus contributing to inaccurate and harmful misunderstanding about the sexes.⁷²⁻⁷³

As early as the 1990s, a neuroscientist famously remarked: “If the neural systems used for a given task can change with 15 min[utes] of practice [...] how can we any longer separate organic structures from their experience in the organism’s history?”⁷⁴ The field of cultural neuroscience has given a resounding response: “We cannot!” The plasticity of our brain means that anything that is said to be “hard-wired” should be treated with great caution. A brain is neither software, nor hardware, but a very versatile mechanism that tunes so finely with the cultural environment, a “cultural sponge”⁷⁵ of sorts, that it can constantly evolve, change and reorganize both its function and structure in response to internal and external environmental factors.

1.3.3 The Interaction of Environment – Culture – Genes – Brain – Behavior

While billions of neurons in the brain coordinate thoughts and behaviors, we now know that behaviors shape the brain as well. However, behavior is not the absolute end of the whole interaction cycle with environment, culture, genes and brain. The figure below, (inspired by a study of Chiao and colleague⁷⁶), shows us many different pathways that diversity can create as a result of this dynamic interaction: environment can influence the coevolution of culture–genes, the brain takes guidance from genes and responds to demand from culture by sending signals to instruct behavior. This dynamic cycle is completed with the impact of behaviors on all the aforementioned factors. As we already know, repeated behaviors not only

change the very structure and function of the brain, but have a significant impact on culture, genes and environment.

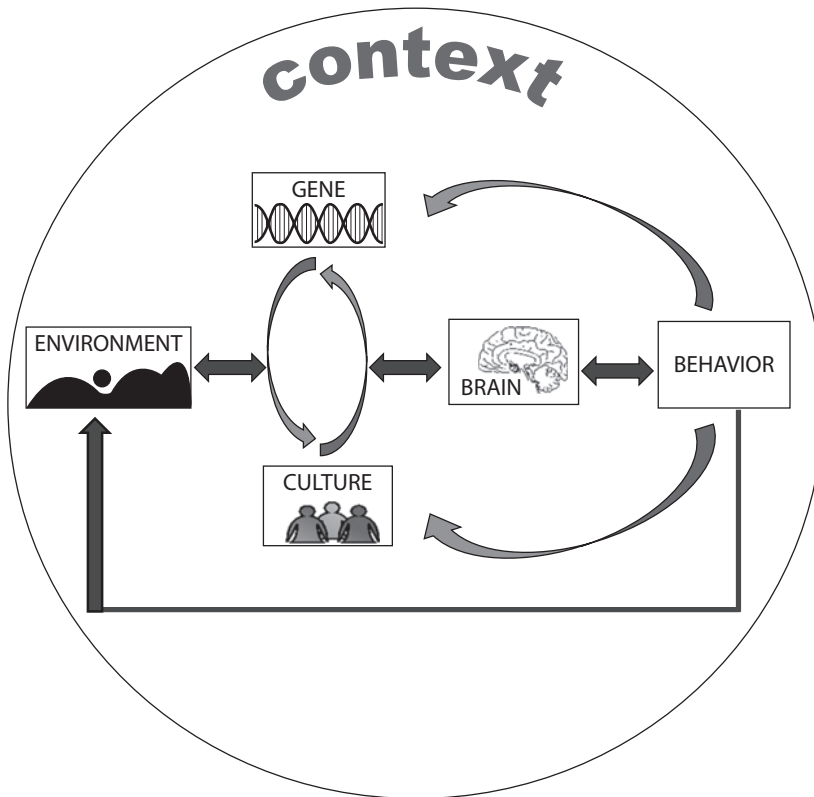


Figure 1.5. The Diagram of Diversity Pathways

1.3.3.1 The Impact of Behavior on Genes

Our genes determine a lot about who we are and how we interact with others, but this is not unidirectional, since behaviors can change our DNA as well. Identical twins have the same genes, yet they can have very different personalities, even physical traits. Behavioral epigenetics is a discipline that tries to address this question, i.e. how nurture shapes nature.

Since researchers cracked the code of the human genome in 2003, great strides have been made in understanding how our genes can be modified by the choices we make every day. In a period of only three months, changes in behaviors can turn on or off 500 good and bad genes.⁷⁷ A study of 30,000 people from all six continents tells us that 90 per cent of heart disease is entirely preventable by changing diet and taking exercise.⁷⁸ Pregnant

women who witnessed the attack on the World Trade Center had “scars” on their DNA and passed on higher levels of stress hormone to their babies. Social environment such as economic status can also seriously influence the genes that control cognitive performance. Genetic influences on changes in cognitive ability were close to zero for children from poorer homes, compared to half of the variation for those from wealthier homes. In other words, rich children are not genetically superior, their genes simply have more opportunities to reach their full potential.⁷⁹

The impact of behaviors on genes has important implications for the health industry. On the whole, healthcare budgets focus heavily on treating diseases in progress, and very little, no more than 5 per cent, is spent on precautions and active prevention.⁸⁰ Insurance companies and organizations have been advised to adopt a mental shift from medicine reimbursement to prevention policies, from treating the symptoms to seeking the root causes. Many diseases are preventable and reversible by adopting a pathway that would slowly influence the expression of “bad” genes and promote the impact of “good” ones. Researchers have argued that this approach will result in significant savings of up to 75 per cent of health costs in the long term.⁸¹

Our potential is not completely hard-wired in DNA. Genes are not totally fixed from birth, and can be modified by behaviors.

1.3.3.2 *The Impact of Behavior on Culture*

In the first section of this chapter, we learned that culture has almost replaced genes in guiding our behaviors, but this interaction is a two-way street. Societies with a strong group-mindset may prompt individuals to act with collective interests at heart, but it does not mean all behaviors are the consequences of this value, and behaviors cannot influence or change this value. Social learning allows behavior to be a dynamic force that both *reflects* and *reshapes* cultural values simultaneously.⁸² The impact of repeated behaviors, a single policy, a single individual, or a single act can leave an enormous legacy and turn seemingly entrenched systems upside down.

CASE STUDIES

Cultural Reform

In 1922, Ataturk abolished the caliphate and conducted swift and sweeping reform in Turkey. New policies even banned religious dressing in public institu-

tions, including the traditional fez and turban. The national legislation was constructed using business legal codes inspired by those from Germany, judicial codes from Italy, and civil codes from Switzerland. By replacing the Arabic alphabet with the Latin one, within two years, the literacy rate increased from 10 to 70 per cent. Women were granted suffrage in 1935, well ahead of many European countries, including those whose laws Turkey borrowed from. Ataturk famously said that “everything we see in the world is the creative work of women.” In the space of 15 years, Ataturk transformed a conservative and feudal Turkey into a famously liberal, progressive and secular country from the ashes of the Ottoman Empire.



In 2010, the 26-year-old Tunisian street vendor Bouzizi set himself alight and triggered a revolutionary wave throughout the Islamic world. His act of defiance against injustice was the beginning of the so-called Arab Spring, which has been dramatically changing the political and religious landscape of three continents that make up the Middle East ever since/“Visitors at the tomb of Bouzizi in Sidi Bouzid, (Tunisia),” MAI NGUYEN-PHUONG-MAI.

Enforced Behavior

The public greeting “Heil Hitler” was believed to be a powerful conditioning device.⁸³ It probably started as an outward token of conformity. For those who didn’t support Hitler, but had to follow him, this greeting created a profound inconsistency between “behavior” and “belief” called cognitive dissonance. In order to solve this schizophrenic discomfort, people tried to establish their psychic equilibrium by consciously making themselves believe what they said and did,⁸⁴ mutating their conscience. Regardless of the nature of the government, many

other acts of public conformity, political rituals and legal regulations employ repeated behaviors with the aim of changing culture.⁸⁵

Sale Tactic

The “foot-in-the-door” compliance or the “lowball technique” is popular among sales people. It capitalizes on our tendency to align behavior and belief. First, customers are made to agree to a small request (e.g. agree to have a look at a car with a very cheap price), and once some behaviors have been shown (e.g. about to sign the paper), a greater request will be revealed (e.g. extra charge for parts). Since the customers have already committed, either verbally or through an action, they experience an inner need to make their attitude consistent with their words and deeds by following through and developing the belief that the car is actually still a good buy. This tactic is especially effective when combined with the tactic of “but you are free,” giving the customers the feeling they have been coaxed, not coerced into the sale.⁸⁶

Corporate Culture Change

Within the realm of organizational culture, the conventional wisdom is that it takes years to change “the way we do things around here.” But an \$8 billion company in the US proved that by focusing on the guiding behavioral principles, the corporate culture can change quickly and effectively.

When a desired behavior was identified by the company, for example, people should talk directly to each other, it would be formally labelled “Direct with Respect.” In combination with trainings, leaders would consciously mentor employees and demonstrate their “Direct with Respect.” They would reward employees with a “thank you” when the targeted behavior was shown. After six months, a cultural pulse survey was conducted to assess this behavior-focused strategy. This revealed a significant reduction in the number of employees leaving the company (from 12 to 6 per cent). Customers clearly noticed a change in service and the company’s market share on certain products grew by two points without the addition of new features.⁸⁷

Match the above cases with the following statements, each case can have more than one match:

1. People fight for what they believe, but also believe what they are fighting for.
2. Non-typical, random, radical or deviated behaviors are more than just exceptions and can gradually grow into new norms.
3. Even when the act is against the belief, repeated behavior can change attitudes and eventually deep-seated values.

4. "Thought is the child of action" (Disraeli). We forge the definition of the "self" by our deeds. Once given a role, it does not take long for us to act the role and become the role.

1.3.3.3 *The Impact of Behavior on Environment*

We previously discussed the role of environment in human diversity, with theories ranging from seeing environment as an absolute deciding factor, to a very influential force, or an "archive" of possibilities for human beings to take advantage of. It should be clear now, however, that similar to other interactions examined, this impact is not one-dimensional.

Natural environment has played an important role in diversifying human cultures and, in return, human cultures and behaviors have been reshaping and changing the environment significantly. For example, during the course of thousands of years, the Aboriginals in Australia burned forests to promote grasslands for hunting – a practice that affected the timing and intensity of the summer monsoon.⁸⁸ Early farming caused an anomalous reversal in natural declines of atmospheric carbon dioxide 7,000 years ago and these climatic changes set the Earth on an unnatural climate path.⁸⁹ Modernity and technology have sped up the pace that mankind is shaping the environment, with dramatic changes in landscapes, ecology and, of course, global warming.

Behaviors are not the end point of the interaction. They are both the consequence and the driving force of culture and environment. At the same time, behaviors are directed by genes, but can also modify genes.

At this point, we have completed the cycle of interaction between five factors that underline the immense diversity we see in our cultures, down to the level of gene and neuron. All factors dynamically and simultaneously relate to each other in such an intricate way that it is impossible to decide where the interaction starts or ends. Each factor is both a driving force and is impacted by other factors at the same time. None of the factors is static, all of them are dynamic. In other words, the term "plasticity" can be applied to all of them. The environment is powerful in shaping our diversity; at the same time, it is being reshaped by our culture and behaviors. Our genes control many of our behaviors, but they also coevolve with culture and can be modified by our behaviors. The plasticity of our brain means that it is capable of growing and developing just like a muscle, depending on the demand of the cultural and natural environment. Our behavior is guided by culture

and genes, but behavior also wields incredible power in changing culture and genes. Culture is both a dynamic and stable survival strategy. Human beings are not only the product of culture and its interaction with genes and environment, but also active agents in producing culture, changing our own genetic make-up, while relentlessly shaping and reshaping our environment. Due to this complexity, any cultural analysis should take into account a particular context in which an event occurs. The force of environment, genes, brain, culture and behaviors varies in each circumstance. Hence, in our Diagram of Diversity Pathways, context is represented by a circle that envelops all varieties of interaction.

ACTIVITY

Look at Figure 1.5 – The Diagram of Diversity Pathways, and give each arrow of interaction a number. For each number, do some quick research and find an example to illustrate the dynamic relationship between these factors. You can use search phrases such as “influence of X on Y” or “interaction between X and Y.”

1.4 Globalization

At this point, some healthy skepticism raises the question: “If our diversity is so immense, why do we have a seemingly unavoidable globalization that is apparently blurring cultural boundaries more than ever?”

Taking a look around, it is noticeable that societies are increasingly converging towards similar patterns. When Marshall McLuhan coined the concept of the “global village,”⁹⁰ he was referring to Plato’s definition of a city’s proper population, i.e. the ideal number of people who live within the range of a public speaker. Plato believed that the magic number was 5040 citizens. Nowadays, technology has replaced the public speaker and connects billions of people via networks of media, commerce, and migration. However, is globalization a new phenomenon? How is it possible for diversity and globalization, conflict and cooperation to coexist?

1.4.1 Effective Resource Management

As we learned from the previous section, resource management is a driving force for linguistic and cultural diversity. The differences between us are a

regulator to either safeguard resources against outsiders, or negotiate resources with those we can trust. When the environment is rich, this tendency to form sub-groups is even greater, since it is possible for a small group to “safeguard” knowledge more frequently than “negotiate” knowledge and still survive with little sharing. In a nutshell, abundant nature can prompt the possibility of splitting off and forming sub-groups, thus creating vast cultural diversity.⁹¹

However, a rich environment is not a deciding factor that makes humans destined to live in small tribal groups and have tribal cultures. The main purpose here is about interacting with the environment and managing cultural resources effectively for survival. At one point, humans realized that large groupings work as well. The level of production increased but with more or less the same costs. This is the advantage of “economies of scale,”⁹² which arise due to an inverse relationship between the quantity produced and per-unit fixed cost. Large groupings of people enable economies of scale, and the need to sub-divide into small cultures was removed by a system that provides for us sufficiently.⁹³ Examples can be found in many big and successful empires throughout history.

To conclude, regardless of rich or poor environments, resource management can lead to both the *dividing* and the *merging* of cultures. Looking at globalization, the next question we need to ask is: “Why does the tendency to merge seem to be the winner of the race?”

1.4.2 The Cooperative Nature of Humans

Theorists have long battled with the question of whether human nature is good or bad. Earlier theorists and theologians emphasized the warlike essence of the human mind with phrases such as “law of the jungle,” “every man for himself,” “dog eat dog,” and “survival of the fittest.”⁹⁴⁻⁹⁵⁻⁹⁶⁻⁹⁷ This view is still supported by some modern thinkers, including the 21st century-Nobel Laureate Oliver Williamson.⁹⁸

However, recent studies have consistently proved that human nature is not at all naturally evil.⁹⁹⁻¹⁰⁰⁻¹⁰¹⁻¹⁰²⁻¹⁰³ In their book *A Cooperative Species: Human Reciprocity and its Evolution*, the economists Sam Bowles and Herbert Gintis argued that humans genuinely want to cooperate and sincerely care about the well-being of their own group.¹⁰⁴ This psychology helps to bond individuals in building a prosperous and united community for surviving and competing with other groups. Evolution hence favors cooperative traits, but there’s a twist: this cooperation goes hand in hand with aggression towards outsiders. Groups that have a disproportionate number of selfish

and warlike, or peaceful and altruistic people will die out. Interestingly, and also uncomfortably, the authors assert that war is a necessary tool for this cooperative trait to evolve in humans. However, wars and conflicts are not inevitable. According to the authors, humans are cultural animals, capable of making sure that our legacy need not to be our destiny.¹⁰⁵



"Warfare is ultimately not a denial of the human capacity for cooperation, but merely the most destructive expression of it." – Lawrence H. Keeley / "The legacy of war in Sarajevo, (Bosnia and Herzegovina)," MAI NGUYEN-PHUONG-MAI.

Biologists have a generally sunnier view of humankind. For example, experiments show that infants of 18 months old would immediately open the door or pick up a dropped clothes peg when they see an *unrelated* adult whose hands are full, an altruistic act that is not enhanced by rewards, and not influenced by training.¹⁰⁷

Although the argument that cooperation is totally innate may not receive a full consensus, it is hard to deny the fact that humans are the only animal who can extend care beyond kinship to large numbers of unrelated individuals. We can cooperate with members of a different blood line, beating the family-bound sociality that is typical of the animal kingdom.

With a capacity for culture, we are able to bring down the genetic fence and welcome strangers into our circle of trust. This psychology is so important that it has become our subconscious, intuitive response, or “first instinct.”¹⁰⁸ Neuro-economic evidence has shown that this instinct makes us cooperative, even when we have nothing to gain and even at our own expense.¹⁰⁹ Think about the time when you rushed to give back a forgotten wallet to a stranger or helped a lost child find her/his parents.

Latest research in the interdisciplinary fields of neurosciences, biology and psychology has convinced many that the mainstream neo-classical economic theory of “homo economicus” is problematic. In 2015, the World Economic Forum published an article that dismissed the idea that we act rationally to maximize our own utility. This assumption of human nature underpins our current economic model, which allows Adam Smith’s “invisible hand” to function freely for a better world.¹¹⁰ As the author argues, we are not only motivated by power and wanting, but also by care and systems of affiliation,¹¹¹ which help us to form relationships and build trust even with strangers of a different group. This article is part of an emerging ideology featuring the *caring economy*¹¹²⁻¹¹³ – a new paradigm that fully reflects what it is to be human as we shift from the industrial to the post-industrial knowledge era in an attempt to build a more equitable and sustainable world.



Norway is a good example of a caring economy. Norway and other Scandinavian countries (Finland, Sweden, Denmark and Iceland) follow the Nordic economic model that prioritizes a progressive welfare system. Norwegian parents are entitled to 46 weeks at full salary for childcare – one of many policies that helps women to fully contribute to the workforce and top the Global Gender Index/“A child with the Tiger Statue in Oslo, (Norway),” MAI NGUYEN-PHUONG-MAI.

1.4.3 Reaching Out to Strangers

With the capacity of culture and, hence, the ability to go beyond kinship, during the last 10,000 years, the tension between “cooperation within in-group” and “aggression towards outgroups” has tended to give more weight to cooperation and softened group boundaries. Despite numerous wars, over a long period of time, reaching out to cooperate with strangers has steadily proved to be a successful cultural strategy that returns better outcomes than endless conflicts and revenge.

The consequence of this process is that human beings have evolved into larger and larger groups and communities. The history of mankind has witnessed a constant growth of the cooperation process that transformed small tribes into chiefdoms, chiefdoms to nascent city-states, city-states to nation states, and nation states to collections of nations such as ancient Rome or the European Union (EU). The next logical step is, of course, the “global village,” or, in another word, “globalization.”

In short, globalization is not completely new. It is the ultimate stage of a cultural adaption process that endows with the psychological capacity to cope with effective resource management, diversity, and other problems in the course of existence. A timely example EU countries’ willingness to bail out Greece.¹⁴ The money they gave away was worth less than the cost to their own economies if Greece defaults. In the end, richer Eurozone countries keep more of their wealth by giving quite a lot of it away. The very psychology that enables us to form groups larger than family also enables us to create an increasingly interconnected world.

Despite the immense diversity, humans are the only species who can extend cooperation beyond kinship and form larger communities of unrelated individuals, thanks to the capacity of culture. This insight questions the mainstream economic model of “homo economicus” – the notion that humans are rational, selfish, and will attempt to maximize their utility for gains.

1.4.4 The Driving Forces for Cross-Cultural Communication

At this point, it should be clear that the capacity for culture allows us to juggle two contrasting incentives: (1) the tendency to diversify in order to recognize those we can trust and to safeguard cultural resources and; (2)

the tendency to seek cooperation beyond kinship and ingroups in order to manage resources more effectively. We see this situation every day. For any cultural community, along with its endless calls to honor and preserve cultural heritage, there is always an effort to open up and seek allies. For example, Flemish-speaking people are very proud of their specific culture and language, but, at the same time, they are willing to maintain the status quo of being an integral part of three completely different countries: The Netherlands, Belgium, and France.

Globalization is not new, but today we are confronted with issues of international development that our ancestors did not have to deal with. *Technology and information* systems have reduced the distance between people. In a matter of decades, traditional methods of information exchange, which we have known for thousands of years, have been swept away. What once took us weeks or months to receive (a letter, for example) can now be achieved with the click of a mouse. It is not the change, but the *speed of change* that is so mind-blowing and led Toffler, back in 1970, to coin the term “future shock,” a psychological state of having to cope with too much change in too short a period of time.¹¹⁵ Going abroad, meeting people from different communities, or coping with a cultural clash are no longer a once-in-a-lifetime event. With technology flattening any distance obstacles, millions of people experience new cultures, customs and beliefs, etc. on a daily basis, something that our parents and (great-)grandparents only went through a few times in their life, and something that only the most adventurous of our ancestors got a chance to experience.

Next, the impetus for international contact is heavily attributed to an unprecedented and rapid increase in and redistribution of the world’s *demographics*. Around 360,000 new babies are born each day, 133 million each year, and more than 230,000 million people live outside the country of their birth, and that is not counting immigrants and their descendants and massive global diasporas. This unprecedented increase in size and large-scale redistribution is a burden on resources, the planet’s ecosystem, and heightens the likelihood of conflicts. Distance no longer matters. We all share vital natural resources such as oil and water; African dust storms from Chad and Mali can cause health alerts in Puerto Rico in the Caribbean and a decline in sea coral in the Bahamas and Barbados.¹¹⁶ The refugee crisis that engulfed Europe in 2015-2016 as a result of wars and uprisings in Syria, Iraq and Afghanistan is just another example that illustrates how no geographically isolated country is immune to conflict. We have become so interconnected that nobody is untouchable.

Finally, we are witnessing the growth of an unprecedented *global economy*. Historically, international trade took place along the Silk Road, the Spice Route, the Incense Route, the Amber Road, etc. But the modern process of globalization distinguishes itself significantly from its predecessors. From a corporation's perspective, four critical elements stand out: (1) a globalized capital base, e.g. money is transferred across the globe in a matter of seconds; (2) a global corporate mindset, e.g. cultural diversity is viewed as a series of opportunities to exploit; (3) a global market presence, e.g. targeting customers in all major markets throughout the world; and (4) a global supply chain, e.g. accessing the most optimal locations for the performance of various activities in its supply chain.¹⁷

The aforementioned characteristics of our global economy have made individual economies around the world incredibly interconnected. While the advantages are undeniable, this interwoven network of international trading is prone to the "domino effect." The 1997 Asian crisis, for instance, originated in Thailand, but, as a consequence, Indonesia lost 13.5 per cent of its GDP that year, South Korea's national debt-to-GDP ratio more than doubled and Malaysia's GDP plunged 6.2 per cent. Mongolia's public revenues and exports collapsed and suffered a further loss of income as a result of the Russian crisis in 1999. Western markets were spared from collapse but severely hit. Ten years after this "Asian flu," a flood of irresponsible mortgage lending in the US eventually led to a global financial crisis that brought the entire system crashing down. In the global economy, one person sneezes and everyone catches a cold.

We are living in a world where diverse people are brought together at speeds that exceed those at which they can be successfully culturally integrated. Consequently, no nations, groups or culture can remain aloof or autonomous. As individual citizens of this globalized world, the good news is that as a result of *exposure to different cultures* and purposely *changing our behaviors*, our brains can become culturally tuned with new neural activities, forge new neural pathways, build new cells, etc. This enables us to adapt to any culture on demand, be it the society of Nauru – an island surrounded by the Pacific Ocean, or the international working environment of the financial business hub in Zurich, where all cultures simultaneously interact. We take guidance from culture to fit in, and use it in the most effective way to advance. But we are not hopeless products, since we can also be active agents in contributing new elements and changing the culture around us. If culture is a strategy, then it will be the survival of the most cultured.

The changes we are witnessing with globalization are fast, complex and on an international scale. More than ever in the history of mankind, a capacity for cultural adaption is vital, because intercultural contacts are pervasive and unavoidable.

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- *Globalization is not new, but in the modern era, this process is driven by different factors: (a) speed of technology and information development; (b) rapid changes in global demography; and (c) the emergence of a global economy.*
 - *By being exposed to different cultures and purposely changing our behaviors, our brains can become culturally tuned, allowing us to adapt to any culture on demand.*
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ACTIVITY

Conduct research and discuss the following issues:

1. Is “country” a new concept? What has been the typical grouping form of humans throughout history? What are the advantages and disadvantages of viewing “country” as a default and independent variable when analyzing the impact of culture?
2. What is “nationalism”? What fuels nationalism? In terms of resource management, what are the advantages and disadvantages of nationalism? Give specific examples in both cases.
3. Nationalism and globalization are opposed to each other, but both are increasing. Discuss this paradox.

Summary

1. It is mostly our culture, not our genes that supplies the majority of solutions and guidance we use to survive and prosper in the society of our birth. Hence, culture is the survival strategy of our species. Instead of waiting for genes to evolve, we use ideas (culture) to advance.
2. The capacity for culture began with social learning, or the ability to learn and imitate others, to select the best practices, improve them, and teach them to others.
3. Cultural diversity is crucial because it is a regulator for (a) safeguarding cultural resources, recognizing who we can trust; and (b) negotiating cultural resources with other human groups for mutual interests. Effective resource management can lead to both the dividing and merging of cultures.
4. The diversity in human’s many cultures is driven by many factors that dynamically interact with one another: environment, genes, brain and behavior. None

of them is static. Each one is simultaneously a driving force and impacted by the others (plasticity).

- The impact of environment on cultural diversity is influential, with theories ranging from a deciding factor (determinism), an influential factor (probabilism), a source of possibilities (possibilism), to an entity that is inseparable from the human species (ecology). According to the Diagram of Diversity Pathways, environment can take a dynamic role, both influencing and being subjected to the impact of cultural and human behaviors, depending on a particular context.
 - Genes carry the codes of human development and behavior. However, genes are not totally fixed from birth and can be modified by behaviors. The selection of genes also depends on the coevolution with culture: a specific cultural value may prefer a certain gene, and a certain gene may slowly create a certain cultural value.
 - The brain is a dynamic device that can grow, develop and rewire itself in response to new behaviors and adapt to a culture on demand. The brain's plasticity means that traits are unlikely to be "hard-wired" from birth, rather they are the consequence of repeated behaviors.
 - Behaviors are both the consequence and the driving force of culture and environment. At the same time, behaviors are directed by genes and brains, but can also modify genes and the brain.
5. Despite the immense diversity, thanks to the capacity of culture, humans are the only species that can extend cooperation beyond kinship and form larger communities of unrelated individuals. This insight questions the mainstream economic model of "homo economicus" – the notion that humans are rational, selfish, and will attempt to maximize their utility for gains.
 6. Globalization is not new, but in the modern era, this process is driven by different factors: (a) the speed of technology and information development; (b) rapid changes in global demography; and (c) the emergence of a global economy.

