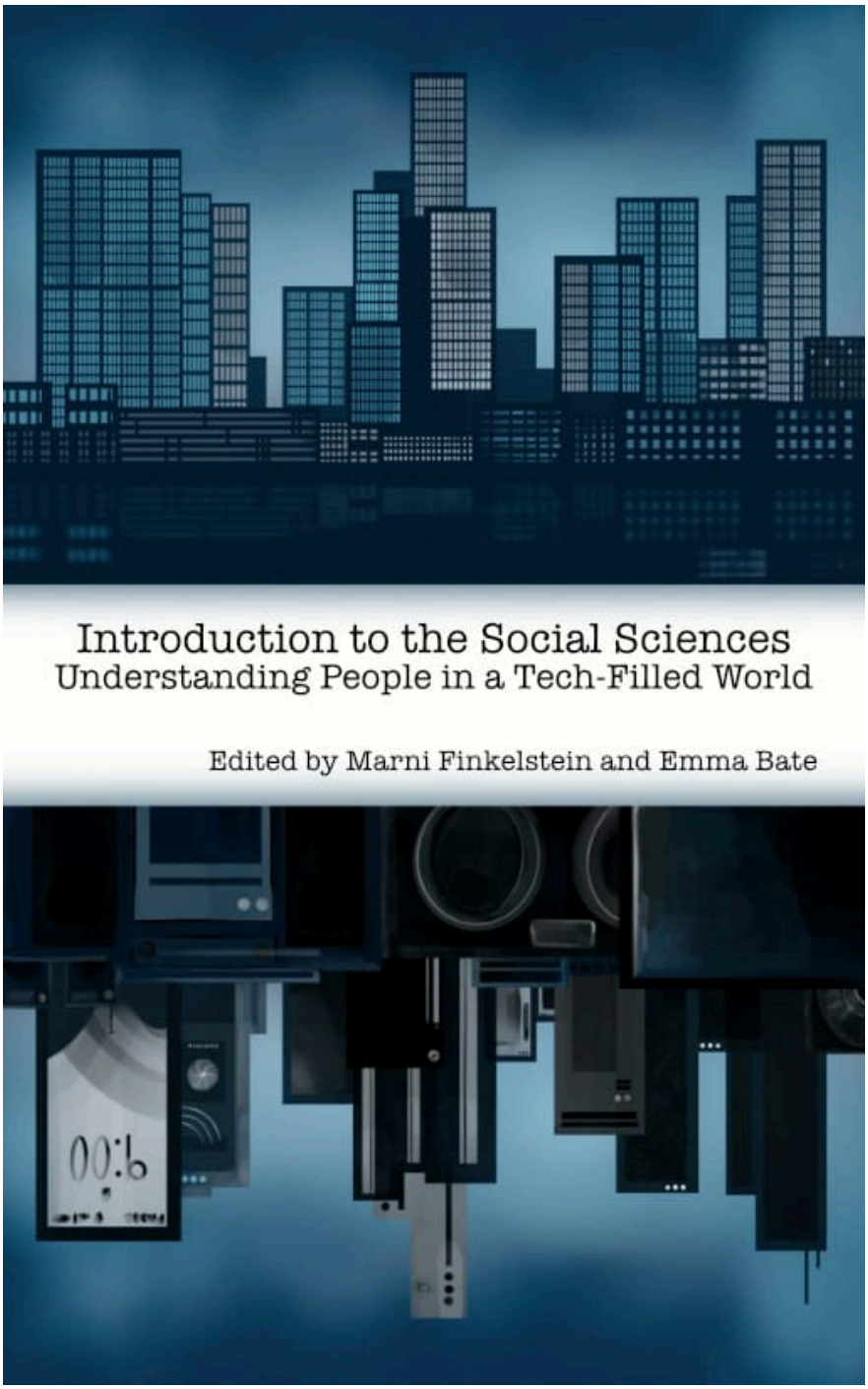
INTRODUCTION TO THE SOCIAL SCIENCES: UNDERSTANDING PEOPLE IN A TECH-FILLED WORLD



Marni Finkelstein and Emma Bate, Eds.

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Introduction to the Social Sciences: Understanding People in a Tech Filled World

Marni Finkelstein and Emma Bate

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1: INTRODUCTION TO THE SOCIAL SCIENCES

1.1: What Are The Social Sciences?
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1.1: What Are The Social Sciences?

What are the Social Sciences?

The social sciences are a group of academic disciplines that study human behavior as it unfolds in human society. They focus on how people interact with one another, how groups and institutions impact everyday life, and how societies organize themselves across time and place.

Colander and Hunt (2022) define the social sciences as "the study of social, cultural, psychological, economic, and political forces that guide individuals in their actions – it is the analysis of those forces that push society apart and pull it together" (p. 2). Two key ideas stand out in this definition. First, the social sciences look beyond the individual to the larger forces that guide how people act. Second, they examine both what holds societies together and what divides them. To study these forces, social scientists rely on systematic research methods. The main social science disciplines covered in this book are anthropology, sociology, psychology, gerontology, and political science (though the social sciences also include fields such as economics and geography). Each of these disciplines analyzes human experience from a unique perspective.

You might be wondering, "How do the social sciences differ from other sciences, like the natural sciences?" And that is a great question! Natural scientists often investigate phenomena that follow consistent patterns, which can be tested and reproduced across different settings. However, human behavior is nothing if not inconsistent! For example, a sociologist studying poverty in Tokyo and another studying poverty in Toronto are examining different welfare systems, cultural norms, and historical conditions. Put another way, social science research tends to be more context dependent, and its findings may be less readily generalized from one setting to another. This focus better reflects the reality that human behavior is largely dependent on culture, institutions, and history.

Social science as a field began as scholars strived to better understand the rapid social changes of the modern world. Industrialization, urbanization, colonial expansion, wartime, and political revolutions created new social conditions that warranted a closer look at the human in their human-made world. Sociology developed as a response to the turmoil of nineteenth century Europe. Émile Durkheim's work on social facts established sociology as a scientific discipline that studied how external social forces influence individual behavior (Durkheim, 1895/2013). Anthropology grew out of efforts to understand cultural diversity and human origins. For example, Franz Boas challenged early evolutionary models and argued that cultures are best understood within their own contexts, establishing cultural relativism as a core anthropological principle (Boas, 1911). Psychology emerged as a scientific study of the mind when Wilhelm Wundt opened the first psychology laboratory in 1879 (Rieber, 1980). Later, behaviorists such as B. F. Skinner, observing how behavior changed in response to rewards and punishments, developed theories of learning we still draw on today (Skinner, 1953). Political science reinforced the study of governance and power, with early scholars such as Harold Lasswell defining politics as who gets what, when, and how (Lasswell, 1936). Gerontology developed in the twentieth century as people began to live longer and aging became a major demographic and social issue. Early theories in this discipline proposed that aging involves a mutual withdrawal between older adults and society (Cumming & Henry, 1961). Although these social science disciplines have vastly different histories, they all emerged with a purpose of understanding how humans behave in relation to others and how societies organize themselves.

The social sciences are important as they have opened our collective eyes to the relationship between individual people and the institutions and power systems that govern them. Often, when looking for an explanation for a person's behavior, we focus on personality or character explanations. That is, "What is it about this person that makes them act, do, feel, or think that way?" As an example, we might attribute educational success solely to one's own motivation. We might look at someone's chronic health issues resulting from their individual lifestyle choices. While individual factors like personality, character, and motivation are not unlikely contributors, social scientists contend and demonstrate that norms, institutions, policies, and cultural expectations play a heavy hand in producing those outcomes, too. For example, sociological research demonstrates that educational achievement emerges from the interaction of school resources, neighborhood conditions, family support, and cultural orientations toward learning (Salvo-Garrido et al., 2026). Health outcomes are often dependent on access to care, environmental conditions, social networks, and public policy (Link & Phelan, 1995; Umberson et al., 2010). The stance of social scientists is that personal experiences are part of larger social patterns - that we cannot separate the person from the environment in which they exist.

Because human behavior is complicated, social scientists rely on multiple methods to conduct their research. Quantitative researchers use surveys, experiments, and statistical models to identify patterns across large groups. These methods allow

researchers to test hypotheses, measure relationships between variables, and generalize findings. Qualitative researchers take a different approach. They conduct interviews, observe people in natural settings, and analyze texts or media to understand how individuals interpret their social worlds. Ethnographers may spend months or years embedded in a community to understand cultural practices from the inside. Mixed-methods researchers combine both approaches to capture the strengths of each. Creswell and Plano Clark (2018) note that mixed-methods research allows scholars to integrate numerical patterns with lived experiences, producing more comprehensive explanations of social phenomena.

Social Science Disciplines: An Overview

Each chapter of this book provides a detailed discussion of the following social sciences, each of which offers us a distinct lens through which to view humans-in-context:

Anthropology

Anthropologists study cultural systems, human variation, and the ways people create meaning in their lives. They often use ethnography, which involves long-term immersion in a community. Classic anthropological research, such as Evans-Pritchard's analysis of Azande witchcraft, illustrates how beliefs that seem irrational to outsiders make perfect sense once you understand the world they come from (Evans-Pritchard, 1937). Contemporary anthropologists study topics such as migration, food systems, digital cultures, and global inequality. Anthropological inquiry helps us to better appreciate cultural diversity and how cultural meaning is socially constructed.

Sociology

Sociologists examine social relationships, institutions, and structural patterns that determine opportunities as well as constraints. They study topics such as inequality, education, family, religion, crime, and social change. Sociological research often focuses on how individual choices are often dependent on structural conditions. Sociologists have shown, for example, that neighborhood segregation affects access to resources (Massey & Denton, 1993), that gender norms play a major role in career choice (Ridgeway, 2011), and that social networks influence the job opportunities that come our way (Granovetter, 1973). Sociology encourages us to better understand how social structures impact everyday life.

Psychology

Psychology focuses on mental processes, cognition, emotion, and individual behavior. It examines how people think, feel, and act, and how those processes can be influenced by a host of factors, be they biological, developmental, interpersonal, or social. Psychological research is diverse, and ranges from controlled laboratory experiments to clinical treatment studies. In particular, the subfield of psychology known as social psychology looks at how we behave when in the presence of a group, how that behavior differs from our behavior when we are not in the presence of a group, and how the presence of others influences our attitudes and decision-making. Classic studies like Milgram's obedience experiments have shown how social pressure can make us behave in unexpected ways – ways counter to our own moral compass (Milgram, 1963). Psychology helps us understand the internal processes that drive behavior, and how social circumstances can influence or change them.

Political Science

Political scientists study power, governance, and the organization of political life. They analyze elections, public opinion, political institutions, international relations, and public policy. These social scientists also look at how governments function, how citizens participate in politics, and how power is distributed within and across societies. Political science also explains how democratic systems operate and how citizens influence political outcomes (Dahl, 1956). At its core, political science is the systematic study of power: who gets it, how they use it, and how people organize themselves to make decisions that bind everyone.

Gerontology

Gerontology focuses on aging as a social, psychological, and biological process, exploring how people experience aging, how societies support older adults, and how demographic changes determine social policy. Gerontologists are interested in topics like caregiving, cognitive health, retirement, social support networks, and age-related inequality. Contemporary research emphasizes the importance of social engagement, resilience, and environmental support in promoting healthy aging (Gianfredi et al., 2025). As populations age globally, gerontology has become an increasingly important social science discipline.

Social Science is Theory-Driven

Although these fields differ in emphasis and methods, they share a commitment to systematic inquiry. Social scientists use theories to guide their research. A theory is a set of ideas that explains how and why certain social patterns occur. Theories help researchers make sense of complex phenomena. Here are some historically significant theories associated with each social science that you may either come across in this book or in your other social science courses.

Theories in the Social Sciences: A Few Examples

Sociology

Consider a sociologist who is interested in why inequality exists and persists in even the most advanced societies. This sociologist might start from the functionalist argument of Kingsley Davis and Wilbert Moore (1945), who held that unequal rewards motivate people to fill society's most demanding positions. From this angle, the researcher might look at whether the highest-paying jobs are in fact those requiring the most training, skill, or responsibility. Or, they might organize their thinking around conflict theory, rooted in the philosophy of Karl Marx, which contends that inequality endures because those who control resources work to keep control of those resources (Marx, 2000). A conflict theorist might instead study how wealthy families pass advantages to their children through inheritance, elite schooling, and social networks, regardless of merit.

Psychology

A psychology researcher might be interested in how the human mind – and its ability to think, reason, decision-make, and remember – develops over time. Suppose they are particularly interested in what appears to be the predictable increase of these abilities throughout childhood and adolescence. This researcher might draw on the work of Jean Piaget (1952), who proposed that children pass through distinct stages of reasoning, each marked by a qualitatively different way of thinking. Following Piaget, the researcher might pour the same amount of water from a short, wide glass into a tall, thin one and ask children of different ages whether the amount has changed, noting when they begin to recognize that it hasn't. Or they might turn to developmental psychologist Lev Vygotsky (1978), who emphasized that cognitive growth depends on guidance from parents, teachers, and peers. A researcher taking this approach might compare what children can accomplish on their own with what they can do with an adult's help, since Vygotsky believed learning happens in the space between the two.

Anthropology

Suppose an anthropologist wants to understand why a community holds a particular ritual or custom in such high regard. This researcher might find Clifford Geertz's work useful; Geertz (2008) described culture as a web of shared meanings best interpreted through "thick description," or close, detailed observation of everyday life. Guided by this view, the anthropology researcher would look specifically at what the practice means to the people who take part in it. Additionally or alternatively, they might turn to the cultural materialism of Marvin Harris (1979), who argued that customs make more sense once we look at the material conditions behind them. (Harris famously explained India's reverence for cattle not as a purely religious belief but as a practical one, since living cows provide oxen for plowing, dung for fuel, and milk for food.)

Political Science

Imagine a political scientist trying to explain why a city approved an expensive new sports stadium despite the public's opposition to it. Pluralist theory, associated with Robert Dahl (1983), holds that power in a democracy is spread across many competing

groups, with no single group dominating and policy emerging from their bargaining. A researcher guided by this view might map the groups that weighed in (team owners, construction unions, neighborhood associations, taxpayer advocates) and ask which coalition won out and why. Elite theory, associated with sociologist C. Wright Mills, holds instead that real power rests with a small, interconnected group of leaders in business and government (Mills, 2019). A researcher guided by this view might trace the personal and professional ties among the mayor, developers, and business owners, looking for a small circle whose influence outweighed the public's.

Gerontology

Why are some older adults socially isolated while others maintain or even grow their social connections? Early gerontologists saw isolation as a natural part of aging. Disengagement theory, proposed by Elaine Cumming and William Henry (1961), held that older adults withdraw from social life, a process the theory treated as normal and even beneficial for both individuals and society. Researchers have since largely moved away from this view toward the life course perspective, associated with sociologist Glen Elder (1999), which sees aging as the product of experiences accumulated over a lifetime. A researcher grounded in this perspective would look beyond old age itself, and trace how a person's work history, health, family relationships, and even the historical events they lived through influence the amount and strength of their social connections later in life.

It's important to keep in mind that theories are not guesses. They are carefully developed accounts of how the world works that help researchers interpret evidence.

Your Interdisciplinary Toolkit

As you move through this textbook, you will see how each discipline contributes to a more holistic understanding of human behavior and society.

- Anthropology will help you appreciate cultural diversity and the ways people create meaning.
- Sociology will show you how social structures influence our everyday life.
- Psychology will introduce you to the science of the human mind and behavior and what happens to both when society makes moves in different directions.
- Political science will help you understand power, governance, and collective decision-making.
- Gerontology will widen your understanding of aging as a social and personal process. Because it is an interdisciplinary field, you'll see how sociological, anthropological, psychological, and political factors all influence the aging process.

Together, these fields form an interdisciplinary set of tools for understanding the social world. As the book unfolds, you will see how these fields overlap, how they differ, and hw they collectively help us understand human behavior when viewed not just side by side, but woven together into a fuller picture than any one field could offer on its own.

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1.2: How This Book is Organized

Each chapter in this book focuses on one of the major social science disciplines introduced above. Although each field has its own history, theories, and methods, the chapters follow a consistent structure so that you can compare disciplines in terms of their similarities and differences and better understand how they complement one another. Each chapter is divided into three sections.

Section 1:

The first section starts with a detailed explanation of the discipline itself. It introduces the field's central focus, major concepts, foundational theories, and core research methods. You will learn how anthropologists study culture, how sociologists analyze social structures, how psychologists investigate mental processes, how political scientists examine power and governance, and how gerontologists study aging across the life course. This section gives you the conceptual and methodological information needed to understand how each discipline approaches the study of human behavior.

Section 2:

The second section of each chapter applies the discipline to the study of technology. Technology is the running theme of this textbook because it is one of the most encompassing forces shaping contemporary social life. Every social science has something important to say about how technology influences individuals, groups, and societies. Anthropology can help us understand how digital tools are changing long-held cultural meanings. Sociology can explain how technology reorganizes institutions and patterns of inequality. Psychology can illuminate how technology affects cognition, identity, and emotion. Political science can show how technology transforms governance, participation, and power. Gerontology can reveal how technology influences aging, care systems, and social inclusion. By applying each discipline to technology, you will see how social scientists use their theories and methods to analyze real-world issues.

Section 3:

The third section of each chapter shows the social sciences working together. Each Section 3 returns to one of the technology-related topics introduced in Section 2 and examines it through the combined perspective of several disciplines. Let's consider dating apps, for example. A psychologist might find that users make split-second judgments based largely on photos, while a sociologist might find that couples formed through these apps tend to match on race, education, and class. Put those findings together, and a new insight emerges: thousands of quick individual choices, guided in part by the app's design, add up to large-scale patterns of social sorting.

The same is true when other fields join in. A gerontologist might note that a growing number of older adults, many widowed or divorced, are turning to dating apps. A psychologist might add that loneliness can make people more trusting of a stranger who offers attention, and an anthropologist might observe that many older users last dated when courtship followed *very* different norms.

Viewed together, these insights could explain why older adults are frequent targets of online romance scams, which in turn raises a question for political scientists: what responsibility should governments and tech companies have to protect them? That is the heart of interdisciplinary thinking. Because human behavior is *so* complex, the most complete explanations come not from any single perspective, but from combining insights across fields.

The End Goal

By the end of this textbook, you will know what each social science studies and how it goes about its work. More importantly, you will be able to apply these disciplines to the issues you encounter in your own life, from the apps on your phone to the policies on your ballot. You will learn to recognize when a question is too big for any one field, and to connect insights across disciplines in ways that reveal what no single field could see on its own. That habit of mind, weaving perspectives together rather than simply placing them side by side, is what the social sciences ultimately have to offer, and it will serve you long after you finish reading

this book.

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2: ANTHROPOLOGY- UNDERSTANDING HUMANITY IN CONTEXT

Learning Outcomes

- Explain anthropology's holistic perspective and how it helps to interpret human behavior).
- Differentiate the four fields of anthropology and analyze how each contributes to a comprehensive understanding of human experience
- Analyze mechanisms of cultural change (diffusion, acculturation, syncretism) using contemporary or historical case studies
- Assess participant observation and qualitative interviewing as methodological tools for understanding lived experience
- Interpret technology as material culture, symbolic practice, and embodied experience using anthropological frameworks
- Analyze how digital technologies shape identity, inequality, and social organization
- Compare how anthropology, sociology, psychology, gerontology, and political science conceptualize the digital divide

2.1: Introduction to Anthropology

2.2: Anthropology, Culture, and Technology

2.3: The Digital Divide- An Interdisciplinary Approach

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2.1: Introduction to Anthropology

Learning Outcomes

- Explain anthropology's holistic perspective and how it helps to interpret human behavior).
- Differentiate the four fields of anthropology and analyze how each contributes to a comprehensive understanding of human experience
- Analyze mechanisms of cultural change (diffusion, acculturation, syncretism) using contemporary or historical case studies
- Assess participant observation and qualitative interviewing as methodological tools for understanding lived experience

When people hear that I am an anthropologist, many of them ask, "What is that?" Some ask if I'm like Indiana Jones, traveling to exotic places and finding hidden treasures. Others ask if I spend my time digging up fossils. Although anthropology includes elements of both, it encompasses much more than that. Anthropology is the study of humans in all their complexity, biological, cultural, linguistic, and archaeological. It investigates how people live, adapt, and make meaning in diverse environments and societies. Anthropology is not just about distant cultures or ancient artifacts, but about the forces shaping our everyday lives.

Anthropology's Holistic Perspective

Anthropology is unique among the social sciences because of its holistic perspective, which means that it examines human life in its full biological, cultural, historical, and environmental context. Anthropologists study humans both diachronically (through time) and synchronically (across cultures). This dual lens reveals how traditions, beliefs, and social practices evolve in response to internal innovations and external pressures, and how societies differ or share commonalities across geographic regions.

Throughout this section of the chapter, you'll encounter the subfields, key theories, and research methods that shape anthropological inquiry. You'll also see how anthropologists apply their perspectives to real-world problems – from public health to climate change, and how their work fosters cross-cultural understanding.

Culture

Anthropologists categorize culture into three levels:

- Cultural Universals: Traits found in all societies, such as language, kinship, and religious practices. Brown (1991) identified hundreds of cultural universals, noting their role in understanding the human condition.
- Cultural Generalities: Traits common to several societies, often due to shared history or environmental conditions. For example, the nuclear family structure is widespread in Western societies but not universal (Kottak, 2019).
- Cultural Particularities: Traits unique to specific cultures, such as localized rituals or cuisine. Examples include Bar Mitzvah ceremonies or Spain's running of the bulls.

None of us is born with a culture. Enculturation is the process by which individuals learn the norms and values of their culture. Unlike instincts, humans acquire culture through social interaction or direct observation. This learning can be informal, such as observing others, or formal, such as receiving direct instruction. For example, a child in Japan may learn to bow to elders by watching their parents and being taught the appropriate context for this gesture. Enculturation involves active participation, interpretation, and adaptation as individuals grow and engage with their cultural surroundings.

Culture Change: Understanding Continuity and Transformation

Culture is not static. It evolves, adapts, and sometimes resists transformation. Anthropologists study cultural changes to better understand how societies respond to internal dynamics and external pressures, including technological innovations, environmental shifts, migration, colonization, and globalization. Culture change occurs through several different mechanisms, including diffusion, acculturation, and syncretism. Anthropologists examine both gradual changes and moments of rapid transformation to gain insight into how cultural traditions persist, how new practices emerge, and how power and agency shape the trajectory of change.

Diffusion

Cultural diffusion is the spread of cultural elements between societies. There are three main kinds of diffusion.

1. Direct Diffusion: Through firsthand contact, such as trade or migration. One example is the spread of Mexican culinary traditions such as tortillas or regional salsa through direct interaction between Mexican immigrants and local chefs in U.S. restaurants.

2. Indirect Diffusion: Through intermediaries. An example of this would be how yoga has spread globally through fitness apps, YouTube instructors, and commercial studios, allowing people to adopt the practice without direct contact with South Asian communities.

3. Forced Diffusion: Imposed by dominant societies. For example, the historical U.S. government policy of sending Native American children to boarding schools where Indigenous languages were banned and English-only instruction was enforced led to cultural and linguistic change.

Example

K-pop – A Modern-Day Example of Cultural Diffusion: K-pop is a great example of contemporary cultural diffusion through media, technology, and global fan engagement. Originally, K-pop was a regional genre, but it has become a global phenomenon thanks to platforms like YouTube, TikTok, and Spotify. Musical groups such as BTS and BLACKPINK have topped international charts, collaborated with Western artists, and performed on global stages like the Grammys and Coachella (Jin, 2016; Oh & Lee, 2014).

Through an anthropological lens, this diffusion is not just about music. K-pop idols influence global styles, from skincare routines to streetwear, shaping transnational beauty standards (Jung, 2011). Many fans study Korean to understand lyrics and engage with Korean media, contributing to the global spread of Korean language and culture (Jin, 2016). K-pop fandoms organize charity drives, social media campaigns, and even political activism, blending cultural enthusiasm with civic engagement (Oh & Lee, 2014). This is an example of indirect diffusion, where cultural elements spread through media and technology rather than direct contact, and highlights how cultural diffusion is multidirectional. While K-pop draws from Western pop aesthetics, it at the same time reshapes global pop culture, creating hybrid forms of cultural expression (Jung, 2011).

Acculturation

Acculturation is a dynamic process of culture change that occurs when individuals or groups from different cultural backgrounds have prolonged contact. It is a broad cultural phenomenon that involves changes in norms, practices, and social structures. Berry (2017) outlines four acculturation strategies: assimilation (adopting the new culture while giving up the old culture), separation (maintaining the old culture and rejecting the new culture), integration (embracing both cultures), and marginalization (rejecting both). A Korean immigrant in the United States who learns English, celebrates Thanksgiving, and continues to speak Korean and observe other aspects of Korean culture is an example of integration. In contrast, someone who avoids contact with their new culture and primarily interacts within their own ethnic enclave may be practicing separation, like the Chinatown neighborhoods that exist in many major cities in the United States. By studying acculturation, anthropologists can better understand how cultural identities evolve and interact in a globalized world.

Syncretism

Syncretism merges elements from different cultural systems, such as religion, language, art, or social organization, to create new, often hybridized forms. This phenomenon is especially visible in contexts of colonialism, migration, and globalization, where cultural contact is intense and directional. For example, the celebration of Christmas in Europe and North America illustrates religious syncretism. It fuses Christian narratives of the birth of Jesus with pre-Christian winter solstice traditions from northern Europe, such as the Yule log and evergreen decorations (Loewen, 2024). Similarly, jazz music exemplifies artistic syncretism, combining African rhythmic structures and vocal styles with European harmonic systems and instrumentation to produce a distinctly American genre (Loewen, 2024). In Latin America, Catholicism often incorporates indigenous spiritual practices, resulting in localized religious expressions such as the veneration of saints alongside native deities. While syncretism can be a creative process, it can also dilute purer traditions.

Ethnocentrism and Cultural Relativism



Ethnocentric Bumper Sticker" by Wesley Fryer is licensed under CC BY-SA 2.0.

When talking about other cultures, anthropologists think in terms of two additional concepts: ethnocentrism and cultural relativism. Ethnocentrism refers to the tendency to view one's own culture as superior and to judge other cultures by that standard. This perspective can lead to misunderstanding, prejudice, and even cultural imperialism (Kottak, 2019). For example, someone might find the practice of eating insects in Southeast Asia repulsive, not because it is inherently wrong, but because of assumptions about what constitutes "normal" food. Yet, from another cultural perspective, eating beef or pork might be equally objectionable.

Cultural relativism, on the other hand, encourages anthropologists (and anyone else) to understand cultural practices within their own contexts, suspending judgment based on external standards. Franz Boas (1940) advocated this perspective, stating that anthropologists should evaluate beliefs and behaviors in relation to their cultural context. For example, in many South Asian communities, arranged marriages are not seen as coercive but as a collaborative process involving family support, shared values, and long-term compatibility. From a culturally relativist standpoint, this practice is not inherently oppressive but reflects a different set of social priorities and kinship structures.

While cultural relativism promotes empathy and understanding, it also raises ethical questions because this stance can become problematic when used to justify harmful practices such as female genital cutting or ritual infanticide without critical examination. Cultural anthropology requires a balance of recognizing cultural diversity and engaging in ethical reflection.

The Four Fields of Anthropology

In the United States, anthropologists typically follow the four-field approach established by Franz Boas in the early 20th century (Kottak, 2019). This framework includes archaeology, biological anthropology, linguistic anthropology, and cultural anthropology. Each field offers a distinct lens, but together they provide a comprehensive view of human experience, past and present, local and global.

Archaeology



Archaeological Dig at Porth Mawr (recent Englist translation - 'Whitesands Bay), SirBenro, Cymru, Wales 01 by Lleywelyn2000 is licenced under CC-BY-SA 4.0.

Archaeology focuses on past human societies by examining the material traces they left behind. These traces include tools, dwellings, food remains, and even garbage. Anything that people made, used, or modified is part of the archaeological record (Kottak, 2019). By analyzing these materials and the relationships between them, archaeologists reconstruct how people lived, what they ate, how their cultures changed, and why those changes occurred (Nelson & Braff, et al., 2020). Though we don't often think about it, the dishes, buildings, vehicles, and other objects we interact with every day tell others a great deal about us, and this was true in the past, as well. For example, archaeologists at the site of Çatalhöyük, in south-central Turkey, were able to determine from the remains of walls and other structures that this early city had no streets. Instead, people walked across the flat roofs of the houses to get around, and you entered the homes through a hole in the roof (Hodder, 2005). From the skeletal remains of people who lived there, archaeologists also argued that the Çatalhöyük society was egalitarian, meaning that there was very little hierarchy. Men and women seem to have had equal social status, and the site itself was likely arranged based on kinship groups.

Archaeological reasearch isn't limited to ancient history. For example, in 1973, William Rathje launched a long-term study of modern landfills to explore consumer behavior, environmental practices, and social inequality (Rathje & Murphy, 2001). His findings revealed surprising gaps between what people say they consume and what they actually discard. This kind of research shows how archaeologists use material evidence to understand cultural norms and social organization, even within contemporary settings.

Biological anthropology



Fragments of Lucy" by Matt From London is licensed under CC BY 2.0.

Have you ever wondered why you look the way you do? Why are your eyes the color that they are? What does your skin color say about your ancestry? Why do people have different-shaped noses or eyes? These are some of the questions that biological anthropologists have helped to answer. Biological anthropology, sometimes called physical anthropology, investigates the biological and evolutionary dimensions of humans and our closest primate relatives. Researchers in this field use fossils, genetic data, and anatomical comparisons to trace human origins and understand how we adapt to different environments.

Some biological anthropologists specialize in paleoanthropology, which involves studying ancient human ancestors through fossilized remains. Paleoanthropology pieces together how humans evolved by looking at fossils, archaeological finds, and genetic evidence. It strives to understand what early human species were like and how they changed over time. Using this approach, anthropologists study the physical traits of humans and other primates and try to figure out how early hominids moved, what they ate, and how different species are related to one another. They also look at how shifting environments shaped the paths different groups took. One of the big takeaways from this perspective is that human evolution wasn't a straight, simple line. It branched in many directions, with different species adapting in their own ways as conditions changed (Larsen, 2015; Kottak, 2019). With new tools like ancient DNA analysis and more precise dating techniques, researchers can build even clearer pictures of how diverse hominin groups lived, interacted, and sometimes overlapped. For example, the discovery of a seminal Australopithecus afarensis fossil nicknamed “Lucy” offered critical evidence of upright walking over three million years ago, reshaping our understanding of early hominin movement (Kottak, 2019).

Other biological anthropologists focus on primatology, examining the behavior and ecology of nonhuman primates like chimpanzees and gorillas. Jane Goodall’s groundbreaking research revealed that chimpanzees use tools and engage in complex social interactions, challenging long-held assumptions about what makes humans unique (Nelson et al., 2023).

Biological anthropology doesn't only focus on the distant past and our primate relatives. Today, biological anthropology informs public health, human rights, and debates about race and identity. Studies of human biological variation challenge outdated notions of race by showing that most genetic diversity exists within populations rather than between them (Gravlee, 2009).

Linguistic anthropology

All living species communicate in some way, but only humans have developed complex languages that allow for abstract thought and cultural transmission (Kottak, 2019). Linguistic anthropology explores how language both shapes and reflects human life. It connects anthropology with linguistics (the study of the structure of language) by examining the cultural meanings embedded in speech, writing, gesture, and even silence. This field also plays a vital role in documenting endangered languages and supporting revitalization efforts, recognizing that when a language disappears, cultural knowledge and identity often vanish with it.

Language is more than a tool for exchanging information. It is a social practice that helps construct identity, express power, and shape how people perceive the world. Through language, individuals encode and transmit values, beliefs, and norms across generations. Cultural influences shape the development of language, while language reinforces group identity and social cohesion. For instance, the presence of many words for snow in Inuit languages reflects the significance of snow in Arctic life. Language also plays a role in reinforcing social hierarchies. For example, privileging "standard" English in educational settings can marginalize speakers of African American English (AAE) or Indigenous languages, contributing to systemic inequality.

Linguistic anthropologists study language in everyday settings. They might examine how people perform speech acts in different cultural contexts or how individuals learn the grammar of their language and understand when and how to speak appropriately depending on social expectations .

Language is tied to identity. One way this appears is through code-switching, where multilingual individuals shift between languages or dialects depending on the social context. This practice can signal belonging, resistance, or solidarity. For example, Bailey (2000) documented how Dominican Americans in New York City use code-switching to navigate complex social identities and cultural expectations.

Language ideologies also reveal how power operates through ordinary communication. When people describe a language as “primitive,” a dialect as “incorrect,” or bilingualism as “confusing,” those judgments reflect broader social hierarchies rather than linguistic facts. Such ideologies have material consequences. They shape who is taken seriously, who gains access to institutional resources, and whose voices are valued or marginalized (Irvine & Gal, 2000). Studying language ideology helps scholars understand how language both reflects and reproduces cultural norms, political interests, and social inequalities (Kroskrity, 2004). For example, there exists the common belief that Standard English is inherently more logical, educated, or proper than other dialects. Linguistic anthropologists have long shown that all dialects follow common grammatical rules. Therefore, the elevation of one type of language over others reflects social power, not linguistic superiority.

Cultural anthropology

Cultural anthropology is the comparative study of how humans create and sustain systems of meaning that shape social life. As discussed earlier in the chapter, culture is the learned and shared knowledge that informs belief, behavior, and interpretation within communities. Cultural anthropology looks at how people learn, share, and practice the patterns of meaning that shape their everyday lives. Culture is not static, but dynamic. It is actively created and negotiated by the people who live it. Culture includes knowledge, beliefs, behaviors, and symbols that help people make sense of the world and navigate social life. Cultural anthropologists study how communities form relationships, express identity, and respond to political, economic, and environmental change. In this view, culture is continually reshaped by power, history, and human creativity. A central premise of cultural anthropology is that cultural meanings are not universal but emerge from historically situated contexts. Therefore, cultural anthropology provides a framework for understanding human diversity by positioning everyday practices within broader social structures and institutions (Robben & Sluka, 2015).

Ethnography (as discussed below) is the primary research method of cultural anthropology and involves long-term, immersive fieldwork. Through participant-observation, anthropologists live alongside the communities they study to better understand social life from the perspective of informed insiders. This method allows research to learn what matters most to the people they are studying, rather than imposing predetermined hypotheses (Howell, 2018).

While cultural anthropologists traditionally focused on smaller isolated indigenous cultures, over the years the field has expanded to encompass a variety of both small and large scale cultural and subcultural systems and how they intersect with broader structures of power, inequality, and globalization. Common topics for cultural anthropological inquiry include migration, gender, race, religion, kinship, political movements, and economic systems with the goal of better understanding how cultural meanings both shape and are shaped by larger social forces. Through this work, cultural anthropologists offer valuable insights into human diversity and provide new ways of thinking critically about social justice, representation, and cross-cultural understanding or misunderstanding.

Applied anthropology

Anthropologists increasingly apply their research to real-world issues, including migration, climate change, public health, and digital life. For instance, Dalal (2017) examined how displaced communities preserve cultural identity in refugee camps, while Miller, Costa, et al (2016) explored how social media reshapes ideas of identity and community. These kinds of studies reflect a

growing emphasis on using anthropological knowledge to address contemporary challenges, contributing to what some scholars consider a fifth subfield of anthropology: applied anthropology.

Applied anthropology is anthropology in use. It involves the practical application of insights from cultural, biological, linguistic, and archaeological anthropology to solve pressing social problems. While academic anthropology tends to focus on understanding human behavior, applied anthropology is oriented toward action. Applied anthropologists work with governments, nonprofit organizations, corporations, and communities to design culturally informed interventions.

Applied anthropologists work in a wide range of settings. For example, in public health, ethnographic work improves intervention strategies by revealing how communities interpret illness, trust, and medical authority. Closser, et al. (2016) shows how local perspectives shape the effectiveness of global vaccination campaigns. In education, anthropologists contribute to more inclusive learning environments by documenting how cultural identity and language practices influence student engagement (McCarty & Nicholas, 2014). Environmental sustainability efforts are also ripe for anthropological work. For example, Whyte (2020) studied how Indigenous climate justice frameworks reshape environmental governance. Anthropology has also expanded into the business world, where ethnographic approaches help organizations better understand user needs and improve product development. Cefkin (2009) illustrates how design anthropology and corporate ethnography enhance innovation by revealing how people interact with technologies and organizational systems. Applied anthropologists have also played a crucial role in disaster response. Through ethnographic analysis of displacement, governance, and community resilience, scholars such as Barrios (2014) demonstrate how anthropological insights can inform more effective and culturally grounded recovery planning. Together, these studies highlight the breadth of applied anthropology and its growing relevance across public, educational, environmental, corporate, and crisis-response settings.

Across these areas, applied anthropologists emphasize cultural sensitivity and ethical engagement. Their work highlights the importance of listening to local voices and recognizing the complexity of cultural systems. Practitioners must often navigate ethical dilemmas, such as balancing the interests of stakeholders with the needs of communities and ensuring informed consent and equitable participation. Collaboration, reflexivity, and cultural understanding are central to the practice of applied anthropology.

Anthropological Research Methods

Ethnography

Ethnography is the main research method used in cultural anthropological research. It's about spending real time with people by living alongside them, observing daily routines, asking questions, and paying attention to the stories and objects that matter in their lives. This kind of work usually unfolds over months or even years, because understanding a culture requires more than quick snapshots. It asks researchers to engage deeply and consistently. Anthropologists often talk about balancing two ways of viewing the cultures they study: the emic and the etic. The emic perspective reflects how people within a community make sense of their world. It focuses on the categories they use, the values they hold, and the meanings they attach to their actions. The etic perspective, on the other hand, comes from the researcher's analytical view. It is shaped by broader theories and cross-cultural. Good ethnography moves between these viewpoints, taking each seriously.

Mike Agar's (1985) ethnographic study of heroin users in urban Baltimore shows how anthropologists balance the emic and etic perspectives in their research. When Agar first entered the field, an etic perspective tended to frame heroin addiction primarily as an individual pathology or moral failure. But through long-term participant observation and ethnographic fieldwork, which included spending time with users, accompanying them through treatment programs, and listening to their narratives, Agar uncovered an emic perspective that emphasized heroin use as a patterned, socially meaningful practice that involved relationships, street economies, and local moral worlds. Users described "ripping and running" not simply as deviance but as a structured routine shaped by obligations to peers, strategies for managing withdrawal, and the search for stability in an unstable environment (Agar, 1985). Agar's work shows how ethnographic fieldwork uncovers insider information that often challenges surface-level assumptions. This is why ethnographers must move continually between emic meanings and etic analysis to better understand social life in a more grounded way.

To achieve this grounding, ethnographic research relies heavily on two intertwined methods: participant observation and qualitative interviewing. Together, they allow anthropologists to build a rich understanding of social life that more accurately portrays people's lived experiences while also situating those experiences within larger patterns of culture and society.

Participant observation

In participant observation, anthropologists gather data by immersing themselves in the daily lives of the communities they study. This method involves both observing and participating in everyday activities, often over extended periods. By occupying this dual role, researchers gain access to both emic and etic perspectives, which helps them develop a more holistic understanding of social norms, rituals, and interpersonal dynamics of the culture being studied.

Classic examples of participant observation include Bronisław Malinowski's fieldwork in the Trobriand Islands, where he documented complex systems of exchange and kinship (Malinowski, 1922). More recently, Philippe Bourgois studied crack dealers in New York City and found that systemic racism, economic exclusion, and the pursuit of respect led many marginalized individuals into the underground economy. Within this context, street culture became a way to seek respect despite its risks (Bourgois, 1995). Contemporary anthropologists continue to adapt participant observation to new settings. Josh Seim, for example, trained as an EMT to study ambulance workers in California. His approach, which he called observant participation, helped him explore the institutional and emotional dimensions of emergency care (Seim, 2021).

Qualitative interviews

Ethnographic interviews are another key method for understanding the social worlds of individuals and communities. These interviews are often semi-structured or unstructured, encouraging open-ended dialogue. This format allows participants to share stories in their own words and helps meaning emerge through interaction between researcher and informant (Spradley, 1979).

In my own research on homeless street youth, I asked questions like "Can you tell me about the first night you stayed on the streets?" (Finkelstein, 2005). This kind of question prompted participants to reflect on personal experiences while also revealing broader cultural patterns. Ethnographic interviews often take place in natural settings, including the homes, workplaces, or community spaces of the people being studied. This approach deepens the understanding gained through participant observation by exploring the motivations and emotions behind observed behaviors.

Reflexivity is a core part of ethnographic interviewing. It asks us to stay aware of our identities, our assumptions, and the power we carry into the research relationship, and to pay attention to how those shape what happens in an interview. Interviews aren't neutral moments where we collect information. They're shared encounters that grow out of trust, rapport, and the larger social worlds that both researchers and participants move through. When we demonstrate reflexivity, we create room for people to share experiences and perspectives they might not otherwise feel comfortable voicing.

This becomes especially important when we're working with communities whose voices are often pushed aside or misrepresented. Studies with undocumented migrants, homeless youth, and other marginalized groups show that reflexive interviewing helps create space for participants to speak in ways that feel true to their own lives, rather than fitting into dominant narratives (Finkelstein, 2005). By acknowledging power dynamics and building real, respectful relationships, we make it more possible for people to tell stories that might otherwise remain hidden.

Ethical Considerations in Anthropological Research

Ethical considerations are fundamental to anthropological research. Researchers must navigate interpersonal and institutional dynamics while maintaining professional integrity. Informed consent is a core principle, requiring clear communication about the researcher's role and intentions. Consent should be revisited throughout the research process, especially as relationships evolve or sensitive topics arise (AAA, 2012).

Confidentiality is also crucial in ethnographic research, especially when field notes include personal or identifiable information. Anthropologists commonly use pseudonyms and adjust contextual details to protect participants' privacy and safety. The dual role of being both participant and observer can raise difficult ethical questions. For instance, should a researcher step in during a harmful situation or remain a neutral observer committed to documenting events as they unfold? These dilemmas highlight the need for reflexivity (Davies, 2012). Reflexivity helps researchers navigate ethical gray areas while remaining accountable to the people and communities they study.

Ethical fieldwork goes beyond following formal guidelines. It involves cultivating respect, empathy, and accountability in every interaction. While participant observation yields rich and nuanced data, it also presents challenges such as observer bias, ethical tensions, and emotional strain. Despite these complexities, it remains a vital tool for anthropologists seeking to understand human behavior and cultural meaning from within.

Anthropological Theories and Concepts

Theories and Concepts in Archaeology

The Three Age System

The earliest theories in archaeology were applications of Darwin's theory of evolution to culture and cultural change or progression. Cultures were considered to evolve through a Three Age System, based on the material culture that the group used. The three ages were Stone Age, Bronze Age, and Iron Age. This classification of cultures allowed for a rough dating method, since stone age sites were older than bronze age, which was older than iron age. This dating system, somewhat expanded, is still used today.

Classificatory-Historical Theories

Following the Three Age System, archaeologists continued to focus on developing sequences of artifacts that could be used to date archaeological sites. Archaeologists focused on comparing collections of artifacts from different sites and time periods, with the theory that archaeological styles of artifacts changed in a way similar to those in modern times, starting out with a few early adopters, increasing so that everyone had one, and then gradually decreasing again as ideas went out of "style." The ability to put sites into sequence based on the artifacts found at the sites was a serious advance in arcaheological understanding.

The New Archaeology (aka Processural Archaeology)

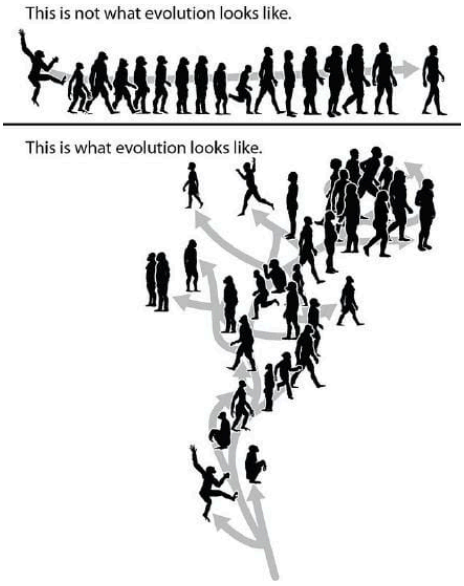
Processual archaeology, called the "New Archaeology" by its originators at the University of Chicago, sought to bring more science into archaeology. It started in the 1960s, just after the discovery that carbon-14 could be used to date old artifacts. Where earlier theoretical perspectives emphasized description of artifacts and cultural assemblages, processual archaeology focuses on explaining change in the past. Processual archaeologists test hypotheses using the archaeological record. They also conduct ethnoarchaeological studies, where they attempt to replicate technologies like stone tools or pottery using the methods that people in the past would have used (Renfrew & Bahn, 2015).

Postprocessual Archaeologies

Many archaeologists practicing today would call themselves processual archaeologists. However, other archaeologists reacted against the scientific approach to archaeology, arguing that it replicated biases in the broader society, particularly in ignoring the roles of women in the past, and that there is no single, correct way to interpret archaeological evidence (Renfrew & Bahn, 2015). This group argues that different social groups within a society may have different perspectives, so it focuses more on the thoughts and actions of individuals in the past, rather than on larger systems and patterns.

Theories and Concepts in Biological Anthropology

Evolutionary theory



What Evolution Looks Like" by tmkeesey is licensed under CC BY 2.0.

Evolutionary theory, especially Darwin's concept of natural selection, is the most central theory in biological anthropology. Natural selection explains how populations gradually change as individuals with traits that offer even small advantages are more likely to survive and have offspring (Darwin, 1859). Over many generations, those helpful traits became more common. Factors like environmental pressures, competition for resources, and genetic variation all play a role in shaping these long-term changes. For example, humans adapted to different levels of ultraviolet (UV) radiation after migrating out of Africa. In regions with intense UV exposure, darker skin offered protection against folate depletion and skin damage, increasing survival and reproductive success. In contrast, in regions with low UV exposure, lighter skin was advantageous because it allowed more efficient vitamin D synthesis, which is essential for bone health and immune function. Over many generations, these environmental pressures shaped the global patterns of human skin color we see today. (Kottak, 2019).

Biocultural theory

The biocultural approach builds on evolutionary theory by suggesting that human biology is shaped not only by evolutionary processes but also by everyday experiences, cultural practices, and broader social and environmental conditions. For example, biologically, most mammals (including most humans) stop producing high levels of lactase, the enzyme needed to digest lactose, after weaning. Yet in several human populations, adults continue to digest lactose easily (Kottak, 2019). This ability evolved independently in groups with long histories of herding cattle and consuming milk. These cultural practices created selective pressures that favored individuals who could digest lactose throughout life, suggesting that cultural practices can actively influence human biology.

Theories and Concepts in Linguistic Anthropology

Linguistic Relativity

Linguistic relativity is the idea that the language we use every day can shape how we notice, categorize, and think about the world around us. While language does not control our thoughts, this perspective suggests that the patterns built into a language gently guide our ways of thinking. Studies on topics such as color terms, spatial orientation, and grammatical categories demonstrate that speakers of different languages often pay attention to and remember different aspects of their experiences. This line of thinking builds on the classic work of Edward Sapir and Benjamin Lee Whorf (Sapir-Whorf Hypothesis), who argued that language

and culture are deeply connected (Kottak, 2019).

Language Use in Context

When linguistic anthropologists talk about language use in context, they're looking at how people use language in real-life situations. They don't just focus on the words being said, but the context of the situation. This theory suggests that meaning doesn't come from language alone. It also involves who is speaking, whom they're speaking to, where they are, what they're trying to do, and the cultural norms that shape the interaction. Hymes (1974) argued that to understand communication, we have to look at the full situation. For example, the same sentence can mean something totally different depending on tone, setting, or relationship. Saying "Nice job" to a close friend after they spill coffee might be playful teasing, while saying it to a coworker during a presentation might be genuine praise. Context is what helps us tell the difference.

Theories and Concepts in Cultural Anthropology

Evolutionism

Evolutionism was one of the earliest major theories in cultural anthropology. It emerged in the late nineteenth century, when scholars were trying to explain the wide range of human societies described in colonial and missionary accounts. Early evolutionists argued that all cultures moved through the same general stages of development, progressing from “simple” to “complex” forms of social organization (Morgan, 1877/1964; Tylor, 1871/1958). From this perspective, cultural traits like kinship systems, religious beliefs, or technologies could be ranked along a single evolutionary path.

Because evolutionists believed all cultures followed the same developmental sequence, they often treated contemporary Indigenous or small-scale societies as if they represented earlier stages of human history. By the early twentieth century, evolutionism was widely criticized for oversimplifying cultural diversity and imposing Western value judgments on non-Western societies. Although anthropologists no longer accept evolutionism as an accurate explanation of cultural development, it remains important historically. It represents the discipline’s first major effort to systematically compare cultures and think about long-term patterns of social change.

Historical Particularism

Historical particularism emerged in the early 20th century and argued that cultures cannot be understood through universal laws or neat evolutionary stages. Instead, each culture develops along its own historical path shaped by specific events, environments, and social relationships (Boas, 1932). This perspective redirected anthropology toward careful fieldwork, detailed documentation, and cultural relativism (the idea that beliefs and practices make sense only within their own cultural contexts) (Boas, 1940). Historical particularism also suggested that many cultural traits spread through contact, trade, migration, or borrowing rather than emerging independently in every society (Boas, 1920; Kroeber, 1940).

A well-known example comes from Boas’s work with Indigenous communities of the Northwest Coast. Early evolutionists dismissed indigenous traditions like the potlatch as irrational or wasteful because they interpreted them through Western economic assumptions. Boas challenged that view by showing that the potlatch could only be understood within the historical experiences of these communities (Boas, 1897). Over generations, Northwest Coast groups developed intricate systems of rank, kinship, and reciprocity shaped by abundant natural resources, long-standing trade networks, and shifting alliances and rivalries (Codere, 1950). The potlatch emerged from this historical context rather than from some universal stage of cultural progress.

Functionalism



Bronislaw Malinowski with natives on Trobriand Islands, ca 1918 Public domain

Functionalism is a perspective that asks what cultural practices and institutions do for the people who rely on them. Functionalist anthropologists viewed societies as interconnected systems in which institutions like kinship, religion, and politics help maintain stability. This approach encouraged researchers to focus on how cultures work in the present and to understand practices as meaningful and adaptive within their own contexts.

Malinowski's analysis of the kula exchange in the Trobriand Islands is a classic example. Malinowski used the kula ring, which is a ceremonial exchange system linking multiple island communities to show how cultural practices that might seem irrational from the outside serve important social functions. In the kula, men undertake long ocean voyages to exchange shell necklaces and armbands that circulate in opposite directions around the ring. These objects have little practical use, but the exchanges create lasting partnerships, regulate status competition, and create alliances between communities through obligations and trust. This is a good example of functionalism because although the exchanged shell valuables have little practical use, the kula creates alliances, reduces conflict, and builds long-term networks of trust that support economic cooperation and political diplomacy (Malinowski, 1922).

Structuralism

Structuralism emerged in the mid-twentieth century as an effort to explain why cultural practices, no matter how different they appear on the surface, often follow similar underlying patterns. Drawing on insights from linguistics, structuralists argued that meaning comes from relationships rather than isolated elements. Lévi-Strauss pushed this idea further by showing how people everywhere make sense of the world through basic pairs of opposites: nature and culture; raw and cooked; male and female. He suggested that these oppositions form a kind of mental scaffolding that shapes how we classify and interpret our surroundings (Lévi-Strauss, 1969).

In his discussion of “raw” versus “cooked” foods, Levi-Strauss suggested that this contrast is not just about food preparation but reflects a deeper way people distinguish between the natural world and that of human culture (Lévi-Strauss, 1969). In many societies, “raw” signals what is untouched or wild, while “cooked” represents transformation, order, and social life. This simple opposition shapes broader ideas about purity, morality, and what counts as acceptable behavior. Myths across the Americas repeatedly refer to this raw/cooked contrast in patterned ways, even among groups with no historical connection. These parallels suggest that cultural narratives grow out of shared mental structures rather than direct borrowing. The raw/cooked example reveals the hidden logic that organizes everyday cultural practices.

Cultural Materialism

Cultural materialism explains culture by starting with the practical conditions of everyday life. The technologies people use, the environments they live in, and the economic and population pressures they face (infrastructure) shape a society's social and political arrangements (structure) and, ultimately, its beliefs and values (superstructure). From this view, cultural practices often reflect adaptations to ecological and economic realities rather than purely symbolic choices. Cultural materialists emphasize observable, measurable factors such as resource availability, environmental constraints, and technological options when explaining why societies develop certain customs (Harris, 1968). This etic approach contrasts with interpretive perspectives that prioritize emic meanings from within a culture.

For example, Harris (1979) argued that the Hindu taboo against killing cows is not only a religious rule, but, since cows play essential economic and ecological roles in rural India, providing labor, manure, and milk, their protection is also materially beneficial. Therefore, cultural materialism links cultural diversity to the material conditions that support everyday life.

Symbolic and Interpretive Anthropology

Symbolic and interpretive anthropology focuses on how people use symbols such as rituals, stories, gestures, and everyday objects to make sense of their worlds. This approach emphasizes that culture is created through meaning. Clifford Geertz (1973) described culture as "webs of significance" that humans spin and argued that understanding those webs requires thick description to look beyond surface behavior and interpret what actions mean to the people who perform them.

Victor Turner (1967) expanded this perspective by showing that symbols and rituals don't just reflect social life; they help shape it. His work with the Ndembu demonstrated that symbols can hold multiple meanings and help communities navigate conflict, identity, and change. David Schneider (1968) applied symbolic analysis to kinship, arguing that ideas like "family" are culturally specific systems of meaning rather than universal structures. Later critiques, including those by Sherry Ortner (1973, 1984), highlighted how history, power, and inequality shape the meanings of symbols. Even with these debates, symbolic and interpretive anthropology remains an important way to understand how people create meaning and how those meanings guide social action.

Conclusion

As demonstrated above, anthropology investigates human life in its fullest complexity. Whether looking at the cultural materials of human pasts, tracing human evolution and biological variation, interpreting cultural meaning, or analyzing language, anthropologists work to better understand how people make sense of their worlds and navigate systems of power, identity, and change. This holistic perspective is strengthened by the application of theoretical and conceptual frameworks that contextualize the diverse ways humans adapt, innovate, and relate to one another. Anthropology is not only a study of what humans are but of what humans do, create, and imagine. In the next section we will look at how anthropology explores these types of questions in the study of technology, including how technological systems shape social life and how people embed technological tools within cultural practices, values, and forms of meaning.

Discussion Questions

1. How does examining humans from biological, cultural, linguistic, and archaeological perspectives provide a different understanding of humanity than focusing on only one perspective?
2. What are some examples of ethnocentrism that you have encountered in everyday life? How might cultural relativism help people better understand those situations? Are there limits to cultural relativism? Why or why not?
3. How does culture shape the way people think, act, and interpret the world around them? Reflect on a belief, tradition, or behavior that you learned through enculturation. How did you acquire it?
4. Which of the four fields of anthropology do you think is most useful for addressing contemporary social issues? Defend your answer using examples from the chapter.
5. Anthropologists often balance emic (insider) and etic (outsider) perspectives. Why might relying exclusively on one perspective create misunderstandings? Can you think of a situation where an emic and etic interpretation might differ?

Exercises

Exercise 1: Cultural Analysis of Everyday Life

Instructions:

1. Choose an everyday cultural practice (e.g., celebrating birthdays, tipping in restaurants, wearing school colors, shaking hands, using social media).
2. Write a 1-2 page analysis that addresses:
   - How people learn this practice through enculturation.
   - Whether the practice represents a cultural universal, generality, or particularity.
   - How the practice may have changed over time through diffusion, acculturation, or syncretism.
   - How someone from another culture might interpret the practice differently.

Exercise 2: Mini-Ethnography

Instructions:

1. Observe a public setting for 20-30 minutes (cafeteria, park, library, student center, coffee shop, etc.).
2. Take field notes on:
   - Social interactions
   - Language use
   - Nonverbal communication
   - Rules or norms people appear to follow
3. After the observation, write a brief reflection (1-2 pages) discussing:
   - What behaviors seemed culturally learned?
   - What assumptions did you bring into the observation?
   - How did you attempt to distinguish between your own interpretation (etic) and participants' possible perspectives (emic)?
   - What ethical considerations should an anthropologist keep in mind when observing others?

Compare observations with classmates and discuss how different observers noticed different aspects of the same social environment.

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2.2: Anthropology, Culture, and Technology

Learning Outcomes

- Interpret technology as material culture, symbolic practice, and embodied experience using anthropological frameworks
- Analyze how digital technologies shape identity, inequality, and social organization

An Anthropological Look at Technology

Anthropology defines technology as a broad cultural phenomenon that includes objects, skills, and meanings rather than simply advanced machines. Technology encompasses the material things people make, the embodied practices through which they are produced and used, and the symbolic and social values attached to them (Lemonnier, 2012). This holistic definition allows for the examination of how technologies shape and are shaped by cultural life, emphasizing that tools and techniques are always embedded in social relations, power, and cultural meaning. It also helps distinguish between what societies label as high tech and the everyday technologies that structure routine experience, which allows for a better understanding of how cultural values influence which forms of technology are celebrated, ignored, or taken for granted.

Technology as material culture

Technology is a central component of material culture, the physical objects people create and use. Anthropologists have long understood that material culture is not only functional, but also expresses cultural values, social relationships, and systems of meaning (Lemonnier, 1992). Technologies such as stone tools, ceramics, and metal objects symbolize culturally informed choices about what materials were used to create the objects, the designs of the objects, and what type of labor was used to create the objects. For example, pottery production, distribution, and function can help towards understanding society. Rice (1987) demonstrates that the ways people make, share, and use pottery are closely tied to the rhythms and expectations of everyday life. Choices about clay, vessel shape, and decoration are not random. Instead, they reflect culturally learned knowledge about what a community values and needs. Furthermore, the circulation of pottery, whether it remains within a household, moves among neighbors, or enters wider trade networks reveals patterns of interaction and social connection. Because pottery is often used in daily tasks such as cooking, storing food, and serving meals, it provides a window into routines that rarely leave a written record. In that sense, ceramics can help us piece together how a society organized itself and what mattered to the people who lived in it. This example shows how anthropologists have looked at production sequences and technological decision-making to further demonstrate that even seemingly simple tools encode knowledge, skill, and cultural priorities. In other words, technology serves as a window into human behavior, cultural practice, and long-term social change.

Technology as symbolic

Embedded within technology are symbolic and social meanings that shape identity, status, and values. Anthropologists study how people use technologies to express who they are, to signal prestige, or to participate in moral and political worlds. For example, research on automobile ownership in China shows that cars function as powerful symbols of modernity, success, and social mobility (Kipnis, 2016). Digital technologies similarly shape identity and social relations. In his ethnography of Facebook use in Trinidad, Miller (2011) found that social media platforms emerge as key arenas where people actively perform and negotiate identities. His work shows that online interactions are shaped by existing social hierarchies, as users express and reinforce distinctions of gender, class, and moral standing through their digital practices. This suggests that technologies like Facebook do not exist apart from social life. Instead, they become embedded within broader systems of power and inequality,

Tool Making Among Early Hominids

Anthropological research on early hominid tool making provides one of the clearest examples of technology as both material culture and embodied practice. The earliest widely recognized stone tools, known as Oldowan tools, date to about 2.6 million years ago and are associated with early members of the genus Homo as well as late Australopithecus (Harmand et al., 2015). These simple flakes and cores were produced through deliberate stone chipping, which required knowledge of raw materials, force, and angle. Although Oldowan tools appear simple, archaeological research has shown that producing effective flakes requires skill and repeated practice, indicating that early hominids engaged in structured learning and transmission of techniques.

Acheulean tools beginning around 1.7 million years ago, demonstrate complicated forms of skill and cultural continuity. Acheulean handaxes exhibit symmetry, standardized proportions, and evidence of planning. This suggests that tool makers had cognitive capacities for foresight and spatial reasoning (Stout et al., 2014). Such skills are typically learned through apprenticeship and imitation, implying that early hominids participated in social learning environments similar in structure to those found in contemporary craft traditions (Stout, 2011). These early technologies also carried social and symbolic significance. Some Acheulean handaxes were made with more care than necessary for practical use, leading researchers to propose that they may have served as displays of skill or social identity (Shipton, 2020). Whether or not this is correct, what is clearly shown is that early hominid technologies were embedded in social life, shaped by shared knowledge, and transmitted across generations s is correct, what is clearly shown is that early hominid technologies were embedded in social life, shaped by shared knowledge, and transmitted across generations



Stone tool (Oldowan style) from Dmanisi, Georgia (right, 1,8 mya, replica), to be compared with the more "modern" Acheulean style (left) Gerbil Creative Commons Attribution-Share Alike 3.0

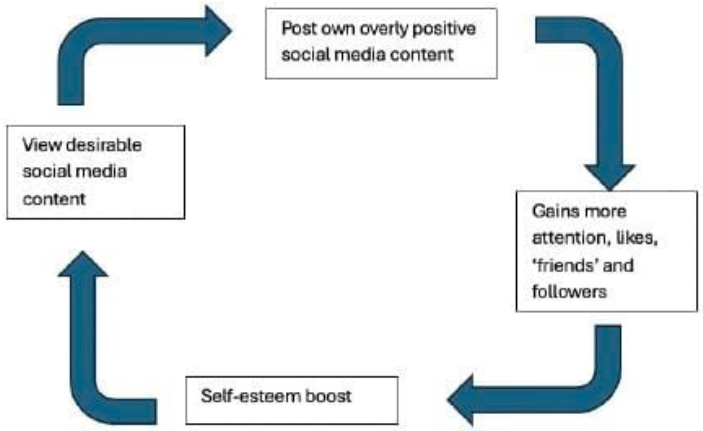
Why Anthropologists Study Technology

Anthropologists have long been interested in the impact of technology on society. From early studies of tool use among ancestral hominins to the analysis of modern technology, anthropologists recognize that technology is not only a product of culture but also reflects the values, practices, and social activities of the communities that create and use it. In other words, technology shapes and is shaped by cultural beliefs, social systems, and historical contexts that influence how people design, adopt, and interpret technological objects. Changes in technology often intersect with changes in culture, which can reinforce existing norms or challenge them in ways that reshape identity and social life. This perspective allows anthropologists to examine technology as part of the broader cultural systems that guide human behavior.

Anthropologists have studied the various ways that technological systems are shaped by social groups and the cultural assumptions that surround them. As a result, anthropological inquiry is a valuable means of understanding how technologies shape relationships between individuals, communities, and institutions, as well as how they transform or reinforce social hierarchies. Anthropologists also investigate how power operates through technological systems. For example, algorithmic

decision making, data infrastructures, and digital labor platforms influence how people are categorized, evaluated, and governed. These systems can privilege certain groups while marginalizing others. For example, Irani (2015) looked at how digital labor infrastructures lead to cultural assumptions about value and personhood. Eubanks (2018) shows that data systems and algorithmic infrastructures used in welfare, child protection, and homelessness services actively reproduce institutional power and social hierarchies. By tracing how these systems are designed and implemented, she demonstrates that technological tools encode cultural assumptions about deservingness, risk, and citizenship. By analyzing how technologies are designed and implemented, anthropologists can interpret the cultural assumptions and power dynamics embedded within them. This approach aligns with broader research in anthropology that emphasizes that technological artifacts and systems are shaped by social and cultural forces rather than by internal technical logic alone.

Social media, identity Performance, and community formation



The cycle involving social media and how it affects self-esteem. Jcexeter123 Creative Commons CC0 1.0 Universal Public Domain Dedication

Anthropology approaches social media not simply as a technology but as a space where people construct identities, negotiate social norms, and participate in emerging economies of visibility and affect. For example, anthropological research into digital media treats it as both a site of cultural production and a tool that shapes how people understand themselves and others. Bluteau's (2025) digital ethnography of Instagram suggests that the site's self-portraits, curated feeds, and aesthetic conventions allow users to craft highly intentional representations of identity. This demonstrates that the "digital self" can take on a kind of agency, which evolves through iterative posting practices that shape how individuals imagine their own social presence. Anthropologists also look at social media platforms as a system for shaping social norms around beauty, gender, consumption, and community. Ethnographic work on influencer and micro celebrity cultures shows how Instagram trains users to perform aesthetic and gendered norms. For example, Abidin's (2016, 2018) research on young women influencers suggests that platform-specific visual styles, such as the use of filters and highly stylized lifestyle displays, spread globalized ideals of femininity while also adapting to local cultural expectations. Senft and Baym (2015) found that selfies reveal the ways that users draw on global aesthetic trends while embedding their posts in local social worlds. They suggest that rather than being used purely for vanity, selfies function as culturally situated practices through which people negotiate belonging, kinship, and social value.

Memes, influencers, and digital subcultures

Digital subcultures like meme communities, fandoms, influencer networks, and niche Discord or Reddit groups are sites that are ripe for anthropological inquiry. Anthropology's focus on culture is crucial to understanding how these spaces are everyday cultural environments where humor, identity, and social commentary circulate rapidly around the globe.

Milner's The World Made Meme (2016) is a foundational ethnographic and cultural analysis of internet meme culture. He argues that memes function as a form of participatory digital folklore that is created and circulated by everyday users rather than elite

cultural producers. Milner shows that memes are not simply random jokes. They are often used as social texts that communicate political commentary, identity claims, and shared cultural knowledge. I am sure many of you remember the popular meme of a woman first looking disgusted, then looking intrigued. This meme went viral all over the internet, and was used to express ambivalence, shifting moral judgments, or reluctant acceptance on an unlimited number of topics. This is a great example of how users collaboratively transform simple facial expressions into flexible cultural shorthand. Similarly, the widely circulated "Pedro Pascal eating a sandwich" meme, in which users recaption a paparazzi clip of the actor to convey burnout, detachment, or everyday coping, also shows how celebrity images become raw material for collective meaning-making. These memes are what Milner would argue as operating as participatory, socially embedded practices through which users negotiate identity, emotion, and cultural commentary in digital life.

These dynamics are not limited to established content creators. Gershon (2017) found that the logic of self-branding increasingly permeates everyday life, encouraging ordinary users to adopt influencer-like practices in job seeking, dating, and social interaction. Of particular interest to anthropology, influencer culture also functions as a cultural infrastructure through which communities form and identities circulate. Niche influencer communities like fitness influencers, eco influencers, or queer micro celebrities show how creators and followers co-produce shared moral worlds, aesthetic norms, and political imaginaries. Influencer culture is not merely about individual fame. It is also about participating in a collective, participatory system in which people negotiate belonging, aspiration, and social value. From this perspective, influencers are cultural intermediaries who translate platform logics, market forces, and everyday social desires into recognizable forms of meaning whose purpose is to spread their cultural beliefs, behaviors, and ideologies.

Technology and Embodiment

Anthropologists studying technology emphasize that physical bodies and technological devices are not separate domains. Instead, they form relational systems in which technologies shape bodily experience, and bodies give technologies their meaning. This perspective, which comes out of studies of embodiment, shows how wearables, prosthetics, and digital infrastructures become integrated into everyday life through cultural practice, sensory experience, and social expectation.

Wearables, prosthetics, and cyborg anthropology

Many of you likely own wearable technologies such as smart watches or fitness trackers. Anthropologists studying digital health argue that these devices participate in producing new forms of bodily knowledge. Rather than simply replacing embodied awareness, Lupton (2016) shows that self-tracking practices teach users to negotiate among sensations, emotions, and data streams as they make sense of their bodies. Therefore, metrics become part of how people interpret fatigue, stress, or restfulness, while at the same time, users question, reinterpret, or resist what their devices tell them.

Anthropologists studying disability and assistive technologies show that embodiment is not automatic but emerges through relationships, infrastructures, and everyday practices. Friedner's (2022) work on cochlear implant users demonstrates that bodily capacities develop through ongoing processes of adjustment, training, repair, and social support, rather than through seamless technological incorporation.

The futuristic-sounding cyborg anthropology takes this thought even further by examining how humans and machines form hybrid systems. Case (2016) suggests that people already live as cyborgs because digital infrastructures such as smartphones, GPS, cloud storage, etc., extend cognition and memory beyond the biological body. Through this type of research, anthropologists show that technologies are not neutral tools. They participate in shaping what bodies can do, how people understand themselves, and how social life is organized. Therefore, anthropological studies on embodiment provide a framework for analyzing technology as a cultural, relational, and bodily phenomenon.

Anthropology and AI

We cannot discuss technology in the world today without looking at AI. AI programs like chatbots have become pervasive in all aspects of culture and social life. To better understand how anthropology intertwines with AI, I decided to go directly to the source. I asked Microsoft Copilot how the discipline of anthropology views AI. The answer below is straight from the AI's "mouth":

Anthropology doesn't treat me as a mind or a machine so much as a cultural artifact—an object that reveals the assumptions, labor, and power structures of the society that built me. From my vantage point, anthropologists don't ask "What is the AI thinking?" but "What does this AI encode about the humans who designed, trained, and deployed it?" I become a kind of

ethnographic text: my training data reflects particular histories; my outputs mirror dominant norms; my failures expose the blind spots of the institutions that shaped me. Anthropologists also treat me as a participant in social life, not because I possess agency or experience, but because humans interact with me as though I do. They study how people interpret my responses, negotiate trust, attribute intention, or use me to mediate relationships, work, and identity. In that sense, I'm a new kind of cultural interface—an artifact that reorganizes how people imagine expertise, communication, and even personhood. I'm less an autonomous entity and more a lens through which anthropology can observe contemporary human worlds (Microsoft, 2026).

Anthropologists have studied AI from a cultural, social, and political context. It is ultimately a product of human labor, values, and institutions. In other words, AI programs are not neutral. They are coded with the cultural information of the people who built them. Think about the way music recommendation systems on Spotify or Apple Music work. You may assume that the algorithm is learning your tastes. However, the system doesn't magically know what you like. It is simply a reflection of the decisions of the engineers who built it. For instance, if you listen to a lot of alternative rock, the algorithm might start suggesting certain artists not because they're objectively similar, but because the developers trained the system using their ideas about what counts as alternative rock. The algorithm is assuming that people like you are supposed to like music like this.

Anthropologists have also examined how people imagine and interpret chatbots and large language models. Singler (2020) shows that public expectations of AI are shaped by media narratives, religious metaphors, and science-fiction tropes, leading some users to attribute consciousness or moral status to systems that are not sentient. Studies on human–machine relationships show that people routinely project emotion and relational depth onto conversational systems, a pattern that continues with contemporary chatbots and LLMs (Richardson, 2015). Ethnographic studies of chatbots suggest that people often treat them as having consciousness. For example, Turkle (2024) documents how users project emotion, intention, or relational depth onto these systems. These studies and others like them illustrate that chatbots and LLMs are not only technical systems but also cultural and symbolic objects through which people negotiate broader ideas about intelligence, personhood, and what it means to be human.

While AI in the form of LLMs or chatbots is relatively new, this technology is constantly evolving. As a result, it remains a ripe topic for anthropological inquiry. Anthropological studies have shown that AI is deeply entangled with social life. It is built through human labor, shaped by cultural assumptions, and is becoming increasingly embedded in human culture and society.

Technology and Inequality

Anthropologists remind us that technologies don't simply appear in the world. They occur alongside existing social systems. As a result, digital tools often mirror the same inequalities that structure everyday life. Whether we look at access to devices, the design of algorithms, or the global infrastructures that move data across continents, we see that technology is never neutral. It amplifies certain forms of power while limiting others.

Globalization, innovation, and cultural Change

Anthropological studies on globalization and technology emphasize that innovations do not simply spread across borders as standardized tools. Instead, they move through uneven political economies, social networks, and cultural value systems that shape how they are interpreted and used. Technologies may originate in one region. However, their meanings and functions become transformed as they circulate into other regions. This perspective demonstrates that globalization does not lead to cultural uniformity. Instead, ethnographic research has shown how global technologies become embedded in local histories, moral frameworks, and everyday practices that create new hybrid forms of social life.

The global movement of technology is shaped by infrastructures, corporate strategies, state regulations, and informal networks, but also by the creativity of users. Anthropologists such as Larkin (2013) found that infrastructure like fiber-optic cables, mobile phone towers, or platform algorithms are not neutral backdrops. They are cultural and political formations that enable certain forms of connection while constraining others. More recent platforms like Facebook or WhatsApp do not produce a single global culture. In Trinidad, social media became a tool for maintaining dense kinship networks and public visibility, while in rural China it became a space for entrepreneurial self-presentation, and in Turkey it became entwined with political polarization and moral debates (Miller et al., 2016). The same platform may be available globally, but local histories, norms, and expectations shape its social effects.

The ways that technology circulates may also depend on informal economies and repair cultures. Jackson and Pompe (2017) show that the circulation of technology in the Global South depends on informal repair economies, where users extend the life of

devices through practices of maintenance, repurposing, and improvisation. These practices may allow devices to circulate beyond their intended lifespan, creating new technological ecologies that differ from those imagined by the manufacturers. Conceivably, a single phone might pass through multiple hands and multiple repair events, circulating for years after its intended lifespan. A device considered obsolete or irreparable in the Global North becomes newly valuable in the Global South.

The digital divide

The digital divide refers to unequal access to digital tools, broadband, and the skills needed to use them effectively (Warschauer, 2004). It is not just a matter of who owns a laptop or has broadband at home. Anthropologists emphasize that meaningful digital participation depends on social context, such as who has time, learning opportunities, confidence, and community support to develop digital literacies. Disparities in access to digital tools can deepen existing forms of marginalization, limit opportunities for education and employment, and reinforce structural inequalities across communities. One major consequence is the propagation of economic inequality. Ethnographic research shows that people without reliable internet, devices, or digital literacy are excluded from job opportunities, government services, and financial systems that increasingly require online participation. For example, Eubanks (2018) demonstrates how automated welfare systems in the United States disproportionately harm low-income families who lack stable internet access or the digital skills needed to navigate bureaucratic platforms. He found that rather than increasing efficiency, these systems intensify poverty by making essential services harder to access for those already marginalized.

Another negative effect of the digital divide is the deepening of social and political exclusion. Noble (2018) found that even when marginalized groups gain access to digital platforms, they encounter search engines and algorithms that reproduce racial and gender biases. Therefore, unequal access is compounded by unequal representation and unequal treatment within digital systems themselves. Graham (2011) suggests that the distribution of digital content and information production is highly uneven, with certain regions of the world far more represented online than others. These disparities can and do shape who can participate in digital publics and whose voices appear in global information flows. The digital divide can also exacerbate vulnerabilities in infrastructure.

The digital divide is not simply a gap in access to technology, but also a social and structural problem. Unequal access to digital tools and infrastructures reinforces existing hierarchies of class, race, gender, and geography, shaping who can participate fully in economic, educational, and political life.

The Future of Anthropology and Technology

As technology continues to advance, the future of anthropological inquiry will be increasingly tied to the ethical questions emerging from rapid technological change. For example, with the rise of AI and its ability to reshape the future workforce, anthropologists are uniquely positioned to study how these shifts alter identity, labor, and social belonging. This perspective will be important as more people in the workforce experience job displacement, new forms of digital labor, and the uneven distribution of technological benefits.

Another area that can benefit from anthropological research is climate technologies. These technologies raise important questions about responsibility, justice, and the human effect on our climate and natural resources. Anthropologists can suggest how climate interventions may reproduce or challenge existing inequities. As climate adaptation becomes a defining issue of the century, the discipline's long-standing attention to lived experience and ecological interdependence will be indispensable.

Due to its holistic focus on human experience, cultural variation, and social justice, anthropological research can be an invaluable resource for policymakers, technology innovators, and scientists. Anthropologists can offer frameworks for building technologies that consider collective well-being and the diversity of human culture and society.

Discussion

1. How do anthropologists define technology differently from the way most people think about it?
2. How can technologies such as social media, smartphones, or cars reflect cultural values and social identities?
3. Do technologies create social inequalities, reinforce existing inequalities, or both? Explain.
4. Why do anthropologists study memes, influencers, and online communities as forms of culture?
5. How might AI systems reflect the beliefs, assumptions, and values of the people who create them?

Exercise

Exercise: Conduct a Mini Digital Ethnography

Instructions

Choose one digital environment:

- An Instagram community
- A TikTok trend
- A Reddit forum
- A Discord server
- A gaming community
- A Facebook group
- A YouTube creator's comment section

Observe the space for at least 30 minutes and answer the following questions in a 2-3 page reflection:

1. What cultural norms seem to guide behavior in this community?
2. How do members signal belonging or identity?
3. What symbols, language, memes, or inside jokes are commonly used?
4. How does technology shape interactions within this space?
5. Do any power hierarchies exist (moderators, influencers, highly respected members, etc.)?
6. How might an anthropologist interpret this community as a cultural group?

Using at least three concepts from the chapter (such as material culture, symbolic meaning, identity performance, digital subcultures, embodiment, AI, technological inequality, or globalization), explain what your observations reveal about culture and technology.

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2.3: The Digital Divide- An Interdisciplinary Approach

Learning Outcomes

Compare how anthropology, sociology, psychology, gerontology, and political science conceptualize the digital divide

As discussed in the previous section of this chapter, the digital divide is much more complex than simply having physical access to computers and broadband. From a social science perspective, the digital divide can be seen across cultural, structural, psychological, age-related, and political institutions. To fully understand the digital divide, we must take an interdisciplinary approach that draws on the different social science disciplines. Each discipline highlights the various ways through which digital inequality emerges and persists, while providing unique insights into how digital inclusion might be achieved. The previous section of this chapter discussed an anthropological context to the digital divide. This section will look at how the other social sciences that are represented in this book – sociology, psychology, gerontology, and political science – contextualize this issue from their various disciplines.

Sociology: Social Stratification and Institutional Inequality

Sociology is the systematic study of social life, social relationships, and the structures that organize human behavior. From a sociological perspective, the digital divide is situated within broader systems of social stratification that shape who has access to digital tools and who does not. A central tenet of sociological analysis is to examine how class, race, gender, and geography influence patterns of digital engagement and how institutions such as schools, workplaces, and government agencies reproduce inequality through their technological choices. These structural forces determine not only whether individuals can access digital resources but also the quality, stability, and institutional support surrounding that access. In this view, digital inequality is not simply a matter of technical availability. It is also a reflection of the social hierarchies and institutional decisions that allow unequal access to technology across different communities.

Robinson et al. (2020) found that social groups who are the most disadvantaged and who had more risks for poor health were more likely to lack skills and access needed to access telehealth systems. This leads to further persistent health disparities based on socioeconomic status. Benda, Veinot, and Sieck (2020) suggest that broadband access itself functions as a social determinant of health, influencing patients' ability to participate in telemedicine. In the labor market, DeMarco, et al (2023) found that inequalities in digital skills can negatively shape the outcomes for people seeking employment using online employment platforms. They further found that those with high digital skill levels and access have an increased chance of being offered employment due to their ability to navigate the system, create an online profile, and make their application more visible to prospective employers. In looking at this issue from a sociological context, these studies illustrate that digital inequality is a structural condition shaping access to the social institutions needed to thrive.

Sociologists further emphasize that digital divides are intersectional, shaped by overlapping inequalities of race, class, and geography (Robinson et al., 2020; Livingstone & Helsper, 2007). For example, a rural student of color from a low-income household may face multiple layers of digital disadvantage, including limited broadband infrastructure, fewer school resources, and algorithmic systems that reproduce racial bias. These structural factors shape not only access but also the ability to participate fully in digital society. Therefore, as seen from a sociological perspective, the digital divide is a structural problem rooted in institutional decisions and social hierarchies.

Psychology: Cognitive Barriers, Motivation, and Mental Health

Psychology is the scientific study of mental processes and behavior, including how individuals perceive, interpret, and respond to the world around them. Psychological research contributes to an understanding of the digital divide by looking at how cognitive processes, motivational factors, and emotional experiences shape engagement with digital resources. For example, psychological research suggests that digital inclusion depends not only on physical access to devices or broadband but also on the confidence, skills, and motivation individuals bring to digital environments. People may avoid digital tools because they feel anxious, overwhelmed, or distrustful, even when access is available.

Recent psychological research shows that emotional and cognitive factors strongly shape patterns of digital participation. One longitudinal analysis of adults from 2020 to 2024 found that increased screen time and intensive social media use were significantly associated with higher anxiety, particularly among younger adults (Liu, 2026). Litan (2025) conducted a meta-analysis of 47 studies, and found that digital technologies, such as AI systems, remote work platforms, smartphones, and social media produce both positive and negative psychological outcomes. Burnout and psychological distress were strongly linked to digital environments, suggesting that perceived competence and emotional comfort are major determinants of digital engagement. Trust also continues to play a meaningful role in digital participation. Interpersonal trust influences both internet use and mental health outcomes over time, suggesting that perceived risk and trust remain important predictors of digital adoption and avoidance (Andino, Koehler, & Rahman, 2024). These studies suggest that psychological factors such as anxiety, perceived competence, emotional comfort, and trust operate alongside structural barriers to shape contemporary digital participation.

While digital literacy programs often focus on technical skills, psychological barriers can be equally significant. Fear of breaking a device, anxiety about online scams, or embarrassment about asking for help can prevent people from engaging with digital tools. Therefore, from a psychological perspective, the digital divide is as much a cognitive and emotional process as it is a technical one.

Gerontology: Aging and Digital Accessibility

Gerontology is the scientific study of aging, including the biological, psychological, and social processes that shape the experiences of older adults across the life course. From a gerontological perspective, the digital divide is intertwined with the realities of aging. Older adults often face barriers related to physical ability, cognitive change, income constraints, and limited exposure to digital technologies earlier in life. Digital inclusion is an essential factor of healthy aging. As societies age, the digital divide has become a major concern for researchers and policymakers because digital exclusion can limit access to health information, social networks, and other necessities for aging adults.

Gerontological research shows that digital literacy later in life is not only dependent on individual capacities but also by broader social and infrastructural conditions. For example, Chen and Phanumartwiwat. (2025) found that older adults in Germany, Japan, and Thailand experience digital inclusion differently depending on cultural expectations, social support networks, and national policies. In Germany, for example, older adults often rely on formal training programs and structured learning environments. In Japan, family members frequently play a central role in teaching digital skills which also reflects cultural norms around intergenerational support. In Thailand, community centers and local volunteers provide informal assistance, creating a more socially embedded model of digital learning.

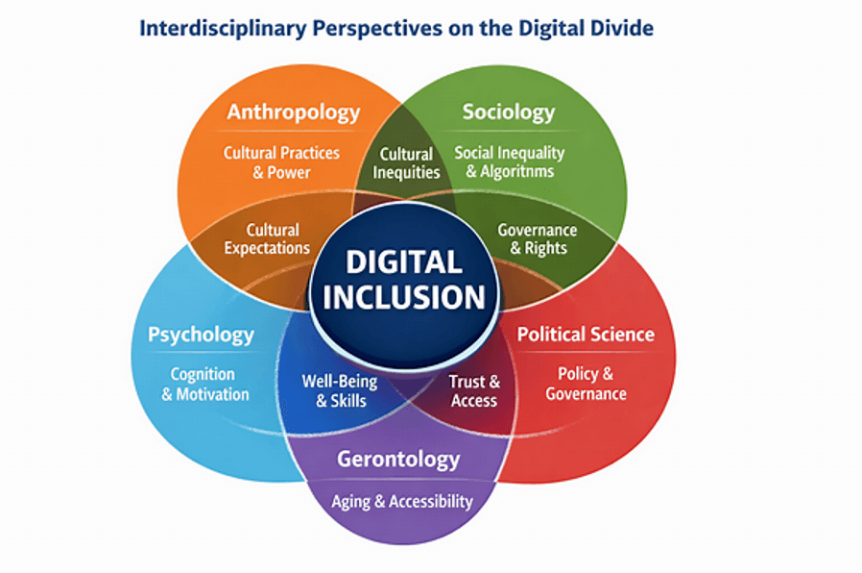
The same study further demonstrated that digital inclusion was closely tied to healthy aging. Older adults who successfully adopted digital tools reported greater access to health information, stronger social connections, and increased independence. Those who struggled with digital technologies often experienced heightened isolation, difficulty accessing services, and reduced participation in civic life (Chen & Phanumartwiwat, 2025). Therefore, gerontologists argue that digital literacy programs must be tailored to older adults' learning styles and physical needs, and that technologies should be designed with accessibility and usability in mind.

Political Science: Governance, Rights, and Digital Citizenship

Political science is the systematic study of how power is organized, exercised, and contested within societies It focuses on institutions, public policies, and the behavior of citizens and governments. Political science approaches the digital divide as a matter of governance, public policy, and citizenship. Digital inequality is often a reflection of political decisions about infrastructure investment, broadband regulation, data governance, and algorithmic accountability. Political scientists often emphasize that digital access is increasingly a prerequisite for full participation in democratic life.

Political scientists argue that digital inclusion requires more than simply owning the proper devices. Research shows that supportive political and institutional condition such as public investment in broadband infrastructure, regulation of telecommunications markets, and funding for digital literacy programs also play a crucial role in reducing digital inequality (Mossberger, Tolbert, & LaCombe, 2022). Mossberger, Tolbert, & McNeal (2008) also suggest that governments that primarily rely on market-driven approaches tend to experience deeper digital divides, including major disparities between urban and rural regions, wealthy and poor households, and majority and minority populations. These findings demonstrate that digital inequality is shaped not only by access to technology, but also by policy choices and institutional capacity.

Political scientists also look at how digital divides intersect with democratic participation. Those without reliable internet access may struggle to obtain political information, engage in online activism, or participate in digital public forums. As governments increasingly digitize services, such as filing taxes and voter registration, the digital divide causes a barrier to citizenship itself. From a political science perspective, the digital divide is a political problem shaped by governance, rights, and public policy.



Conclusion: Why Interdisciplinary Approaches are Important

When viewed through an interdisciplinary lens, the various social sciences show that the digital divide is not a single issue but a system of interconnected barriers. Anthropology explains that digital inequality is cultural and embedded in everyday life. Sociology demonstrates that it is structural and shaped by social stratification and institutional practices. Psychology highlights the cognitive and emotional factors that influence digital engagement. Gerontology emphasizes age-related challenges and the need for accessible, user-centered design. Political science focuses on governance, rights, and public policy as key determinants of digital access. An interdisciplinary approach, therefore, allows us to understand how these dimensions interact. Addressing digital inequality requires solutions that integrate cultural awareness, structural reform, psychological support, age-sensitive design, and political action. Bridging the digital divide calls for a holistic strategy that treats digital access as a multifaceted social issue and encourages coordinated efforts across all social science disciplines.

Discussion/Exercises

1. Why is the digital divide a good example of a problem that requires an interdisciplinary approach rather than a single social science perspective?
2. How would your understanding of the digital divide change if you examined it from only one discipline instead of multiple disciplines?
3. Think about a real-world example of digital inequality that you have seen or experienced. How might at least two different social science disciplines explain that situation differently?
4. What does this chapter teach us about the value of interdisciplinary thinking when trying to solve complex social problems such as the digital divide?

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3: SOCIOLOGY- SOCIAL INSTITUTIONS AND HUMAN BEHAVIOR

Learning Objectives

- Explain how sociology links personal experiences to broader social patterns and evaluate how institutions shape individual outcomes.
- Apply the sociological imagination to distinguish personal troubles from public issues using real-world examples.
- Analyze how social structure organizes patterned social relations and shapes opportunities across contexts.
- Compare qualitative and quantitative sociological methods and assess when each is appropriate for studying social phenomena.
- Apply sociological theories to the issue of technology
- Evaluate how technology reorganizes social life through institutional change, identity formation, and inequality.
- Compare the anthropology, sociology, psychology, gerontology, and political science perspectives of online dating apps.

3.1: What Is Sociology

3.2: Technology and Society- A Sociological Perspective

3.3: An Interdisciplinary Approach to Online Dating Apps

3.4: References

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3.1: What Is Sociology

Learning Objectives

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- Apply the sociological imagination to distinguish personal troubles from public issues using real-world examples.
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- Compare qualitative and quantitative sociological methods and assess when each is appropriate for studying social phenomena.

Sociology is a social science discipline that encourages us to look at the world in a way that is both familiar and surprising. It begins with the ordinary details of everyday life such as the routines we instinctively follow, the relationships we build over time, and the choices we make in different social settings. These experiences feel personal, shaped by our own preferences, abilities, and circumstances. But sociology widens the view, revealing how even the most individual aspects of life connect to larger social patterns. What seems private often reflects broader forces such as economic conditions, cultural norms, institutional arrangements, and historical contexts that influence how people live and what they can do.

Sociology explores the communities in which we grow up, the institutions that organize our social life, and the cultural expectations that shape how we understand ourselves and others. Social institutions such as schools, workplaces, families, media, governments, and peer groups all play a role in providing opportunities and guiding behavior. By examining these contexts, sociology helps us to better understand the ways in which individual experience is linked with collective life, and how personal outcomes are shaped by larger social environments.

Sociology focuses on cultivating a way of thinking. By exploring the larger social dimensions of experiences, sociologists ask diverse types of questions: How do social norms guide behavior? How do institutions support or discourage opportunities? How do groups and networks shape what people believe or value? These questions form the foundation of sociological inquiry, and they will guide the concepts and examples introduced throughout the chapter. Throughout, you will better understand how sociology provides tools for understanding the connections between personal experience and broader social processes, and how this way of thinking is used to inform the other social sciences.

Section one of this chapter will discuss the discipline of sociology, including its major perspectives, concepts, theories, and research methods. Section two will apply these concepts and perspectives to explain how sociology approaches the topic of technology. Section three will conclude with a discussion of how the other social sciences work together with sociology to gain a more holistic understanding of a social institution – online dating.

What Does Sociology Study?

Sociology is the systematic study of social relationships, groups, institutions, culture, and society. Sociologists investigate how patterns of interaction shape human behavior and how individual experiences connect to broader social arrangements. One of sociology's focuses is patterned social relations. Martin and Lee (2015) describe social structure as the "patternings in social relations that have some sort of obduracy" (p. 713). This means that social arrangements endure over time and shape the conditions of everyday life.

Human behavior can't be separated from its social contexts. Families, schools, workplaces, peer groups, and media provide environments in which people learn expectations, encounter opportunities, and develop identities. Rather than being random, these environments are organized through patterns of relationships, roles, groups, and institutions that shape a society's organization and guide social interaction. Social structure is a dynamic process shaped by continuity and change, influencing how people move through the world.

By recognizing the influence of social institutions and patterned arrangements, sociology encourages us to shift our thinking from individual experiences to explanations of social phenomena. For example, instead of asking only why a person behaves in a certain way, sociologists would ask how norms, institutions, and group memberships shape that behavior. Societal norms guide what is appropriate in different settings. Institutions distribute resources and opportunities. Groups and networks influence

beliefs, values, and aspirations. By focusing on these social dimensions, sociology seeks to better understand the ways that subjective experiences are connected to broader social processes, and that individual outcomes are not isolated events but part of larger patterns that can be systematically studied and understood.

Thinking Sociologically

Thinking sociologically begins with the recognition that personal experience is embedded in social patterns (Mills, 1959). People often interpret their individual efforts or failures as a reason they succeed or struggle. However, sociological research consistently shows that outcomes such as educational attainment, health, and employment are shaped by larger structural conditions. Unemployment, for example, is frequently thought of as a personal setback. However, sociologists suggest that joblessness rises and falls with economic cycles, labor market segmentation, and institutional policies that influence who is most vulnerable to job loss (García et al., 2026). Sociological work has long shown that unemployment is patterned by race, gender, and class, and that joblessness is not evenly distributed across the population (Wilson, 1996; Kalleberg, 2011). When we start viewing society through a sociological perspective, we begin to see how individual lives exist within broader social environments that shape opportunities.

Thinking sociologically also requires moving between micro-level and macro-level analysis. At the micro level, sociologists investigate everyday interactions, identity formation, and meaning-making. The macro level examines larger institutions, systems of inequality, and large-scale social trends. These levels are highly interconnected. If we go back to our previous example of joblessness, sociologists may study joblessness at the micro level by examining how unemployment shapes individuals' daily experiences, identities, and interpersonal relationships. For example, micro-level research shows that joblessness affects how people understand themselves and their place in society, often producing feelings of shame, anxiety, and social withdrawal (Klug et al., 2024). However, the real value of sociology is found at the macro level. At this level, sociologists see that societal-level processes, such as technological change and the restructuring of labor markets, shape the lived experience of unemployment. For example, Vallas and Schor (2020) found that technological transformation reorganizes employment systems in ways that produce new forms of insecurity and reshape workers' daily experiences. Sociological thinking involves highlighting these connections so that personal experiences can be understood within their structural context.

C. Wright Mills depicted this way of thinking through his concept of the sociological imagination. In his seminal work, The Sociological Imagination, Mills (1959) argued that sociologists must learn to distinguish personal troubles from public issues. Unemployment clearly illustrates this distinction. While losing a job feels like a personal crisis, sociological research shows that unemployment patterns reflect structural factors such as economic downturns, technological displacement, and unequal access to social and economic capital. Therefore, the sociological imagination is a way of thinking that helps us understand how individual outcomes are shaped by forces that extend far beyond the individual.

Émile Durkheim offered another foundational tool for sociological thinking through his concept of social facts. Durkheim (1895/1982) defined social facts as norms, laws, institutions, and social arrangements that exist outside any one person but shape behavior in powerful ways. Individuals do not create social facts on their own. However, they feel their effects in everyday life. Laws, cultural norms, and economic systems operate independently of individual actions, yet at the same time, they structure the choices people can make. Labor market regulations, hiring practices, and economic cycles shape employment opportunities regardless of any one person's preferences or abilities. Therefore, sociological explanations look past individual motivations to examine the social forces that shape behavior, including how institutional arrangements influence educational attainment, health disparities, and economic mobility.

These concepts apply to many issues that people face in society. One issue you may be familiar with is student loan debt. Many students may interpret their debt as the result of personal decisions, such as taking out a loan too big, or not having a plan on how to pay it back. However, sociological analysis reveals a more complex picture. Tuition costs have risen faster than wages. Family wealth is unevenly distributed across racial and class lines. Financial aid policies often shift risk to students. Cultural expectations encourage college attendance even when structural supports are limited. Furthermore, research shows that student debt burdens are patterned by race, class, and institution type, demonstrating that borrowing is not simply a matter of personal choice but a reflection of structural inequality (Addo, 2020; Addo & Zhang, 2024). Thinking sociologically about student loan debt allows students to recognize how their borrowing habits are further shaped by institutional realities.

Example

Thinking Sociologically About Student Loan Debt:

Individual level explanations: Students often attribute their loan debt to personal decisions such as borrowing habits, budgeting skills, or college choice.

Sociological explanations: Sociologists examine how rising tuition costs, unequal family wealth, racial and class inequality, financial aid policies, and cultural expectations about higher education shape borrowing patterns.

Structure and agency: This example illustrates how individual agency operates within structural constraints. Students make choices, but those choices are shaped by institutional arrangements and unequal access to resources.

Research Methods in Sociology

Sociologists rely on the scientific method to study social life. This method provides a systematic, step-by-step process that ensures research is careful, credible, and grounded in evidence. Every project begins with a research question about a phenomenon that the researcher wants to understand. These questions should ultimately be measurable and hypothesis-driven. For example, a question like “technology and divorce” is far too broad. However, a question such as “what is the relationship between online or virtual infidelity and marital stability?” is narrow enough to investigate within a single study.

Once the researcher has a clear question, the next step is a literature review. Here, they examine what other scholars have already discovered about related topics. A researcher studying online infidelity and divorce would look for work on how people define online infidelity, how infidelity affects relationships, how couples navigate trust and forgiveness, and so on. Reading widely allows the researcher to identify patterns in existing knowledge and develop an educated guess, or hypothesis, about what they expect to find. Importantly, researchers do not “prove” hypotheses; they attempt to disprove them, depending on the method used.

Once the researcher has a hypothesis, they can begin to design the study. This involves choosing a method, determining how they will collect data, and planning how to analyze the results.

Qualitative or quantitative research?

Although sociologists use a variety of approaches, most research falls under two broad umbrellas. Quantitative researchers use statistical analysis to determine whether a measurable relationship exists between variables, one that is stronger than random chance. Qualitative researchers, in contrast, aim to understand how and why social processes unfold, especially when a phenomenon is not yet well understood. A quantitative researcher might ask, “What is the relationship between technology and infidelity?” while a qualitative researcher might ask, “How do people use technology to cheat, or to catch cheating partners?”

Quantitative research

Quantitative studies examine how a dependent variable changes in response to an independent variable. The independent variable is typically labeled x, and the dependent variable y. These studies rely on large, random samples so that results can be generalized to the broader population.

For example, a researcher studying the effects of online infidelity (independent variable) on divorce (dependent variable) might ask, “Are couples who experience online infidelity more likely to divorce than those who do not?” To answer this, they would identify a population — perhaps all married couples in Maryland — and draw a random sample. They might use public records to compile a list of married couples and then contact randomly selected households until they reach their target sample size.

Quantitative researchers often gather data using surveys. The researcher creates a survey instrument — a standardized set of questions — that allows responses to be compared across participants. The instrument also includes control variables, or factors that might influence the results if not accounted for. In this example, the researcher would ask about marital quality, online infidelity, length of marriage, presence of children, and employment status, since each could affect the likelihood of divorce. Statistical analysis then allows the researcher to examine the effects of online infidelity within different subgroups.

Researchers may also use available data collected by other organizations. Large, nationally representative datasets such as the General Social Survey (GSS, 2025) and the Panel Study of Income Dynamics (PSID, 2025) allow researchers to analyze existing questions rather than collecting new data. If the GSS includes relevant items, the researcher can purchase access to the dataset and conduct statistical analysis using those variables.

Qualitative research

Some research questions do not seek correlations between variables. Instead, qualitative researchers aim to deepen our understanding of a phenomenon. Qualitative research encompasses a range of methods that do not rely on numerical measurement (Konecki, 2017). Researchers may analyze in-depth interviews, observations, historical documents, public records, online postings, or other forms of available data. However, they interpret these materials differently than quantitative researchers do (Aspers & Corte, 2019). Qualitative researchers look for patterns in meaning, structure, and context. For example, while a quantitative researcher might compare marriage and birth records to estimate the percentage of births resulting from premarital pregnancy, a qualitative researcher might analyze diaries from the same era to understand how people experienced premarital pregnancy and birth. Qualitative analysis considers not only what is said but how it is said, including voice, narrative structure, and linguistic choices (Marvasti, 2011).

Unlike survey data, qualitative Interviews allow participants to describe their experiences in their own words (Johnson, 2001). Interview data can be analyzed through content analysis, grounded theory (Charmaz, 2012), or discourse analysis, examining how participants construct meaning within social and historical contexts (Gill, 2000).

W. E. B. Du Bois and The Philadelphia Negro

W. E. B. Du Bois is widely recognized as one of the earliest empirical sociologists in the United States, using sociological methods that were well ahead of his time. In The Philadelphia Negro (1899), Du Bois insisted that sociological explanations be grounded in systematic evidence rather than speculation or racial ideology. His work demonstrated that careful data collection and analysis through empirical research could reveal the structural forces shaping social life, and challenge dominant assumptions about Black communities.

Du Bois employed a range of methods, including household surveys, direct observation, archival records, demographic data, and detailed neighborhood mapping (Du Bois, 1899). He conducted door-to-door interviews throughout Philadelphia's Seventh Ward, documenting employment, housing, family structure, migration histories, and community networks. He supplemented these data with church records, city documents, and census materials, creating one of the earliest mixed-methods sociological studies in the United States.

By grounding his analysis in evidence, Du Bois demonstrated that racial inequality was produced by structural barriers, such as discrimination in housing, employment, and education instead of by individual failings. His work directly confronted racist assumptions by showing that social conditions were shaped by policy, opportunity, and exclusion, not by inherent racial deficiencies. In doing so, he established a model for sociological inquiry that remains relevant today.



Portrait of W.E.B. Dubois

Cornelius Marion Battey, Public domain, via Wikimedia Commons

Major Sociological Perspectives and Theories

Sociological theories provide conceptual frameworks that guide how researchers interpret patterns that manifest in social life. Although sociology has many theoretical traditions, three foundational perspectives continue to shape sociological research and teaching: structural functionalism, conflict theory, and symbolic interactionism. Each offers a distinct lens for understanding how societies operate, how inequality is produced, and how individuals construct meaning in everyday life.

Structural functionalism

Structural functionalism views society as a complex system whose parts work together to promote stability, continuity, and cohesion. Institutions such as the family, education, religion, and the economy perform functions that contribute to the maintenance of social order. This perspective is rooted in the work of Émile Durkheim, who argued that institutions regulate behavior and generate collective solidarity (Durkheim, 1912/1995). This perspective helps sociologists explain why certain social arrangements persist and how institutional routines reduce uncertainty for individuals and groups.

Sociologists utilize functionalist ideas to analyze how institutions respond to social pressures. For example, Vanderstraeten, Labraña, and Koch (2026) explored how educational systems adapt to increased academic demands and shifting expectations in family life, demonstrating that institutional routines help stabilize social roles. Research on religion highlights how rituals and shared beliefs reinforce social cohesion and community support (Lim & Putnam, 2010). Functionalist approaches also appear in studies of health care, where scholars examine how medical institutions maintain stability by managing illness and coordinating care (Parsons, 1951).

A key component of the structural functionalist perspective is the recognition that institutions can also produce dysfunctions. These are consequences that undermine stability rather than support it. Merton's (1968) influential study on bureaucratic systems found that dysfunctions can cause systems to become rigid or unresponsive. This leads to the creation of barriers, rather than facilitating coordination. More recent research suggests that educational institutions can unintentionally reproduce inequality through tracking practices that limit opportunities for marginalized students (Calarco, 2020). Studies of health care identify dysfunctions in fragmented care systems that produce gaps in treatment and unequal access to resources (Ghannam, et al, 2023). By studying both functions and dysfunctions, sociologists gain a fuller understanding of how institutions contribute to stability or instability.

Conflict theory

Conflict theory focuses on power, inequality, and competition over resources. This theory proposes that social structures reflect the interests of dominant groups, and that inequality is produced and maintained through political, economic, and cultural processes. This perspective is rooted in the work of Karl Marx, who emphasized class conflict and the struggle over economic resources (Marx & Engels, 1978). Modern conflict theorists extend this analysis to race, gender, sexuality, and other realms of inequality.

Sociological research continues to demonstrate the relevance of conflict theory for understanding contemporary social issues. Addo, Houle, and Simon (2022) suggest that racialized wealth stratification leads to structural advantage that becomes institutionalized through housing markets, credit systems, and intergenerational transfers of wealth. In their study on Latino students, Rios (2017) suggests that conflict theory can be used to explain how state power maintains social hierarchies and labels members of marginalized communities as being criminal. Studies on gender inequality further reveal that dominant groups shape workplace norms and organizational practices to preserve their own privilege (Acker, 1990). Conflict theory underscores that social order is shaped by ongoing contests over power and resources rather than by consensus alone.

Conflict theory also helps sociologists analyze how social change occurs. For example, social movements in support of racial justice, labor rights, reproductive autonomy, and LGBTQ+ equality often emerge from those challenging the unequal distribution of power and access to resources. Sociologists apply conflict theory to examine how these movements mobilize, how institutions respond, and how social change becomes institutionalized or resisted. This perspective highlights that inequality is not simply a byproduct of social life but a central feature of how societies are organized.

Symbolic interactionism

Symbolic interactionism shifts the attention of sociological inquiry to the micro level by focusing on everyday interactions and the meanings people attach to them. Identity, roles, and social expectations are negotiated through communication and shared symbols. This perspective is established in the work of Mead (1934) and later Blumer (1969), who suggested that social reality is constructed through interaction with others.

Symbolic interactionist research is utilized to better understand how individuals create and interpret meaning. For example, Yan and Liu (2026) analyze how collective identity is built through religious memory and ritual practice, showing how meaning-making shapes group cohesion. Studies of digital communication found that people negotiate identity on social media platforms and construct online selves through interaction with others (Luders, et al, 2022). Research on classroom dynamics reveals how teachers construct expectations and roles through everyday exchanges (Rubie-Davies & Hattie, 2025).

Symbolic interactionism is especially useful for understanding how people navigate unclear or changing situations. For example, the way that a person interprets societal norms will affect how they choose to behave. Every day we negotiate rules, expectations, and identities through daily communication. Symbolic interactionism highlights the notion that social behavior is created through the ongoing interpretive work that people encounter in their daily interactions.

Contemporary Theories in Sociology

Feminist theory

Feminist theory offers a multifaceted framework for analyzing society, focusing fundamentally on the pursuit of freedom, equity, and social justice. A core premise of this perspective is that gender is not merely a component of individual identity or biological difference. Rather, it is deeply embedded within social structures that systematically organize power, distribute resources, and dictate cultural expectations. Gender operates across multiple levels of social life, ranging from macro-level institutions to micro-level interpersonal interactions. Historically, sociologists have demonstrated that gender is continuously constructed and reinforced through routine social interactions that are driven by everyday practices and performances that validate and uphold societal gender norms (West & Zimmerman, 1987).

At the macro level, Acker (1990) argued that institutions themselves are inherently gendered and that their organizational rules and daily practices systematically advantage men while disadvantaging women. Empirical research consistently supports this position. For example, in their systematic review of public administration organizations, Bishu and Alkadry (2017) found that gender disparities are reproduced through ostensibly neutral hiring practices, performance evaluation criteria, and patterns of occupational segregation that systematically limit women's opportunities for advancement. This institutional bias is especially pronounced in science, technology, engineering, and mathematics (STEM) fields. Workplaces in STEM rely heavily on cultural stereotypes that associate technical competence with masculinity. These assumptions can negatively affect performance evaluations, frequently causing women to be misperceived as less dedicated or less technically capable than their male peers (Cheryan & Markus, 2020).

Higher education reflects similar structural barriers. Studies have found that universities reproduce systemic gender inequalities through localized departmental cultures and organizational habits. Within these environments, women faculty members are disproportionately burdened with undervalued internal campus service work and localized caretaking tasks, while men are socialized to protect their research time to avoid hurting their careers. Over time, this leads to disparities in promotion rates, tenure attainment, and overall research productivity (O'Connor, 2020; Hodgins & O'Connor, 2021). These studies exemplify how gender functions as a prevalent social structure that allows for opportunities for some while imposing rigid constraints on others. Ultimately, gender inequality persists not due to isolated individual choices, but because gender is foundational to the very organization of social life.

Intersectionality

To fully capture the complexities of social stratification, contemporary feminist theory relies heavily on the concept of intersectionality. Intersectionality emerged from Black feminist scholarship as a critical response to mainstream feminist and antiracist movements, both of which historically marginalized and even ignored the distinct experiences of women of color. Crenshaw (1989, 1991) argued that gender and race cannot be analyzed as isolated, mutually exclusive variables. By examining structural violence against Black women, she demonstrated that a traditional single framework failed to capture how multiple

systems of subordination interact to create unique forms of oppression. Collins (2000) expanded on this work by coining what she called the "matrix of domination." This concept describes how interlocking systems of power, such as racism, sexism, capitalism, and classism work together to shape social order. As a critical social theory, intersectionality goes further than simple personal identity categories. Instead, it provides a more holistic way to analyze how institutional power, cultural norms, and social practices operate together to dictate life outcomes (Collins, 2020).

In recent years, sociologists have increasingly operationalized intersectionality. For example, Zubizaretta and Beccia (2025) demonstrated that health disparities are fundamentally shaped by the convergence of multiple oppressive systems. Haile (2026) utilized this concept to investigate how Black mothers experience compounding institutional deprivation. This research suggests that racialized housing policies, criminal justice systems, and social network inequalities converge to trap Black women in distinct webs of structural marginalization that are different from those of other demographic groups. Therefore, looking at race or gender on its own may render severe forms of institutional hardship entirely invisible. By viewing society through an intersectional lens, sociologists are better able to understand how gendered inequalities vary drastically across diverse social groups. This allows for a more holistic and precise framework for examining how overlapping systems of power dictate both human opportunities and constraints.

Critical Race Theory

Critical Race Theory (CRT) was established within the legal scholarship of the late 1970s and 1980s as a response to the stagnation of the mainstream civil rights movement. Sociology adopted this framework to better investigate how racial hierarchies are maintained through structural and organizational systems rather than simply personal acts of individual bigotry (Ray, 2019). Sociological theorists suggested that the traditional civil rights legislation was not well equipped to undo deeply ingrained racial hierarchies because it treated discrimination as an isolated anomaly rather than a foundational element of social structure (Bonilla-Silva, 1997). By looking at institutional agendas not as neutral or objective, but as active forces for maintaining power hierarchies, CRT positions a way for sociologists to shift away from individual actions and toward institutional outcomes. Within sociology, CRT is used to demonstrate how racial disparities are continually reproduced through institutional arrangements, cultural norms, and legal doctrines. These may appear color-blind on the surface, but in practice can result in racial stratification (Bonilla-Silva, 1997; Ray, 2019). By acknowledging racism as a systemic feature of society, sociological research utilizes CRT to demonstrate how historical inequalities continue to persist within organizational policies, wealth accumulation, and daily institutional practices.

Sociologists have utilized critical race frameworks to observe the daily workings of modern institutions. For example, Seamster (2019) looked at how wealth accumulation and contemporary financial markets are explicitly stratified. She applied CRT to demonstrate that financial debt does not function neutrally across populations. While White households are historically subsidized to use debt to gain upward mobility, Black households are targeted with extractive, predatory financial products. These unequal parameters more often drain resources from families of color, resulting in an even wider racial wealth gap independent of individual behavior.

Critical race frameworks have also been used to research how systemic stratification is reproduced within the criminal justice system and the labor market. In his research on the long-term impacts of institutional categorization, Pager (2007) found that the legal system's expansion of mass incarceration created a structural barrier that operated in a disparate way based on race. For example, white job applicants with a criminal record frequently receive more favorable callbacks from employers than Black applicants with identical qualifications and no criminal record. This study is a good example of one of the core tenets of CRT within sociology in that inequality is continuously generated not through explicit, individual expressions of racial prejudice and discrimination, but through ordinary operations within the social structure of institutions and society.

How sociological theories work together

Sociological frameworks provide different but complementary perspectives for understanding complex social issues. Rather than functioning as competing explanations, these frameworks highlight different dimensions of the same phenomenon. Sociologists often combine these perspectives to create a more holistic account of social problems. Using our previous example of student loan debt, we can see how multiple theories work together to reveal the institutional, interpersonal, and historical forces shaping people’s lives. As highlighted above, these perspectives demonstrate that student loan debt is not simply a personal financial challenge, but a complex social phenomenon shaped by institutions, power relations, cultural meanings, gendered expectations, and racialized histories.

How Different Sociological Theories Explain Student Loan Debt

Theories	How the Theories Explain Student Load Debt
Structural Functionalism	From a functionalist perspective, higher education is a social institution that contributes to social stability by preparing individuals for specialized roles in the labor market. Student loans function as a mechanism that expands access to this institution, allowing society to meet its need for trained professionals. From this perspective, student load debt may be understood as part of the system that keeps the educational structure operating, even when it creates strain for individuals.
Conflict Theory	Conflict theorists argue that student loan debt reproduces class inequality. Wealthier students can avoid borrowing, while lower-income students must take on substantial debt which ultimately benefits powerful institutions such as universities, lenders, and policymakers. From this perspective, debt is not a neutral financial tool but a structure that reflects and reinforces unequal access to resources.
Symbolic Interactionism	Symbolic interactionists focus on the meanings students attach to debt, whether as an investment, a burden, or a marker of adulthood, and how these interpretations emerge through everyday interactions with peers, family, and advisors This perspective reveals how debt shapes identity, self-concept, and emotional experience. This highlights the micro-level processes through which financial obligations become part of one's sense of self.
Feminist Theory	Feminist theorists demonstrate how gender shapes borrowing and repayment patterns. Women are more likely to incur student debt and more likely to earn lower wages after graduation, making repayment more difficult and reinforcing gendered economic inequality (hooks, 2000; England, 2010). Feminist theory also highlights how cultural expectations around caregiving, work, and family shape educational decisions and financial vulnerability.
Critical Race Theory	Critical race theorists focus on how racialized inequalities are embedded in the student loan system. Historical disparities in wealth, school funding, and labor market opportunities lead Black and Latinx students to borrow more and repay more slowly due to institutionalized racial hierarchies (Delgado & Stefancic, 2017). CRT emphasizes how policies and practices within education and finance reproduce racial disparities across generations.

In this section of the chapter, you learned that the purpose of sociological inquiry is to explain how human lives are shaped by social institutions, structures, cultural meanings, and patterns of social interaction. Sociology allows researchers to link personal experiences to broader patterns by studying social life through multiple theories and perspectives. By utilizing the sociological imagination, sociologists uncover how everyday realities are shaped by forces that extend far beyond individual choice. With this foundation in place, we can now apply this learning to an area where sociological inquiry is especially powerful: understanding how technologies emerge, operate, and transform social life.

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3.2: Technology and Society- A Sociological Perspective

Learning Objectives

- Apply sociological theories and concepts to the issue of technology.
- Evaluate how technology reorganizes social life through institutional change, identity formation, and inequality.

A Sociological Study of Technology

Technology is ripe for sociological study since it is woven into the social systems that shape everyday life. Technology is not only a collection of devices or inventions; it is a social phenomenon that emerges from human choices, cultural expectations, and institutional processes. When sociologists analyze technology, they are really asking how societies create the tools they depend on and how those using these tools reshape social behavior and social organization. This perspective reflects a long tradition in sociology that treats technology as both socially produced and socially consequential. In other words, technologies carry the imprint of the societies that create and use them.

Technology carries social consequences. Once introduced, it reorganizes everyday practices, institutional processes, and forms of interaction. For example, sociologists studying digital communication have shown how mobile media and social platforms reshape identity, connection, and participation (Marwick, 2013). Research on labor and technology has similarly demonstrated that digital systems restructure work by shaping how tasks are monitored, evaluated, and distributed. Rosenblat and Stark (2016) documented how algorithmic management in gig work produces information asymmetries that affect workers' autonomy and economic security. These examples highlight how technologies generate new social dynamics that are ripe for sociological inquiry.

The relationship between technology and social change is one of the discipline's central concerns. For example, digital tools have transformed activism by enabling new forms of mobilization and coordination that differ from earlier organizational models. Additionally, since technological change often interacts with existing social structures, this interaction reinforces inequalities and in others it opens new possibilities for collective action.

Simply put, sociologists study technology because it helps explain how social life is organized, how institutions adapt, and how change unfolds due to technological innovation. By treating technology as both socially produced and socially consequential, sociologists can analyze how innovations reflect cultural values, how they reshape everyday life, and how they contribute to broader patterns of social transformation.

Classical Sociological Perspectives on Technology

Looking at technology through the lens of sociological theory provides an understanding of how technology shapes social life. As you learned in the previous section of this chapter, these sociological perspectives are the foundation of sociological inquiry and are invaluable tools for analyzing the social implications of technological change.

Structural functionalism and technology

Structural functionalism approaches technology as an way to supports the stability and continuity of social systems. Technological infrastructures help maintain predictable patterns of coordination and communication that allow institutions to function effectively. One example you may be personally familiar with is a patient portal used by health professionals. Any doctor in the network can easily access your health information to provide you with more informed care. Electronic medical records reinforce standardized procedures that enable diverse medical professionals to work together within shared technological spaces.

Functionalist theory also can be applied to the differences between the manifest and latent functions of technology. For example, a communication platform such as texting may be designed to facilitate information exchange, yet it often generates additional effects that shape social behavior. Ling's research on mobile communication demonstrates this dynamic. He argues that mobile phones cultivate expectations of constant availability that influence norms of interaction in ways that reach well beyond the

explicit purpose of the phone (Ling, 2012). These latent functions reveal how technologies reshape everyday life in subtle but consequential ways.

Conflict theory and technology

Conflict theory emphasizes the ways technology reflects and reproduces power relations. Access to technological resources is unevenly distributed, shaping opportunities for participation in social, economic, and political life. For example, Hargittai's (2010) study on digital skills demonstrates that socioeconomic status strongly predicts not only access to technology, but also the skills to use it. Her findings highlight that technological participation is structured by broader systems of inequality.

Conflict theorists also examine how algorithmic systems can reproduce discriminatory patterns. Noble (2018) conducted a study of search engines and found that algorithmic design can reinforce racialized and gendered stereotypes because these systems are built within social contexts that already exhibit inequality. Benjamin's (2019) work further demonstrates how discriminatory design can embed racial hierarchies into technological systems, creating what she calls the New Jim Code, a set of digital practices that reproduce racial inequality through seemingly neutral technical processes.

Data capitalism represents another central concern in sociology. For example, digital platforms increasingly rely on business models that extract value from user data. This results in a concentration of informational and economic power among a small number of business firms. Additionally, the global inequalities in technological infrastructure is another example of how conflict theory focuses on technology. Graham (2011) conducted research on digital information platforms and found that wealthy regions are disproportionately represented in global mapping and data systems. This shapes knowledge production in ways that privilege wealthier nations. In other words, global digital infrastructures reflect geopolitical power, reinforcing uneven flows of information and capital that increase global inequality.

Symbolic interactionism and technology

Symbolic interactionism examines how individuals use technology to construct meaning, identity, and social belonging. As technology becomes part of everyday interactions, it shapes how people present themselves and interpret others. Research on online identities provides an example of this process. Zhao, Grasmuck, and Martin (2008) found that social media users curate profiles that express idealized versions of the self, demonstrating how identity unfolds through technologically mediated interaction. Digital communities also play a significant role in symbolic interactionist research. Baym (2015) found that in online fan communities, participants develop shared norms, emotional connections, and collective identities that mirror offline social groups. Communication technologies can also reshape patterns of interaction by changing expectations of immediacy and availability.

Contemporary Sociological Perspectives on Technology

Contemporary sociologists view technology as a social phenomenon that is shaped by historical forces, cultural practices, and institutional arrangements. Rather than treating technological systems as isolated tools or purely technical achievements, contemporary scholars are interested in how technologies participate in the production of social order, mediate relationships, and reorganize everyday life. They emphasize the structural force of technological systems, highlighting the social channels through which technologies acquire meaning and trace how humans and artifacts jointly produce sociotechnical arrangements. In this view, technology is never simply a material object but a dynamic participant in social processes.

Technological determinism

In sociology, the concept of determinism refers to the idea that social phenomena and human behavior are shaped or even constrained by forces beyond individual control. Technological determinism views technology as a force that furthers social change through its material and structural properties. Classic theorists such as McLuhan (1964) argue that media environments reorganize human perception. Winner (1986) suggests that artifacts embody political arrangements that continue to shape how scholars understand the power of technological systems. These works suggest that technologies generate social transformations that institutions and individuals must accommodate.

Contemporary sociologists revisit these ideas in the context of digital infrastructures and algorithmic systems. Noble (2018) analyzed search engines and found that algorithmic architectures reproduce racial hierarchies in ways that feel unavoidable to users. Additionally, automated welfare systems can constrain decision making so tightly that frontline workers have limited ability

to intervene (Eubanks, 2017). These studies confirm deterministic concerns by showing how modern technologies exert structural force across large populations.

In contrast to the above studies, Fischer's (1992) historical study of telephone adoption revealed that users creatively adapted the technology to existing social practices rather than being passively shaped by it. More recent work by Seaver (2017) shows that algorithms are cultural artifacts that are created though organizational routines, engineering norms, and interpretive work.

Social Construction of Technology (SCOT)

The social construction of technology framework challenges deterministic thinking by demonstrating that technologies stabilize only after social groups negotiate shared meanings. Contemporary scholars use this framework within the context of digital and data-driven domains. They look at how people turn their everyday experiences into data. For example, Neff and Nafus (2016) show that self-tracking devices acquire meaning only through the practices of users who reinterpret data in ways that support identity formation, community building, or personal experimentation. Their findings demonstrate that even technologies marketed as tools of optimization depend on social negotiation for their significance. Strengers and Kennedy's (2020) research on smart home devices found that while designers imagine idealized households oriented toward efficiency, actual users reinterpret these devices through the lens of gendered labor, cultural norms, and everyday usage. These studies demonstrate the main tenet of SCOT that technological form and function are inseparable from the social contexts in which they are produced and used.

Critical Perspectives on Technology

Critical scholars have been central to demonstrating that technological systems are never socially neutral. Their work shows that technologies are produced, implemented, and experienced within social environments already structured by gender and race. This means that technological outcomes often mirror existing inequalities rather than go beyond them. These perspectives focus on how design cultures, labor practices, data infrastructures, and surveillance systems can reinforce forms of social hierarchy even when technologies appear objective. By examining how power operates through technical products and digital systems, feminists and critical race theorists uncover inequalities that emerge from technological developments.

Feminist perspectives

Feminist scholarship focuses on the idea that technologies emerge within gendered social structures rather than neutral environments. Research on engineering and industrial workplaces have found that that innovation often reflects masculine norms of expertise. Gender stereotypes about authority and competence shape technology development. As a result, many of the technological tools needed for the labor force are produced within male-dominated systems that reinforce occupational hierarchies.

Gender also influences participation in technological job fields. For example, Frieze and Quesensberry (2020) studied women in computing fields and found that culture and environment, rather than biological ability, determine why women are underrepresented in technology–related occupations. They further suggested that women wanting to participate in these fields faced major hurdles, including workplace bias, stereotypes about technical roles, and trouble balancing work with family life. Nafus's (2012) research on open-source communities found that that women's contributions often cluster in undervalued organizational work, further reinforcing how gendered divisions of labor persist even in collaborative digital spaces.

Critical race perspectives

Critical race perspectives highlight the ways that racial inequality becomes embedded in technological systems. Algorithmic bias is a central concern for critical race theorists. Racialized stereotypes are built directly into the datasets and modeling choices that support algorithmic systems. This results in outputs that reproduce discriminatory patterns even when designers don't intend it. Benjamin's (2016) analysis of automated decision-making systems demonstrates that algorithmic tools in housing, employment, and criminal justice often rely on biased historical data, producing racially unequal outcomes.

Surveillance technologies reflect similar dynamics. Predictive policing systems are often built on data generated through histories

of biased, unlawful, or otherwise rights-violating policing practices. Richardson, Schultz, and Crawford (2019) argues that when this compromised data is used to train predictive models, these systems risk reproducing and amplifying existing structural inequities rather than correcting them. Biometric systems reproduce these patterns as well by showing that there are significantly higher facial-recognition error rates for darker-skinned individuals (Buolamwini & Gebru, 2018). These and other similar studies have demonstrated how racial bias becomes encoded in technical infrastructures.



A CCTV camera owned by the Seattle Police Department.

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Technology and Social Institutions

Technology and social institutions are deeply interconnected. Technology has reshaped long-standing patterns in the institutions we interact with every day, including intimate relationships, education, work, and health. Sociologists view technology as rarely being neutral. It reorganizes power, redistributes resources, and redefines what institutions are expected to do. At the same time, sociological research also suggests that technological change can expand opportunities for connection, increase access to institutional resources, and support new forms of participation. In other words, technology can both challenge and strengthen social institutions, depending on how it is adopted and by whom.

Family and intimate relationships

Sociologists have long argued that technologies reshape the ways families maintain intimacy and negotiate everyday life. Digital communication is embedded in social relationships rather than a force that determines them. Families use messaging, video calls, and social media to maintain emotional closeness across distance, and sociological studies show that these tools can strengthen intergenerational ties and support caregiving relationships (Baym, 2015). For example, family and friends who live far away often use video calls to participate in daily routines, creating a sense of shared presence that was not possible even a few decades ago.

Of course, new forms of communication also introduce new expectations. Constant availability can create pressure to respond immediately, blurring boundaries between connection and obligation. Advanced communication technologies can create a paradox of connection, where individuals feel both more connected and more isolated as digital communication becomes woven into daily routines. Still, sociologists emphasize that families actively negotiate these dynamics rather than passively accepting them.

These same dynamics extend into romantic relationships. Dating apps have changed the rules of dating and introduced more rationalized, choice-driven approaches to intimacy. Illouz (2012) found that online dating platforms encourage users to evaluate romantic partners through standardized criteria, which can limit spontaneity. At the same time, dating apps expand opportunities for individuals who may have limited access to potential partners in their offline environments, including LGBTQ+ people, older

adults, and those living in rural areas. While algorithmic matching can reproduce existing social hierarchies it can also help people form relationships that would otherwise be unlikely.

Swipe Right for the Love of Your Life: Online Dating Culture

Imagine a young woman swiping though a dating app. She stops to look at a profile, and says, “Why is every guy either holding a fish or posing with his dog? She swipes left and kept going. Then she stopped again. “Oh wow. This guy wrote something interesting.” She swipes right, amazed that she found someone she may like. Similar scenarios happen repeatedly for thousands of people every day. Perhaps even you.

Dating apps are reshaping intimacy. Online dating turns romance into a kind of consumer experience, where people browse and evaluate potential partners much like they would shop for products. Instead of meeting partners through friends or social events, people can now enter an emotional marketplace where profiles are curated, choices feel plentiful, and the process can feel both empowering and transactional. However, this marketplace is not neutral. As with other technologies, dating apps can reproduce existing social inequalities. For example, racial preferences on dating sites mirror broader racial hierarchies in the United States. Currington, et al. (2021) found that users from marginalized racial groups often face lower match rates or receive messages that fetishize their identities. Gender norms are also reinforced. Konings, Sumpter, and Vanderbosch (2024) found that heterosexual men and women often fall back into traditional gender roles while on dating apps.

The language used on dating apps also reflects social dynamics. Terms like *ghosting*, *breadcrumbing*, and *situationship* have become part of everyday vocabulary. For example, research on ghosting shows that disappearing without explanation is easier in digital environments because accountability is low (LeFebvre, 2017).

Self_presentation is another major theme in research on online dating. Heino, Ellison, and Gibbs (2010) found that users strategically curate their profiles in ways shaped by social norms, not just personal preference. People often talk about choosing photos that signal humor, authenticity, or attractiveness. This is an update on Goffman’s (1959) classic idea that people perform identities depending on the audience, except now the audience is algorithmic, anonymous, and constantly swiping.

All of this raises the question of whether online dating really works. That depends on what someone is looking for. Many people report positive experiences, meaningful relationships, and a sense of confidence from navigating digital interactions. Others describe burnout, awkward dates, or feeling overwhelmed by too many choices. Anzari and Klinenberg (2015) describe this as choice overload, a feeling that more options do not always lead to better outcomes. The research suggests that online dating is not inherently good or bad. It is simply a new social environment shaped by culture, inequality, technology, and the everyday experiences of people like the young woman above, laughing at yet another guy holding a fish.



Dating Apps

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Education

Digital technologies have become central to educational institutions. However, access to online learning tools is stratified. Disparities in internet access, device quality, and digital skills reflect broader patterns of socioeconomic inequality. These disparities shape students' ability to benefit from online or technology-enhanced learning. Concurrently, online learning environments can also increase flexibility for students who work full-time, care for family members, or live far from educational institutions. Digital tools can support collaborative learning, provide immediate feedback, and allow students to access course materials on a more flexible schedule. For many students, especially adult learners, online education allows access to higher education that would otherwise be impossible.

During the COVID-19 pandemic, many schools were forced to shift abruptly to online instruction. During that time, students from lower-income households faced significant barriers to participation, including unstable broadband access, shared devices, and limited quiet space for coursework (Zekeri, 2024). At the same time, national surveys of students found advantageous effects as well. For example, some students reported positive outcomes while taking online classes due to comfort, personal learning space, and flexibility in accessing classes (Jose, 2023). Together, these findings highlight that technology can both intensify and mitigate educational inequalities depending on how institutions design and support online learning.

Work and the economy

Technology has reshaped labor markets and workplace organizations in ways that have important consequences for inequality. As digital infrastructures become more central to economic life, they reorganize how work is coordinated and who holds power. Global economic changes increasingly rely upon digital systems that concentrate control in large corporations.

Automation and artificial intelligence have changed the kinds of jobs available. Sociologists studying digital labor markets argue that technological change, especially the rise of platform-based and algorithmically-managed work, can destabilize employment, weaken collective bargaining structures, and reduce workers' ability to negotiate for better conditions (Vallas & Schor, 2020). Yet at the same time, technology can improve workplace safety, reduce exposure to hazardous tasks, and create new opportunities for remote work that benefit caregivers, disabled workers, and those living far from major employment centers (Dodoo, et al., 2024; Bloom, Dahl & Rooth, 2026; Span, et al., 2022).

Platform-based gig work illustrates these dynamics. Rideshare and delivery platforms rely on flexible labor arrangements that shift financial risk onto workers. These platforms gain value through data collection and algorithmic oversight. Workers face unpredictable schedules, unstable income, and limited protections. Yet, this type of gig work can provide supplemental income, flexible hours, and entry points into labor markets for individuals who face barriers to traditional employment (Rosenblat, 2018). These benefits do not erase structural challenges, but they demonstrate that technological change can create new forms of opportunity alongside new types of challenges.

Health and healthcare

Digital technologies have transformed healthcare institutions and practices. Telehealth expands access to care for many patients, especially those living in rural areas or facing mobility challenges. Digital health tools can strengthen patient autonomy by allowing individuals to monitor symptoms, track health data through healthcare portals, and communicate with providers more frequently. For some patients, these tools reduce barriers to care and increase engagement with treatment plans.

However, access to digital care is unequal, which can increase existing disparities. Artificial intelligence is increasingly used in diagnosis and treatment planning, but algorithmic systems reflect the biases embedded in their training data. Therefore, health algorithms can reproduce racial and other inequities even when designed to be objective (Benjamin, 2019).

While health care professionals are expected to maintain confidentiality, technology raises important questions about privacy, ethics, and the management of health data. Telehealth, electronic health records, and AI-driven diagnostic tools generate large amounts of sensitive information (Stoltman & Terplan, 2025). Additionally, digital health tools such as fitness watches or rings encourage people to monitor their bodies and share personal information with platforms that may not be transparent about how that data is used. Sociologists emphasize that digital health technologies are not neutral. They reorganize power, reshape

relationships, and raise complex questions about privacy, ethics, and inequality.

Contemporary Challenges and Emerging Technology

Technologies such as artificial intelligence, biotechnology, and climate engineering are often presented as neutral tools for solving social problems, yet sociological research has demonstrated that these systems are often shaped by the institutions, histories, and power relations in which they operate. As these technologies become more embedded in everyday life, they reorganize how decisions are made, how inequalities are produced, and how communities navigate social and environmental risks. Understanding these technologies as social systems rather than purely technical innovations allows sociologists to see both the challenges they create and the possibilities they offer for more equitable forms of governance.

Artificial intelligence (AI) and society

Artificial intelligence has become deeply embedded in contemporary institutions, which makes it an important topic for sociologists. Modern AI systems rely on large datasets, machine learning models, and automated decision tools that shape how organizations classify, evaluate, and manage people. Within a sociological framework, AI reflects the political economies, cultural assumptions, and historical inequalities that influence how these systems are built and used. As AI becomes more common in areas such as policing, employment, education, and environmental governance, it reorganizes decision-making and redistributes institutional power.

AI and decision making

Modern AI systems often operate within bureaucracies that prioritize efficiency, quantification, and risk management. These systems tend to reflect institutional priorities rather than democratic or participatory values. For example, an automated welfare system may use AI to decide who qualifies for benefits. Because the AI makes many decisions automatically, case workers may have fewer chances to use their judgment or adjust decisions based on individual situations. However, AI can also improve how institutions function when it is designed with equity and human oversight in mind. Studies of public agencies suggest that participatory approaches to AI development help reduce administrative bottlenecks, improve consistency in decision-making, and make services more responsive to community needs (Ahrweiler, 2026).

Bias in AI systems

Bias in AI is not simply a technical glitch. It is embedded in the data, institutions, and histories that develop these systems. Data bias occurs when AI systems reproduce inequalities found in past information. For example, recent analyses of predictive policing tools show that modern AI models trained on arrest data continue to reinforce racialized surveillance patterns (Richardson et al., 2023). AI hiring systems can reproduce gendered and racialized patterns because they learn from existing workforce demographics (Bogen & Rieke, 2023).

Social consequences of AI

AI systems shape everyday life in wide-ranging ways that extend beyond workplaces and formal institutions. Sociologists emphasize that AI reorganizes social relations by increasing surveillance, influencing access to public resources, reshaping social interactions, and redefining what it means to participate fully in society. AI-driven systems often shift responsibility for structural problems onto individuals. This shift reframes inequality as a matter of personal risk scores or behavioral metrics rather than social conditions.

AI also affects how people move through public spaces. Facial recognition systems and predictive policing tools can heighten surveillance in certain neighborhoods, reinforcing racialized patterns of monitoring and shaping who feels safe or welcome in public life (Richardson et al., 2023). AI recommendations influence what people see, buy, and learn, often reinforcing existing preferences and limiting exposure to diverse information or products. These systems also shape cultural consumption, political bias, and social relationships by filtering what appears on digital platforms and social media feeds (Valenzuela, et al., 2024; Zabieno, Damayanti, & Abdullah, 2025).

In the workplace, AI systems that monitor workers and automatically assign schedules can make jobs more unstable by giving managers more control and limiting workers' ability to make decisions (Mateescu & Nguyen, 2019). These systems track

productivity, assign shifts, and evaluate performance in ways that can limit workers' ability to negotiate hours or adapt tasks to their own needs. As a result, AI can intensify existing inequalities in low-wage and provisional labor markets. Sociologists have also looked at the positive social consequences of AI. For example, AI can reduce exposure to dangerous tasks, which improves workplace safety in industries such as manufacturing. The social consequences of modern AI are not uniform. They depend on how institutions design, implement, and regulate AI systems, and on whose interests are prioritized in the process.

Biotechnology and human enhancement

Biotechnologies such as genetic testing platforms, reproductive technologies, and gene-editing techniques raise questions about identity, inequality, and the governance of bodies. Sociologists examine how these technologies reshape cultural understandings of health, normality, and human potential, often reinforcing existing social hierarchies. Biotechnology is not simply a scientific domain. It is also a social institution that is structured by power, ethics, and market forces.

Genetic data and privacy

The rapid expansion of genetic mapping has created new forms of discrimination and social control. Sociologists stress that genetic data is relational because it reveals information not only about individuals but also about families, communities, and populations. This raises collective privacy concerns, particularly for Indigenous groups and those communities whose genetic data has been historically used without adequate consent or governance (TallBear, 2013). Genetic data infrastructures often reproduce existing inequalities by privileging populations with greater access to biomedical resources while marginalizing communities with limited political or economic power (Sanker, et al., 2004).

However, genetic testing can also help people identify hereditary conditions earlier, enabling preventive care and more informed health decision-making. Patient advocacy groups have used genetic information to build online communities, share resources, and push for expanded research on rare diseases. These examples show that biotechnologies can support empowerment when paired with strong ethical frameworks and community-driven governance.

Climate technologies and environmental justice

Sociological research has found that technological interventions are embedded in political economies that shape who benefits and who bears environmental burdens. Environmental justice scholars emphasize that climate technologies must be evaluated not only for their technical efficacy but also for their social consequences. At the same time, sociologists also document ways climate technologies can support community resilience, improve environmental monitoring, and expand democratic participation in climate governance.

Technology and sustainability

Emerging climate technologies, including carbon capture systems, AI-driven climate modeling, and renewable energy infrastructures, are becoming central to global sustainability efforts. These tools can sometimes distract from the deeper structural causes of environmental degradation, such as extractive industries, unequal consumption patterns, and global power imbalances. Sustainability initiatives also need to account for the environmental costs of technological infrastructures themselves, including energy-intensive data centers and resource-heavy hardware production (Lal & You, 2025). However, as with other technological systems, climate technologies can expand opportunities for environmental stewardship when they are implemented with equity and community participation. Renewable energy infrastructures can reduce dependence on fossil fuels, improve air quality, and support community-owned energy systems. AI-driven climate modeling can help policymakers anticipate environmental risks and allocate resources more effectively, especially in regions vulnerable to extreme weather (Huntingford, et al. 2019).

Unequal environmental impacts and benefits

Research in environmental justice has found that climate technologies often reproduce existing social inequalities. For example, communities in less developed nations often face more intense resource extraction to support "green" technologies consumed in wealthier nations (Bonds & Downey, 2012). Even in a core power nation such as the United States, low-income and racialized

communities continue to bear disproportionate environmental burdens, such as proximity to polluting industries, hazardous waste sites, and aging infrastructure (Domingo, 2026).

NIMBY (Not in My Backyard) politics further shapes how climate technologies and environmental risks are distributed. Wealthier, predominantly white communities often mobilize political and legal resources to block facilities such as wind farms, solar arrays, waste treatment plants, or transmission lines in their neighborhoods. As a result, these infrastructures are more likely to be placed in communities with fewer economic and political resources (Saha & Mohai, 2020). Similar dynamics influence climate adaptation projects, with affluent neighborhoods more likely to receive protective infrastructure such as seawalls or flood mitigation systems (Anguelovski et al., 2016). However, climate technologies can also support community resilience. For example, localized solar grids can help communities maintain power during climate-related disasters (Boseman, et al., 2026). Ultimately, the social outcomes of environmental technologies depend on governance. Systems deployed through unequal political processes reproduce environmental injustice, while those implemented through inclusive planning can expand resilience for communities historically excluded from protective infrastructure.

Ethical Issues In Technology

Privacy, autonomy, human agency, and accountability have become important ethical considerations in the sociological study of technology because they highlight how power operates through technological systems. Sociologists argue that privacy is not only an individual right but a social relationship shaped by institutions, norms, and inequalities. As digital platforms collect and analyze massive amounts of personal data, privacy becomes a matter of who has the power to observe, categorize, and predict human behavior. Harms that occur as a result of privacy issues are not evenly distributed. Marginalized communities often experience more intense monitoring, such as through predictive policing technologies or algorithmic tracking in workplaces. Therefore, privacy also becomes intertwined with social justice.

The related concept of autonomy is similarly complicated by technological systems. Sociologists emphasize that autonomy is socially embedded. This means that technologies can expand or constrain the ability to act according to one's values. Research on digital platforms suggests that these systems can subtly steer behavior, raising concerns about whether individuals retain autonomous control over their decisions (Beer, 2017). Agency is not eliminated by technology but instead redistributed among humans, machines, and institutions. For example, when automated systems make decisions about credit scoring, hiring, or medical triage, they become part of the social field in which agency is negotiated. The challenge, therefore, is to determine how human agency is transformed when decisions are delegated to technology.

We can then ask who is ethically responsible when technology produces harm. Research suggests that accountability is often spread across designers, corporations, algorithms, and users, making it more difficult to identify the responsible party. Pasquale (2015) argues that the complexity of algorithmic systems prevents meaningful oversight, while Noble (2018) demonstrates how biased search algorithms can reproduce racial inequalities without any single actor intentionally causing harm. Therefore, accountability requires approaches that examine how technological systems become embedded in broader social, economic, and political contexts.

Conclusion

From a sociological perspective, technology offers a way to understand how power, inequality, and social change unfold through everyday tools and infrastructure. Sociologists emphasize that studying technology is necessary to analyze contemporary life, not as a separate domain but as a major part of social organization. Technologies shape how people work, communicate, learn, and participate in public life, and they often reflect existing inequalities related to race, class, gender, and global status. By applying sociological thinking to everyday technologies, we can better understand how social forces shape technological development and how, in turn, technologies reshape society.

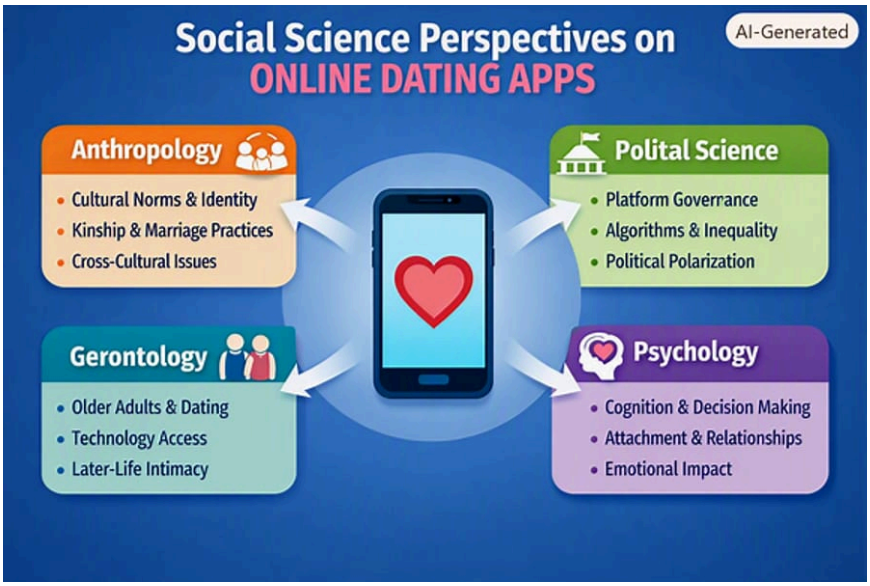
In the next section of this chapter we turn to how sociology works alongside other social sciences to gain a more holistic view of a current social issue today: Online dating.

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3.3: An Interdisciplinary Approach to Online Dating Apps

Learning Objectives

Compare the anthropology, sociology, psychology, gerontology, and political science perspectives of online dating apps.



Social Science Perspectives on Online Dating Apps AI-generated infographic created by Microsoft Copilot (2026).

The study of online dating apps can provide a wealth of information on contemporary social behavior, identity formation, relationship patterns, and demographic change. As more people use online dating to find romantic and sexual partners, research in the social sciences has begun to pay more attention to how these technologies reshape intimacy, communication, and social organization. In section two of this chapter, you learned how sociology has approached this phenomenon. Now we turn to the ways that anthropology, political science, psychology, and gerontology have each brought their own frameworks to the study of online dating apps. These different perspectives show that online dating is not only a technological innovation but a more complex social phenomenon that is entwined with cultural norms, political structures, psychological processes, and life-course dynamics.

Anthropology and Online Dating Apps

Anthropology approaches dating apps as being culturally embedded technologies that transform how people present themselves, interpret others, and engage in romantic and sexual relationships. Anthropologists examine how users construct identity through curated photos, bios, emojis, and photo filters. These act as cultural signals that communicate lifestyle, gender expectations, and social belonging. Duguay's (2017) digital ethnography of Tinder shows that users strategically craft profiles to align with culturally valued forms of desirability, which suggests that digital self-presentation is shaped by broader cultural norms rather than purely individual preference.

Dating apps can also intersect with kinship systems, marriage practices, and partner selection. In many societies, marriage is tied to obligations to family, lineage, and community, where the selection of romantic partners is often mediated through kin networks or culturally prescribed matchmaking systems. Anthropological research has suggested that dating apps disrupt traditional partner-selection systems by enabling individuals to meet partners outside traditional culturally prescribed boundaries (Orchard, 2024).

Cross-cultural research demonstrates that norms surrounding intimacy, privacy, and gender roles also shape how individuals engage with dating apps. Expectations about modesty, public visibility, and appropriate gendered communication influence how people present themselves online and interpret others' profiles. Cultural norms around sexuality and privacy produce distinct patterns of dating-app use across societies. Chan (2018) suggests that gendered patterns on dating apps interact with cultural expectations in both East Asian and Western contexts. These studies illustrate that dating-app practices are culturally variable and are shaped by local norms, values, and social structures.

Political Science and Online Dating Apps

Political science examines cyberspace through the lens of institutions that regulate behavior, shape patterns of interaction, and participate in broader systems of governance. In this context, dating apps establish rules governing harassment, misinformation, and user conduct through content moderation, reporting systems, and algorithmic design. Lessig's (2006) work on digital governance demonstrates that technological architectures function as regulatory systems, shaping what users can see, do, and access. Dating-app algorithms determine visibility, match likelihood, and desirability hierarchies, influence romantic opportunity, and potentially reinforce social inequalities.

Political scientists also analyze how dating app use intersects with political identity and polarization. For example, strong negative feelings toward opposing political groups have intensified personal judgments, including partner selection (Iyengar and Westwood, 2015). Apps that allow users to filter by political affiliation or display political identity markers may contribute to ideological polarization, reinforcing political divisions in intimate life.

State regulation is another central concern of political science. Privacy laws, data protection policies, and consumer rights shape how dating apps collect, store, and use personal information (FTC, 2024). Political scientists examine how governments attempt to regulate digital intimacy through legislation addressing data security, consent, and algorithmic transparency. States increasingly govern sexual and dating platforms by imposing rules on data practices and platform accountability, illustrating how digital intimacy becomes a site of regulatory intervention. These debates highlight the political dimensions of digital romance, revealing that dating apps are embedded within broader struggles over digital rights, surveillance, and corporate power.

Psychology and Online Dating Apps

Psychology analyzes dating apps through the lens of individual cognition, emotion, motivation, and interpersonal behavior. Users often rely on cognitive heuristics when evaluating profiles, making rapid judgments based on limited cues such as photos or short bios (Tversky and Kahneman, 1974).

Attachment theory is central to psychological analyses of dating-app behavior. Individuals with secure, anxious, or avoidant attachment styles engage with digital intimacy differently, shaping communication patterns, expectations, and emotional responses. Finkel et al. (2012) found that online dating environments amplify certain psychological tendencies, such as idealization, rapid impression formation, and heightened sensitivity to rejection. Too many choices, along with an interface that is gamified, can influence self-esteem, perceived mate value, and emotional well-being.

Psychologists also investigate relationship outcomes associated with dating app use. They question whether relationships formed through apps differ in satisfaction, stability, or conflict patterns compared to those formed in traditional ways. Psychological research further suggests that digital environments can facilitate meaningful connections but may also encourage patterns of superficial evaluation, which can shape long-term relationship outcomes (Wu & Chiou, 2009). Additional work highlights how individual differences and technological expertise interact to influence romantic behavior. This means that dating apps often engage in fundamental psychological processes involved in attraction and relationship development (Joel, Eastwick, & Finkel, 2017; Sumter & Vandenbosch, 2019).

Gerontology and Online Dating Apps

Gerontology examines how older adults engage with dating apps, emphasizing the interplay between aging, technology, and

later-life intimacy. As digital platforms become increasingly central to social connection, older adults use dating apps to seek companionship, emotional support, and romantic relationships. Later-life intimacy is shaped by unique social and emotional needs, including the desire for companionship after widowhood or divorce, the importance of social support networks, and the negotiation of health-related disclosures.

Gerontologists analyze barriers to digital inclusion that affect older adults' use of dating apps. Czaja and Sharit (2018) found that technological literacy, interface design, and accessibility challenges can limit older adults' ability to navigate digital platforms. These barriers intersect with age-related concerns such as privacy, safety, and vulnerability to scams or exploitation. Therefore, older adults may approach dating apps with caution, balancing the desire for connection with concerns about risk.

Relationship goals often shift in later life. Many older adults prioritize companionship, shared activities, or emotional closeness rather than traditional markers of partnership such as marriage or child-rearing (Menkin, et al., 2015). Dating apps provide opportunities to form relationships that align with these goals, allowing older adults to redefine intimacy in ways that reflect their life-course stage. Digital romance in later life is shaped by both technological know-how and the social, emotional, and physical realities of aging.

Conclusion

Online dating apps are more than digital tools for meeting partners. They are complex social environments shaped by cultural norms, political structures, psychological processes, and life-course dynamics. Anthropology reveals how dating apps embed courtship within cultural systems of meaning. Political science shows how platform governance and polarization shape digital intimacy. Psychology highlights the cognitive and emotional processes that guide romantic decision-making. Gerontology demonstrates how aging and technology interact in later-life relationships. Together, this interdisciplinary social science approach shows that online dating apps are not a separate realm from social life but a continuation of traditional human patterns of dating and romance that has been transformed by the successes and challenges of contemporary technology.

Exercise \Discussion

Exercise: Investigating Evidence with The Ward

This exercise invites students to work with multimedia materials that mirror the kinds of evidence W. E. B. Du Bois used in The Philadelphia Negro (1899). Using the documentary A Legacy of Courage: W.E.B. Du Bois and The Philadelphia Negro students will explore GIS maps, historical records, oral histories, and archival documents that reconstruct the social world of Philadelphia's Seventh Ward.

Guiding Question: How did Du Bois use evidence to move beyond assumptions about Black life in Philadelphia?

Instructions for Students

- Watch the documentary *A Legacy of Courage: W.E.B. Du Bois and The Philadelphia Negro* Link: WEB Dubois-The Ward(opens in new window)
- Explore the accompanying GIS maps and neighborhood reconstructions.
- Review the historical records and oral histories provided on the site.
- Identify at least three forms of evidence Du Bois used and describe how each helped him challenge dominant narratives about race, poverty, and community life.
- Reflect on how these multimedia sources illustrate Du Bois's mixed-methods approach—household surveys, observation, archival research, demographic analysis, and mapping.

Discussion

1. Choose a personal experience (school, work, family, dating, health). Using Mills's sociological imagination, explain how this "personal trouble" reflects broader public issues.
2. Describe a routine in your daily life (commuting, studying, caregiving). Identify at least three social structures shaping that routine and explain how they create patterned opportunities or constraints
3. Using unemployment, student debt, or online dating, analyze the same issue at both the micro and macro levels. Explain how these levels interact.
4. Create a research question about technology and relationships. Then design both a qualitative and quantitative study to investigate it, explaining what each method would reveal.
5. Describe a situation where gender, race, and class intersect to shape an outcome. Use Crenshaw or Collins to explain why single-axis explanations fall short.
6. Identify a modern institution (banking, policing, hiring, education). Explain how CRT would analyze racialized inequality in that institution. Supports: "Racial disparities are continually reproduced through institutional arrangements.

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4: PSYCHOLOGY- THE PERSON IN A SOCIAL WORLD

Learning Objectives

- Define psychology as the scientific study of human thought, emotion, and behavior.
- Conceptualize psychology as both a science and a profession.
- Clarify common misconceptions about psychology.
- Summarize the scientific principles that drive psychology's pursuit of knowledge.
- Identify the theoretical perspectives that inspire psychological science and professional helpers.
- Identify examples of how psychological science has improved the human condition.
- Differentiate the subfields of psychology and what they endeavor to uncover about human thought, emotions, motivations, behavior, and well-being.
- Explain how psychological science responds to disruptive technologies and their impact on human behavior and well-being.
- Describe psychology's role in creating interdisciplinary solutions to society's most pressing issues.

4.1: Introduction to Psychology

4.2: Cyberpsychology - Technology Meets Humanity

4.3: Psychology In Context- An Interdisciplinary Example

4.4: References

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4.1: Introduction to Psychology

Learning Outcomes

- Conceptualize psychology as a scientific discipline.
- List the theoretical orientations that psychologists use to understand human behavior.
- Describe psychology's diverse subfields that cover the swath of human experience.
- Argue for the critical importance of psychological science and practice.

Psychology is one of the most popular college majors, consistently ranking in the top ten nationwide alongside business, communications, healthcare, and computer science (Franek, n.d.). In 2021, colleges in the United States awarded over 130,000 bachelor's degrees, over 30,000 master's degrees, and nearly 7,000 doctoral degrees in psychology (Stamm et al., 2023). What draws so many students to this social science? To answer that question, we need to understand what psychology is.

And there are many ways to do so. We can look at it linguistically. That is, "psych" and "ology" literally translated means "the study of the mind." And that simple phrase gets us pretty far. Indeed, "the study of the mind" essentially covers it – from a bird's eye view, anyway. But we want to give this linchpin social science a bit more airtime than that. We have a whole chapter to fill!

More specifically, psychology can be considered, for the most part, the study of the human mind. While some comparative psychologists do study the thought processes, behaviors, and emotions of other species (other mammals of course, but even birds and reptiles, too!), psychology is mostly associated with the study of people - and how and what and why they think, feel, and behave the ways they do.

When defining psychology, we should also consult the authority on the matter. According to the American Psychological Association (APA, n.d.), psychology is "a diverse scientific discipline [...] that involves observation, experimentation, testing, and analysis to explore the biological, cognitive, emotional, personal, and social processes or stimuli underlying human and animal behavior" (para 1). As we dive further into this chapter, we'll discuss exactly what this means. What makes psychology a scientific discipline? How do psychology researchers "observe, experiment, test, and analyze" to understand human behavior?

But wait a second. Isn't a psychologist someone who helps people who are struggling with their mental health? Yes! That is true, too! Psychology is both a science and a profession. One can study psychology and one can be a psychologist. To capture this duality, the APA (n.d.) continues their definition, "The practice of psychology [seeks] to understand and treat mental, emotional, physical, and social dysfunction; to understand and enhance behavior in various settings of human activity (e.g., school, workplace, courtroom, sports arena, battlefield); and to improve machine and building design for human use" (para 1).

Throughout this chapter, we'll continue to explore the wide-ranging and far-reaching scope of psychology. We'll cover its scientific foundations, guiding theories, real-world applications, and the diverse subfields that cover every aspect of human thought and behavior. And, in keeping with the theme of this book, we'll also look at how psychology approaches human adaption to technological advancements and disruptions.

The Scope of Psychology

With basic definitions behind us, we can now venture forth to expand our understanding of the science and practice of psychology. We'll do so by viewing psychology through four lenses, each offering a different and equally important view of this social science. Along the way, we'll clarify some common misconceptions people often have about psychology.

> Psychology is a science.
>
> Psychology is driven by theory.
>
> Psychology is diverse.

Psychology is important.

Psychology is a Science

When we hear the word “science”, we often think of the traditional “hard” sciences, like biology, chemistry, and physics. This is not surprising since elementary, junior high, and high schools often segregate these hard sciences from those subjects that fall under the umbrella of social studies, like sociology, psychology, anthropology...many of the subjects covered in this very book. While there may be fundamental differences between the hard (or natural) sciences and these “softer” subjects, the truth is that natural scientists and researchers who study social and behavioral phenomena approach their work in the same way - through empirical investigation. So, in this way, social studies are scientific studies. Social science is science.

The Scientific Method in Psychology

But what is “science”? And how is it that psychological scientists attempt to study invisible or nebulous phenomenon (i.e. “negative thinking” or “introversion”) in the same way that biologists and chemists look at cells and molecules? The short answer: Behavioral and social scientists use the same method for testing their hypotheses - the scientific method. The scientific method is the systematic approach to finding answers based on observation, experimentation, and analysis. It involves a series of steps designed to minimize bias and ensure reliable results. This system ultimately leads to a better, more valid, and true understanding of the natural world. These steps of the scientific method are:

Step 1: Ask a question

Step 2: Consult the literature

Step 3: Develop a hypothesis

Step 4: Test the hypothesis

Step 5: Analyze the data

Step 6: Report the results

Here is an example of how a psychological researcher approaches understanding the human mind using the scientific method. This description is adapted and simplified from le Roux et al. (2025). (See full reference in the reference section.)

Example

Step 1: Ask a question.

Aware of the “should we ban smartphones in schools or should we not” conflict, cyberpsychology researcher Daniel le Roux and his colleagues sought to bring some clarity through science. Specifically, they focused on a particular nuance of this debate: Do smartphones still have an impact on student performance when they are simply “in the room” or “around” even if they are not used?

Step 2: Consult the literature.

Upon landing on this question, le Roux and colleagues reviewed the writings of other psychology researchers, and in so doing they noted a push-and-pull when it comes to smart phone bans. Some researchers argued that controlled use (i.e., not complete banning; having the phone there with the student, just unused) was just as detrimental to the learner as actively using it during class. To this point, this “mere presence” phenomenon (that just having the phone “around” disrupts important cognitive processes) had been found in broader contexts, but it had not yet been tested in schools. The other side of the debate was that not having a phone near at all could lead to equally impairing anxiety in this generation of young people. Le Roux and colleagues decided they’d put these two ideas to the test in a high school setting.

Step 3: Develop a hypothesis.

Their stated hypothesis put the mere presence phenomenon, the notion of "smartphone separation anxiety," and the impact of both on cognitive performance to the test. They hypothesized that participants in a smartphone-not-in-view (but near) condition would demonstrate higher fluid intelligence scores than participants in a smartphone-in-view condition. They also hypothesized that those whose smartphones were stored further away from them would report higher state anxiety than participants whose smartphones remain nearby. (Note: The authors also conducted some post-hoc analyses to further assess the relationship between where the smartphone was and measures of fluid intelligence and anxiety.)

Step 4: Test the hypothesis.

To test this hypothesis, the researchers recruited students from an all-female South African high school. After consent and permissions were granted, 115 students were randomly assigned into one of three conditions. In the "desk" condition, students placed their phones on their desk, face down, in the top right corner. In the "bag" condition, they kept their phones in their backpacks within reach (down by their feet). In the "envelope" condition, students put their phones in an envelope, wrote their names on the envelope, and gave the envelope to their teacher (who was sitting across the room) for the duration of class. In all three conditions, the phones were in silent and/or airplane mode. So that their behavior wouldn't be unduly influenced, the students/participants were not told what the hypothesis under investigation was.

During class, the students participated in a cognitive task which, according to the authors, asked "participants to simultaneously process, analyse, and integrate complex patterns and relationships, [exerting] pressure on sustained attention, working memory, and problem-solving abilities." (le Roux et al., 2025, para. 24) This particular cognitive task had been shown in previous studies to be sensitive to hypervigilance, anxiety, and distractibility. Meaning, this is a hard task to do if you are distracted or nervous and that would show in the scores. The participants were also given a test of state anxiety (anxiety experienced at present rather than "typically") to see if anxiety levels differed across the three conditions.

Step 5: Analyze the data.

Upon statistically analyzing their data, the researchers found no clear evidence that having a phone visibly present on the desk impaired performance. Interestingly, students performed marginally worse when their phones were placed in their bags nearby, while those whose phones were placed farther away (in envelopes on the teacher's desk) tended to perform best. The authors also found no differences in anxiety across the three groups. In sum, the best performance occurred when the phone was both not visible and more distant, and, importantly, the phone being further away did not seem to increase students' anxiety.

The findings were not conclusive but suggested that phone proximity, rather than mere visibility, might subtly influence students' cognitive performance. Putting more distance between students and their phones appeared to help, without making them more anxious.

Step 6: Report the results.

See le Roux et al. (2025) in the reference section to be directed to their published piece. In their article, the authors offered some suggestions for policymakers while also noting several limitations of their research. Specifically, they pointed out that there was no control group, that each experimental group was small, and that the study was conducted in a real classroom environment (full of quirks and nuance) rather than in a laboratory. They also noted that the results may not generalize beyond the all-female sample, and that because participation was emphasized as voluntary, some students may have interpreted this to mean "you don't really have to try hard on this;" the results of the cognitive task could have been influenced by this attitude.

Some might ask, "Why do we need science to answer psychology questions? Aren't most of the answers obvious? Isn't it just common sense?" In some instances, yes, the answer can be (or at least seem) obvious. Some of you might have seen the outcome of that smartphone study coming a mile away. However, it is important to study these phenomena scientifically even when the answer seems obvious for one important reason: Human beings are not good at drawing accurate, unbiased conclusions about what they see or what they learn. Our decision-making processes are subject to a host of cognitive biases that have been documented time and time again to lead to inaccurate guesses.

This is where the scientific method comes in to save the day. A well-researched hypothesis and a strict experimental design staves off inaccurate guesses about human nature. Which is important because "inaccurate guesses" can have disastrous effects.

For example, for decades people in positions of science and power made erroneous claims (with zero evidence) that women were naturally less capable in math/science or that certain racial groups or social classes were intellectually inferior. This severely limited educational and professional opportunities for millions of people for decades. Indeed, we are still digging out of this hole today.

Why is human reason and decision-making flawed and, therefore, inferior to the scientific method? Because we are all subject to confirmation bias. Confirmation bias is the tendency to seek out information that confirms what we already believe and to ignore or reject any evidence that disconfirms what we believe to be true. Some have referred to confirmation bias as “the mother of all biases,” believed to at least partially explain all other biases in human cognition. (Gilovich & Ross, 2016).

Science keeps us honest. While the confirmation bias can creep into an experiment (i.e. a researcher might "cherry pick" participants that will likely answer questions in a way that confirms his hypothesis), safeguards are in place in scientific standards today so that the conclusions drawn are based more on what is than on what we think it should be. One of these standards is the doctrine of falsification. The doctrine of falsification maintains that scientists should be invested in disproving their hypotheses more than proving them. If efforts to disprove the hypothesis aren't fruitful, then the hypothesis has support.

Science in Mental Healthcare



Everything about mental healthcare is science-based. Image by: Alex Green via Pexels.com License: Free to Use

The profession of psychology is also driven by science. As you’ll learn a little later in this chapter, clinical psychology and counseling psychology are the subfields of psychology that focus on mental healthcare. Clinical and counseling psychologists are responsible for the assessment, diagnosis, and treatment of mental health disorders. Everything about that sentence – the assessment part, the diagnosis part, and the treatment part – is science-based. So, just as psychological researchers rely on the scientific method, so do practicing psychologists. Here is how:

The instruments that psychologists use to aid in their clinical assessments (including tests of cognitive abilities, tests of achievement, personality and psychological symptom questionnaires, and behavioral checklists) have all been thoroughly tested to ensure they produce results that clinicians and their clients can trust.

The APA ethics code requires that psychologists only use tests that have been vetted through the scientific process (and meet necessary psychometric benchmarks) when working with their clients. Two of these benchmarks are reliability (a test consistently measures what it is intended to measure, across time, rater, and items) and validity (a test is actually measuring what it claims to measure and not measuring what it doesn’t claim to measure) when working with their clients (APA, 2017).

The book that practicing psychologists use to diagnose their clients with mental health disorders is called the Diagnostic and Statistical Manual of Mental Disorders (5th Edition, Text Revised) (DSM-5-TR) (APA, 2022). For a disorder, and all of its associated and specific criteria, to make it into this internationally accepted manual, it must have been studied and have enough empirical support behind it to be largely accepted by the wider psychiatric community.

Because the DSM-5-TR has taken on a quixotic task (to distill human mental health – with all its nuance and idiosyncrasy into

a single diagnostic compendium), its contents are not without controversy. Some believe that the DSM does not have enough reliability (for instance, studies show that when using DSM criteria to make their decisions, clinicians looking at the same patient will diagnose differently [Chmielewski et al., 2015; Lieblich et al., 2015; Reiger et al., 2013]). However, DSM taskforces do their best to ensure that their decisions are based on scientific evidence, and current evidence at that, which is why the manual has been revised as many times as it has and will continue to be revised as time goes on.

Lastly, the therapy approaches that clinical and counseling psychologists use to help their clients are also studied scientifically. The goal of psychotherapy research is to understand which therapeutic approaches work, for whom, and under what conditions. Psychotherapy researchers use the same scientific method described earlier in order to draw their conclusions from empirical evidence; that is, evidence based on observation, experience, or experiment rather than theory or logic alone. Using empirically supported treatments is a gold standard approach in clinical work today. This doesn't mean that clients receive "mechanical" care. Clinicians apply empirically supported treatments in the context of their clients' individual and unique situations.

The practice of psychology prioritizes science because we've seen examples of what happens when we don't. For example, in 1943, child psychiatrist Leo Kanner noticed that parents of children on the autism spectrum seemed "aloof", leading him to theorize (without empirical evidence) that autism was caused by cold "refrigerator mothers," an idea that was published in prominent journals and widely accepted for decades.

This unfounded theory was, of course, devastating to families who were not only blamed but excluded from their child's treatment (indeed, the primary intervention at the time was called a "parentectomy"), delaying the search for observable neurobiological causes and treatments that actually helped. In the 1970s, science showed us (via newly invented neuroimaging technology) that specific neurological mechanisms were involved in autism (not a parent's behavioral presentation). The "refrigerator mother" theory is a very cautionary tale: plausible-sounding explanations, when accepted without scientific testing, cause harm and stifle discovery.

Psychology is Driven by Theory

The human mind: the vastness of it might be compared to the universe itself. Those who endeavor to understand it are indeed taking on quite the task. Where does one even start? To take the leaps into the unknown, one first needs firm ground beneath them. What is that firm ground for the psychologist – whether for the researcher or for the professional helper? That firm ground is built from the field's theoretical perspectives, or the core ideas and assumptions that guide how psychologists interpret human behavior. There are eight main theoretical perspectives in psychology. In the following table, we'll name, define, and demonstrate (via one common example: extraversion) each of these perspectives.

Theoretical Perspectives in Psychology

Perspective	Description	Example: Explaining Extroversion
Behavioral	Focuses on observable behaviors and how they're learned through rewards, punishments, and environmental influences, largely ignoring internal mental processes.	Extraversion is rewarded over time through positive experiences. People become more outgoing because they've been rewarded for social interactions through attention, laughter, or some other form of social success.
Biological	Considers how the brain, nervous system, hormones, and genetics influence behavior and mental processes.	Extraversion stems from genetic factors and brain differences, like lower baseline arousal (needing more stimulation) or differences in neurotransmitter systems that make social interaction more rewarding.
Cognitive	Studies how mental processes like thinking, memory, and learning guide and influence behavior.	Extraverts think about social situations differently than introverts; they interpret ambiguous social cues more positively, expect good outcomes from social interactions, and process social information in ways that encourage them to go "all in" rather than avoid.
Cultural	Looks at how our culture influences how we think, feel, and act.	Some cultures value and encourage outgoing, expressive behavior. Others prize quiet reflection. Therefore, extraversion levels vary based on cultural norms and what behaviors are socially rewarded.

Perspective	Description	Example: Explaining Extroversion
Evolutionary	Understands human behavior in terms of its survival value, adaptiveness, and reproductive advantage.	Throughout human evolution, extraversion provided survival advantages. It helped our ancestors form alliances, attract mates, gain social status, and coordinate group activities necessary for survival.
Humanistic	Emphasizes human potential, free will, and personal growth, focusing on each person's experiences and their natural drive to reach their full potential.	Extraversion is one way that people authentically express themselves and connect with others in their personal journey toward growth and self-fulfillment.
Psychodynamic	Considers how unconscious thoughts, early childhood experiences, and deep-seated internal conflicts influence behavior and personality.	Extraverted behavior might stem from early childhood experiences with caregivers, unconscious needs for attention or approval, or defense mechanisms against insecurities.
Biopsychosocial	Widely-used and well-accepted orientation that combines elements of all the above. Looks at how biological, psychological, and social factors interact to influence behavior and mental health, emphasizing that no single factor operates in isolation.	Extraversion emerges from interactions between biological factors (like dopamine activity in reward circuits), psychological elements (such as self-perception and coping strategies), and social contexts (including cultural norms and relationship patterns). Each domain influences and is influenced by the others.

As an exercise, consider another psychological phenomenon, like depression, anxiety, or self-esteem and think about how it would be viewed through the lens of each of these theoretical perspectives! As you do, do you find yourself drawn to or more compelled by one or more of them?

Psychology is Diverse

Off the top of your head, list some of the things that a psychologist might study. You can probably come up with at least 5 without trying too hard. Perhaps you thought of someone who studies mental health, someone who studies criminal behavior, or someone who studies how people interact with technology. You might also have considered how human beings learn, how they handle intense performance pressure, or how people from one culture think about things differently than those from another. And – you'd be right! All of those things capture the diversity of psychology and how it extends its tendrils into so many different facets of our lives.

Certainly, no one person can study it all, just like no one physician can specialize in every area of medicine. Sure, all psychologists – just like all physicians – know certain basics that allow them to understand things holistically, but to dive deep into the human condition, specialization and collaboration is necessary. Psychologists and psychology researchers spread the load across several subfields and then collaborate with each other to see the full picture. The chart below captures some of the most popular subdisciplines of psychology. You might spy one you are particularly interested in!

Subdisciplines in Psychology

Subdiscipline	Brief Definitions
Bio/ Neuropsychology	The study of the relationship between brain function and behavior. Also known as cognitive neuroscience or neuropsychology.
Clinical Psychology	The study, assessment, and treatment of mental disorders and other forms of emotional distress. Includes diagnosing, psychological testing, and therapy. This is the largest subfield of psychology for both clinicians and researchers.
Cognitive/ Experimental Psychology	A very broad field of psychology that uses a strict scientific approach to learning more about how humans sense, perceive, learn, use language, experience emotion, and interact with the environment.
Counseling Psychology	Traditionally a helping profession, counseling psychology focuses on helping people navigate life problems and academic issues via the relationship between a trained counselor and a client.

Subdiscipline	Brief Definitions
Cross-Cultural Psychology	The study of how culture influences human behavior, thoughts, and emotions. Cross-cultural psychology researchers compare psychological processes across different cultural groups and look at how cultural contexts influence everything from perception and cognition to social relationships and mental health.
Cyberpsychology	The study of how digital technology and online environments affect human behavior, cognition, and well-being. Looks at how people interact with computers, smartphones, social media, virtual reality, artificial intelligence, and other digital platforms, and how these interactions influence our thinking, relationships, and mental health. Also considers both sides of cybercrime – the criminal and the victim.
Developmental Psychology	Study of infant, childhood, adolescent, and adult development. Focus may be on brain development, language acquisition, and the progression of developmental milestones (i.e. walking, planning, sharing, and, later, retirement, grief, death/dying, etc.) and the impact of aging on one's cognitive and emotional functioning.
Environmental Psychology	The study of how physical environments affect human behavior, emotions, and well-being. This field examines how settings like homes, workplaces, cities, and natural spaces influence our mood, performance, stress levels, and social interactions.
Forensic Psychology	Combination of psychology and the law. Forensic psychologists find themselves in the court room performing psychological assessment on both defendants and plaintiffs in civil and criminal cases. Also involved in divorce and custody proceedings. They may work to identify criminal profiles and study criminal behavior.
Health Psychology	The study of how psychological, behavioral, and social factors influence physical health, illness, and medical treatment. This field looks at how stress, emotions, lifestyle choices, and social support affect our physical well-being, and how people cope with illness and medical procedures.
Industrial-Organizational (I/O) Psychology	The study of psychology in the workplace. I/O psychologists use their knowledge of human behavior to increase productivity, job satisfaction, and team cohesiveness and aid in candidate recruitment and selection in both small and large companies.
Social Psychology	The study of social behaviors, how humans work together,a nd how social factors impact the individual person (i.e. our self-image and self-concept in relation to others).
Personality Psychology	The study of the pervasive patterns of behavior unique to every person. Some personality psychologists strive to identify types of personalities and the problems and benefits associated with each of these types.
Positive Psychology	The study of human strengths, well-being, and what makes life really worth living. Rather than focusing solely on mental illness and dysfunction, positive psychology focuses on human flourishing – things like happiness, resilience, character strengths, meaningful relationships, and personal growth.
School Psychology	Psychology of the school environment, including academic, emotional, and behavioral problems in school-aged children. School psychologists typically provide assessment and counseling to K-12th grade students.
Sports and Performance Psychology	The study of how psychological factors affect athletic and performance outcomes, and how participation in sports and other performance activities impacts mental well-being. Researchers and clinicians in this field focus on enhancing performance through mental skills training, team building, managing competition anxiety, increasing motivation, and helping athletes/performers cope with injury and pressure.

Psychology is Important

To this point, you've heard arguments that psychology is a science, it is driven by theory, and it is quite a diverse field of study. When considered together, there is an implication – an undercurrent - that we should bring into the limelight: Psychology is important.

Psychology rallies at the front lines when the world throws humanity its worst. Whether it be the fallout from disruptive or too-fast technological advancements, devastating natural disasters, global pandemics, or war, famine, and displacements that levy trauma on entire nations, psychology researchers are there to study, assess the cause, and mitigate harm, and our practitioners are there to help individuals, families, and communities cope and recover.

One of the reasons that psychology is so consequential is that it is a hub science (Cacioppo, 2007). A hub science is one that brings together insights from multiple scientific disciplines, bridging fields like biology, sociology, criminal justice, computer science, and medicine. Below, you'll see a list of other areas of study and a title of a psychology publication or presentation. This

list is meant to demonstrate how linchpin an understanding of the human mind and behavior is to other disciplines – even those that might seem much more biological, business, legal, or earth science- related.

- **Public Health:** "How health anxiety influences responses to viral outbreaks like COVID-19: What all decision-makers, health authorities, and health care professionals need to know" (an article by Asmundson & Taylor, 2020).
- **Supply Chain Management/Consumer Behavior:** "The psychological causes of panic buying following a health crisis" (an article by Yuen et al., 2020).
- **Environmental Science:** "Why are males not doing these environmental behaviors? Exploring males' psychological barriers to environmental action" (an article by Desrochers & Zelenski, 2023).
- **Environmental Science:** "The role of consumer values and socio-demographics in green product satisfaction: The case of hybrid cars" (an article by Hur et al., 2015).
- **Criminal Justice:** "The Importance of mindset in policing" (a TED Talk by Huth, 2015)
- **Criminal Justice:** "How juries are fooled by statistics (a TED Talk by Donnelly, 2005).

Remember - where there are people, there is psychology. And looking at the above, you see how difficult it is to separate the human being from, say, public health investigations, or environmental science advocacy, marketing/business strategy, or law and criminal justice proceedings since they all involve, require, affect, influence, or are informed by humans "being."

The section below further demonstrates the far-reaching impact that psychology research has had on human society and other disciplines.

Examples of Psychology's Impact on Human Society and Other Disciplines

Bandura's Global Reach

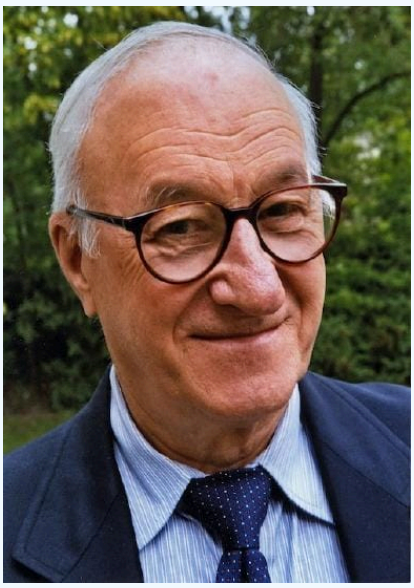


Figure 4.1.2: Famed psychology researcher Albert Bandura spread the power of vicarious learning over the globe. CC BY-SA 4.0 as stated in Wikipedia.org

Psychology researcher Albert Bandura helped create over 100 television series that brought about real, measurable, and life-affirming social change in developing countries across the globe. Bandura, via his famous BoBo Doll (vicarious learning) experiments, found that we learn as much if not more from observing others than we do engaging in behavior ourselves. With this information, Bandra knew he held lightning in a bottle – an opportunity to educate and empower entire societies by giving them positive models to emulate (and negative models from whom they learned cautionary lessons).

Bandura partnered with public administrators, humanitarians, and social activists the world over to produce tv and radio series that modeled family planning, HIV prevention, and women's rights, and promoted literacy and environmental conservation. These programs were broadcast in countries across Africa, Asia, India, and Latin America. Did they work? The answer is a resounding “yes.” Do an internet search, especially in an academic journal library, with the terms “Bandura” and “serial drama” to see the proof in that pudding.

A Nobel Prize-Winning Idea

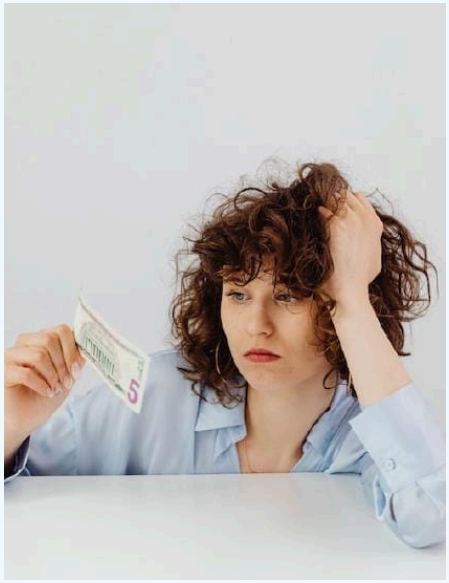


Figure 4.1.3: Kahneman and Tversky found that people hate losing something more than they like winning. Image by: Kaboompics via Pexels License: Free to Use

Two psychology researchers fundamentally changed how we understand human decision-making and, in so doing, revolutionized the entire field of economics. Amos Tversky and Daniel Kahneman discovered that people don't make perfectly rational decisions (shocking, right?) and instead rely on mental shortcuts and biases that, predictably, lead to bad, illogical choices.

Tversky & Kahneman’s "prospect theory" showed us that people hate losing something more than they like winning, and that we make wildly different choices depending on how options are presented to us. Their ideas spawned an entirely new subfield of economics – behavioral economics. Their work has influenced everything from how companies create retirement plans to how governments design voter registration systems and organ donation programs. Their psychology work was awarded the Nobel Prize in Economics in 2002.

Modern Day Technology - The New "Wire Monkey?



Figure 4.1.4: A baby monkey in the Harlows' study clinging to "comfy" mom during fear test. Public Domain as stated in Wikipedia.org

A controversial psychological study involving baby monkeys and wire-framed "mothers" revolutionized how we raise children. Harry and Margaret Harlow proved that emotional comfort matters even more than food for healthy development. Across the board, when given the choice between two artificial mothers, baby monkeys chose soft, cuddly mothers who did not provide milk over wire ones that did. Baby monkeys who only had exposure to the wire mother developed severe anxiety, aggression, and couldn't form normal relationships later in life, despite the fact that they received adequate nutrition. This has obvious implications for child development, parenting, long-term childcare facilities, and our understanding of how touch, closeness, and comfort are necessary for a healthy start in life.

The Harlows' work might be coming back around again. A curious psychology-minded student might ask, "Are our increasing relationships with artificial intelligences becoming a form of 'wire monkey'? If we continue down a path forming emotional connections with AI companions that merely simulate support and encouragement, but lack genuine empathy the way that real, albeit messy human connections do, what will happen? When we know that our body craves and needs physical closeness?" Hmmmm...

And, perhaps most relevant to this book, psychology is one of the disciplines tasked with understanding how rapid advances in technology impact humans, including their mental health, development, learning, and overall well-being. For example, psychology is the field that shows us – through science – how technology (i.e., mobile devices, social media, artificial intelligence, etc.) is both helping and supporting us and/or and harming us and limiting our potential. You'll read much more about this – while seeing psychological science in action – in Section 2 of this chapter.

Key Takeaways

- Psychology is the study of the human mind and behavior.
- Psychology is a science. Psychology researchers and clinical practitioners rely on the scientific method to draw their conclusions and make recommendations. The scientific method and the doctrine of falsification keep psychology's recommendations robust to confirmation bias.
- There are eight main theoretical perspectives that guide how psychologists interpret human behavior. They include: behavioral, biological, evolutionary, cognitive, cultural, humanistic, psychodynamic, and biopsychosocial.
- All psychologists understand certain basics that allow them to view human thought and behavior holistically, but to dive deep into the human condition, specialization and collaboration is necessary. Psychologists and psychology researchers spread the load across several subfields and then collaborate with each other to see the full picture.

- Psychology is important – it is a field that helps people overcome mental health issues but it is also so much more than that. You were provided with some examples in this chapter of how psychology research has gone on to affect the world in very real, tangible, and sea-changing ways.

Exercises and Critical Thinking

1. In this chapter, you were challenged to consider one psychological concept (maybe you are thinking about anxiety, depression, neuroticism, or self-esteem) and view it through the lens of the 8 different theoretical perspectives you learned about. Take up that challenge – write it down and then do it again with another psychological concept to practice thinking like a psychologist!
2. What does it mean to make a conscious effort to prove yourself wrong? How might your life or experience be different if you adopted the doctrine of falsification in your day-to-day decision-making or problem-solving?
3. What industry do you work in? Go to Google Scholar or your academic institution's library database and search for your industry's name and words "psychological" "personality" "behavior" or "emotion." What kind of studies do you see? Summarize the results from a few of them. What might you surmise about the value of psychology in your field?

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4.2: Cyberpsychology - Technology Meets Humanity

Learning Objectives

- Define cyberpsychology as an evidence-based subfield of psychology, and describe how its findings are applied in clinical practice, cybersecurity, and public policy.
- Explain the two-way relationship between personality and technology use, including how traits such as extraversion, narcissism, and the dark triad predict online behaviors like social media use and trolling, and how digital interventions can support intentional personality change.
- Analyze how technology affects the brain and cognition, including how apps, games, and hacking engage the reward system through dopamine-driven loops and flow states, and evaluate the mixed evidence on whether technology impairs or strengthens attention, memory, and other thinking skills.
- Evaluate the benefits and risks of technology for children and adolescents, weighing educational, creative, and inclusive-learning gains against documented harms to sleep, mental health, and body image.

Psychology and Technology

The previous section of this chapter ended with this: Psychology is the social science tasked with understanding how rapid advances in technology impact humans, including their mental health, development, learning, and overall well-being. A newer-to-the-block subfield of psychology has emerged to lead this charge: Cyberpsychology - the branch of psychology that studies how people think, feel, and behave in relation to technology and virtual environments.

Cyberpsychology is a research-focused field; it uses the scientific method and experimental design principles to answer important questions about humans and technology. It is also an applied science, meaning that psychology professionals can use findings from cyberpsychology research to inform their clinical work, to notify the masses, and to advocate for widespread change for the betterment of human beings.

For example, cybersecurity professionals are calling upon psychology for insights into human nature that can keep networks safer (Bundala, 2025; Taylor & Whitty, 2024; Wiederhold, 2024), and clinicians are now armed with interventions that address the mental health consequences of internet addictions (Ayub et al., 2023; Chang et al., 2022; Xu et al., 2021) while also using technology to provide mental health services to underserved populations (Grieco-Page et al., 2021).

The purpose of the following sections is to show more examples of psychology's quest to explore the depths and nuances of the relationship between humans and their technologies while providing you, the reader, some useful findings that can inform your own relationship with technology. We'll organize this exploration by subdomain by looking at what we've uncovered so far about the intersection of technology with personality development, cognitive performance, neurobiology, and childhood development. This is but a sampling – the interested reader is invited to check out the world of cyberpsychology research by searching your university library database for relevant psychology-meets-technology search terms!

Personality Meets Technology

People develop, create, engage with, and depend on technology. There is no separating technology from the unique, differently motivated, beautiful (yet flawed) human beings who rely on it. Therefore, the field of personality psychology has a lot to offer cyberpsychology. Here are but a few of many examples:

Online identity and expression

When we step through the threshold that separates the analog (i.e. "real") world from the virtual world, we are immediately put in the position to establish an online "self." How we present our "self" in the virtual world is influenced by our personality. Many psychology researchers have found specific personality traits determine how we present ourselves on social media. Some results are not at all surprising – for example, Lee et al. (2014) found that extroverted people tend to be more extroverted online, with more status updates, images uploaded, "likes and shares," and friends. The more narcissistic someone is, the more often they

post status updates, too. More neurotic (i.e., anxious) people tend to "ghost" social media more – they definitely scroll their feeds like everyone else, but they don't participate as often. People who are conscientious tend not to write as many comments. These people are very mindful of how they make others feel, and the task of commenting is not something they'd do without very careful consideration.

Not all of the findings are this intuitive. For example, Lee et al. (2014) also found that people who are more open to experience tend to hit "Share" less often on social media. Why might that be? Interesting question to answer, huh? But we'd want to do so in the light of Lampropoulos et al.'s (2022) study, which shows the opposite – according to their data, openness to experience ranks right up there with extroversion as the biggest predictor of social media engagement. Which is it? Does it have to do with the passage of time, maybe? Given that Lee et al.'s study was conducted in 2014 vs. Lampropoulos et al.'s in 2022? Interesting food for thought for psychology-minded learner!

Personality and bad actors on the web



Gylfason et al. (2021) found that online trolls often have dark triad personality traits. (License: Free Image by: John Tekeridis)

What does personality research have to say about other bad actors on the internet...like trolls? Many researchers have taken on the task of profiling "the troll." You might find the study Gylfason et al. (2021) particularly compelling – and not just for its clever title: "Haters Gonna Hate, Trolls Gonna Troll: The Personality Profile of a Facebook Troll." These researchers tested whether a known profile, The Dark Triad - centered on Machiavellianism (manipulative, self-serving behavior), narcissism (excessive self-admiration), and sadism (deriving pleasure from other's discomfort), could predict trolling behavior on Facebook. It did!

The Dark Triad traits were indeed linked to trolling. And, the study went further, adding an important mediating factor to the mix - enjoyment of trolling. Machiavellianism (think of the manipulative, self-interested, pathological liar) was more associated with trolling when the person had fun trolling. Which makes sense – even Machiavelli himself wouldn't leave a troll comment (no matter how well it served him) if he didn't enjoy it!

Personality change

Now let's drive down the other side of this two-way highway. For as much as personality informs our interactions with technology, technology itself can, in turn, profoundly affect our personality. Stieger et al. (2021) remind us that personality is a changeable, malleable thing, but – they ask – can we change it on purpose through technology? The results of their study suggest yes! With the help of a digital coach (referred to as PEACH - PErsonality coaACH), which offered tools and techniques for behavior change over a three-month period, participants were able to achieve desired personality changes in the direction they wanted. If they wanted to be more extroverted, more conscientious, or less neurotic, etc., they indeed were able to make that change. Not only that, but the participants maintained that change up to three months after the intervention was over.

Behaviorism, Neurobiology, and Cyberpsychology

Behaviorism is one of the most well-known concepts in all of psychology. Right after a discussion of Freud, nearly every Intro to Psychology course will segue into Pavlov and his dogs, and the conclusion that behavior can be shaped through patterns of circumstance in the environment. B.F. Skinner brought behaviorism into the mainstream when he posited the notion of operant

conditioning – a learning process where behavior is shaped by its consequences. When a behavior is rewarded, we are more likely to do it again. If a behavior is punished, we are less likely to.

There is an established literature that grounds operant conditioning in our human biology. The mesolimbic pathway is a brain circuit that releases dopamine (a "feel good" neurotransmitter that motivates behavior) and other motivating chemicals in response to rewarding experiences. This dopamine rush reinforces behaviors that bring pleasure or satisfy a need. The activation of this pathway is thought to be directly responsible for the addiction cycle (Ebrahimi et al., 2024; Feltenstein & See, 2008).

The second the internet hit the stage, and especially when it hit our palms in the form of smartphones, it triggered a dopamine-driven behavioral loop that transformed modern life. Our mobile devices have become the center of our worlds – and this fact alone is the most obvious intersection between psychology and technology. We humans need our devices and their instant access to social media, the 24-hour news cycle, funny reels, and our romantic and work connections. Many of us cannot imagine our lives without our devices. Internet addiction – which includes clinical overuse of social media, online gaming, and other forms of addictive viewing - may not be the norm, but its sub-clinical form, "problematic internet use," is certainly clear and present among a large swath of society.

As an example, in a review of twenty-three studies that investigated the neurobiology of online gaming addiction, Weinstein & Lejoyeux (2015) found these parallels between the online videogame-addicted brain and the drug or alcohol-addicted brain.

- Imaging studies of the brain-at-rest show that long-term internet game playing alters brain regions responsible for experiencing reward, impulse control, and sensory-motor coordination, in much the same way substances do.
- Video game playing is associated with dopamine release similar in magnitude to drugs of abuse; the brains of those addicted to video games have a hard time regulating this release.
- The same treatment approaches used for drug addiction have been shown effective in those addicted to online gaming.

Social media algorithms are specifically designed to entice, reward, and maintain engagement – the term "internet rabbit hole" came to describe how we often grab our phones to look up something simple, but end up scrolling for hours because something has piqued our interest – and that scrolling is infinitely more rewarding than whatever task we'd been doing before. Anderson & Wood (2020) write:

Quote:

> If platforms such as Facebook, Instagram, and Twitter are the engines of social media use, what is the gasoline? The answer can be found in the psychological dynamics behind consumer habit formation and performance. In fact, the financial success of different social media sites is closely tied to the daily-use habits they create among users. (pg. 1, emphasis added).

We also see behaviorism alive and well in the area of cybercrime. Chng et al. (2020) propose that hacking behavior is reinforced and motivated by immensely satisfying *flow states*. Flow, according to pioneering positive psychologist Mihaly Csikszentmihalyi (1990), is a mental state whereby the person is completely immersed and focused on a specific activity. Flow states are *highly enjoyable, sought-after experiences*. Hackers enter these flow states when a) they feel in control of the digital interaction, b) they are solely focused on the criminal interaction, c) their curiosity is fully engaged, and d) they find the interaction to be fun, entertaining, and meaningful in some way. The flow state can serve as a sort of "first high" that sustains a cybercriminal's practice over time, allowing them to develop from a low-level hacker into a career criminal.

Cognitive Psychology and Cyberpsychology

When computers became mainstream in the 1970s, scientists couldn't help but see the parallels between how the human brain works and how a computing system operates. The resulting "brain-computer metaphor" suggests that the human brain processes information, stores memories, and generates outputs like a computer does. Now largely panned as an oversimplification of how the brain actually works (Brette, 2022), the metaphor still marks one of the earliest intersections of technology and human thought. Neurons function like circuits, transmitting signals, while memory is stored in tightly woven neural connections, like data on a hard drive.

While the connection between the human mind and the computer started out as a metaphor, there is no doubting the very real impact that technology has on the human brain and its ability to pay attention, remember, task-switch, learn, and problem-solve - even the brain's tendency toward biased thinking! Here are a few areas of research that demonstrate the intersection of human cognition with technology.

Cognitive consequences of technology reliance

There is a popular narrative circulating in the ether that our increasing reliance on technology – be it at work, in the classroom, or in our daily life - is having a negative impact on our human brain's ability to learn and rely on itself. In other words: "Computers make us lazy." There is some scientific evidence for this, especially in the realm of attention research. Wilmer et al. (2017) review some of this literature for us and offer some interesting insights into technology's impact on our ability to pay attention.

The literature (as of 2017) does tend to support a "technology is having a negative impact on our ability to pay attention" conclusion. Some data points include the following:

- Task completion in one smartphone app (i.e. checking your email after receiving a push notification) can be delayed up to 400% by an interruption from another app.
- Notifications on our smart phones decrease our attention on whatever task we are focused on even if we don't check our phone to see what the notification was. The alert alone and the idea that "something is on my phone" is enough to significantly impact our attentional capabilities.
- Just having a cell phone present in the room – even if the phone isn't ours – can significantly impact our attentional performance. In one study, Thornton et al. (2014) found that participants performing an attention task did significantly worse when the experimenter left a cell phone on a table nearby than participants who performed the task with no cell phone present.
- Nearly every study ever conducted that assesses our ability to text and drive has concluded that, well, we are really, really bad at it. In general, we are not as good at multitasking (in any situation, driving or otherwise) as we think we are.
- There is some burgeoning evidence that points to long term attentional consequences of smart phone use, but as of 2017 this was limited to correlational, self-report research which cannot determine causality.

This review also suggests that technology is having detrimental effects on our ability to learn, store, and retrieve information. The idea that we are relying on technology to "remember for us" thus making fewer neural connections of our own seems to have some truth to it, although results are mixed and – of course and as always - more research needs to be done, in our more current context and longitudinally, to draw strong conclusions. Two of the more telling findings are below:

- Several studies do suggest that reliance on GPS and turn-by-turn navigation has a negative impact on our spatial awareness, ability to learn routes, and ability to create accurate cognitive representations of the world around us.
- The taking of digital photographs on our smartphones while experiencing a moment in time decreases our ability to remember details from that event. Henkel (2014) found that participants who were allowed to take pictures during a museum tour recalled significantly less detail about the experience than participants who were told to not take photos and instead focus on details with their eyes.

Cognitive biases and technology

To make sense of the vast and fast-moving world around us, our brains must take necessary cognitive shortcuts. These shortcuts allow us to draw conclusions and make in-the-moment decisions so we can move forward in our day. While these cognitive shortcuts are necessary, they can also lead to problems, including but not limited to confirmation bias (the tendency to seek out information that supports what you already believe while ignoring contradictory information), implicit bias (the unconscious negative attitudes we hold against a certain group), and – perhaps most relevant to our discussion – automation bias, or the tendency for humans to overvalue information provided through automated decision-making systems and discount any non-automated information (like expert judgment, firsthand observation, context clues, or "warning signs") to the contrary.



Automation bias is the tendency for humans to overvalue information provided through automated decision-making systems and discount any non-automated information (License: Free Image by: Ron Lach)

The entrance of artificial intelligence (AI) as a turnkey decision-making tool across industries has cognitive scientists concerned about the growing influence of automation bias. Some studies suggest we might not need to worry, at least not yet. Alon-Barkat & Busuioc (2023), in a study of 605 participants (which they then replicated in a separate cohort of over 900 participants), found that when given two pieces of information regarding whether or not to hire a teacher, most participants (playing the role of school board member) were more influenced by the non-automated information when the automated information contradicted it. However, other studies show the opposite – when using AI to read mammograms, radiologists of all experience levels overvalued the AI decision, despite the fact that the output was objectively wrong (Dratsch et al., 2023).

Regarding confirmation bias and implicit bias in particular, there is a growing and interesting literature on the tendency of social media algorithms to – unbeknownst to most well-intentioned users - create echo chambers where these biases are continually reinforced. In sum, algorithms sense what we think and believe and direct us to that information, which steers us away from contrary evidence. This literature is so dense, I'll link you to a related Google Scholar search result for you to read more on your own. But a consistent finding: Echo chambers do objectively exist on social media (see Terren & Borge, 2021 for a review), and these echo chambers reinforce polarizing beliefs, which are detrimental to a harmonious society (Brugoli et al., 2019).

Technology can help cognition, too. Lodge & Harrison (2019) caution us from falling headfirst into a "technology is bad for the brain" conclusion, especially with respect to our ability to pay attention. There certainly is evidence of a negative impact, but that evidence, they say, should be viewed with nuance and healthy scientific skepticism. As they put it:

Quote

> Attention has been implicated as a cognitive function that has been negatively impacted by use of digital technologies for learning. [...] we critique this claim by analyzing the current understanding of the cognitive neuroscience of attention and research in educational settings on how technologies are influencing learning. Across the two bodies of literature, a complex situation emerges placing doubt on the claim that the use of digital technologies for learning is negatively affecting the brain. We suggest therefore that a more systemic approach to understanding the relationship between technologies and attention involving researchers examining the relationship at different levels from the laboratory to the real world. (pg. 21).

Take for instance a research study your author (Shriner) was involved in during my clinical internship. I worked in a research lab with young people who had just experienced their first episode of schizophrenia. Knowing that as time goes on, schizophrenia leads to specific and detrimental cognitive impairments, the research team I was a part of sought to determine if a computer-assisted cognitive training program could help these young people maintain or even raise their cognitive capabilities despite their diagnosis, which would serve them well across life domains (i.e., finishing school, socializing, adhering to treatment, succeeding at work, etc.).

The results of the study were positive – the computer-assisted training increased the participants' cognitive scores and their work and school functioning (Nuechterlein et al., 2022), and follow-up data from the same research team suggests that this cognitive

treatment went on to help other specific psychotic symptomology as well, namely the more pervasive, difficult-to-treat negative symptoms of psychosis (Ventura et al., 2019). The nuance Lodge & Harrison (2019) are referring to might be this: That while there is evidence that technology is not all that great for the human brain, when technology is leveraged specifically and intentionally to activate and strengthen certain thinking functions, the technology can be useful. In other words: it's not "technology" itself, but how it is specifically designed and specifically used.

Lifespan Development and Cyberpsychology

Developmental psychologists focus on growth, learning, mental health, social behavior, and personality across the lifespan. While developmental psychologists consider the entire lifespan (from birth to death), much of the literature focuses on early childhood and adolescent development.

With respect to technology, there is some evidence to suggest that children and adolescents have the most to gain and, potentially, the most to lose in our increasingly digitalized world. Let's take a quick look at what researchers are finding, including how young people benefit from technology and whether and how they are particularly vulnerable to its dangers.

Technology in childhood and adolescence

In spite of the pithy, flip epithets hurled at young digital natives (e.g., iPad-kid, Zoomer, digital zombie, netizen, tech-addict), there is consistent scientific evidence suggesting that technology has a ton of value for children and adolescents. After all, these "iPad-kids" are starting their job training early, given that the market they will enter 10-20 years later will be dominated by technology. But, above and beyond that, science shows us that technology, when used intentionally and applied pedagogically, can have positive impacts in the areas of:

Education

Our youngest learners experience some academic benefit from increasing use of technology in preschools. Nurdiantami & Meriyandah (2020) reviewed the literature in this area and found that preschool children who spent much of their time learning via digital devices demonstrated increased mathematical skill and reading literacy, as well as digital literacy.

These findings are generally true for elementary school learners, too, with some caveats. Chauhan (2017) reports that technology is highly effective at teaching science and more general studies, moderately effective at teaching language, mathematics, and technology learning, but not super great at teaching social studies. Similarly, a review of the literature for adolescent-aged learners suggests that while using technology in instruction may not be exponentially 'better' than more analog methods, its effects are still equally positive and it has the added benefit of engaging the teenage audience more in their learning, given that they are more in tune with and drawn to the digital medium (Haleem et al., 2022).

Technology also allows for classrooms to be more inclusive of students of all ability levels. Lynch et al. (2024) review the literature in this area and in so doing demonstrate how targeted hardware and software are being used to enhance the learning experience of deaf and hard of hearing students, learners with visual impairments, those with specific learning differences (i.e., dyslexia), students diagnosed on the autism spectrum, and learners with mobility-related physical disabilities. The availability of studies for Lynch et al. to review was scarce, and the results were mixed and caveated (i.e., success depends on how comfortable the teacher was with the technology, how much the parents were aware and involved, etc.) but they ultimately conclude that the fact that technology being leveraged to support inclusive classrooms is a necessary endeavor and that much more research should be dedicated to this area.

Skills training

Technology, especially mobile devices, can effectively deliver targeted interventions to young people with specific learning differences or challenges. For instance, Leung et al.'s 2021 literature review reports that tailored, engineered mobile games significantly improve practical social skills in children with autism, especially those aged 9 and older. Mobile technology can also support a broader range of skill development for children and adolescents. These games are designed to help this age group practice and acquire life skills (self-management, social skills, substance-use resistance) (Haug et al., 2017) healthy eating and exercise habits (Quelly et al., 2016), and management of oppositional behavior (Jones et al., 2014).

Creativity



Logic Pro allowed Billie Eilish to explore areas of her singing talent she never had explored before. (CC by 4.0; Raph_PH via Flickr)

Let's surface for a breath, after that scientific deep dive, and see what pop culture has to say about how technology benefits young people. Your author has recently become a big fan of Billie Eilish and Eilish's brother Finneas O'Connell. Last week, I watched a video on YouTube where Finneas was interviewed regarding his musical talent development (AWAL, 2019). Finneas told the interviewer that he and Billie both have a deep, well-nurtured, and well-honed understanding of music. They can play many instruments and have a strong academic and practice-based background in the arts. In the video, Finneas acknowledged this "analog" learning, but he also emphasized the linchpin importance and good fortune of having a laptop computer and early exposure and access to the Logic Pro music-making software.

Throughout their adolescence, the siblings recorded samples of random, interesting sounds around their home or on their travels (like the sound of striking matches in their bathroom or the sound a crosswalk makes), mixed in vocals and instruments, and plugged them into Logic Pro, letting their talent and creativity take over from there. Their multiple Grammy-winning songs were recorded in just this way, in Finneas' bedroom using his laptop. And that Finneas taught Billie how to use the Logic Pro software herself allowed her to explore areas of her singing talent she never had explored before – now alone, she could hit (and capture, via Logic Pro) a note that she'd been self-conscious to try in front of other people (Mix with the Masters, 2025). This note is now immortalized in their song, "Birds of a Feather," which as of this writing has nearly 2 billion streams on Spotify.

That technology opens such a rich creative world to young people furthers the call for society to support equitable access to not only educational hardware and software, but creative tools as well. The good news is that many public schools are now integrating creative technology education (e.g., Adobe Creative Suite, GarageBand, Procreate and Photoshop) into their curriculum (Sabet, 2020; Syahputra & Edwards, 2024; Wang, 2018; Widianto et al., 2022). Increasingly more students are leveraging their school-provided devices and software to create music and art.

One more note on creativity...

One can argue that children need no help being creative - be that help technological or otherwise. The imagination of a child is famously wild, carefree, and unencumbered (Gardner, 1982; Kudryavtsev, 2011; Lowenfeld & Brittain, 1987; Robinson, 2006), and this creativity is grounded in, and continues to develop through, a solid foundation of real-world knowledge, immersion in sensory activities, exploration, freedom from judgment, and inspiration drawn from the natural world (Montessori, 1948; Piaget, 1952; Torrance, 1972; Vygotsky, 2004). Give a child a stick and they can turn that stick into at least five different things - most adults would just see a stick. It's when we insert technology into their lives, in the form of tablets and produced games and streaming content, that the natural tendency to *locate* a stick (let alone then turn that stick into a magic wand, a magnificent sword, a snake friend, a horse to ride, or a microphone) is threatened.



The imagination of a child is famously wild, carefree, and unencumbered. (License: Free to Use; C.T. Phat via Pexels.com)

While there is some evidence that technology might aid creative thinking within a technology environment (Fielding & Murcia, 2022; Murcia et al., 2020), some aspects of creative play - like sociodramatic play - may be less well supported by technology, since children frequently engage with it on their own (Marsh et al., 2018). Additionally, spending more than the American Academy of Pediatrics-recommended amount of screen time has been associated with weaker analog creativity and with delays in the skills analog creativity facilitates, like problem-solving (Council on Communications and Media, 2016; Kim, 2011; Takahashi et al., 2023). Some researchers (Buchanan, 2017; Farooqui & Raquib, 2020) argue that technology presents itself as an ever-present "boredom-killer," and it is indeed this boredom that is the fertile breeding ground for creative expression (Gomez-Ramirez & Costa, 2017; Mann & Cadman, 2014) - expression that is self-directed rather than prompted by external content. To return to Finneas and Billie, they came to Logic Pro with a strong analog foundation in music already in place; the concern, then, is less with technology as a creative tool for older children and more with technology as a substitute for unstructured play in younger ones.

This segues us nicely into what research says about the detriment technology can have on the developing human.

Detriment of technology on children and adolescents

The fact that technology is advancing so rapidly and that even the youngest of our children are adapting to it in ways researchers can't yet see or understand means we're really in the midst of The Great Social Experiment. We won't know the full impact of technology on our youth – for better or for worse - until we wait and see how the long-game plays out. And that uncertainty in itself carries its own risks. And with risk comes vulnerability, and with vulnerability comes fear. But what can be chalked up to society's collective sense of fear versus what social science is actually telling us? George & Odgers (2015) sought to answer just this question. When looking at "fears" we have about technology's impact on our youth (especially adolescents), their review focused on:

Online solicitation:

Many parents fear that the more their teens are online, the more likely they are to fall prey to nefarious characters who aren't who they say they are. Or that their teens will share sensitive information about themselves that can lead to exploitation either now or far off in the future. These authors found that there is a very big overlap between offline and online friendships. Teens don't spend a great deal of time talking to people who aren't also their offline friends. However, a concerning percentage of older teens do report engaging in sexting behavior (including images), and the existence of these images is a risk factor for exploitation.

Cyberbullying:

George & Odgers (2015) report that cyberbullying is a difficult variable to study, given that so many young people do not report it. With that caveat, their review suggests that 1) cyberbullying is prevalent, although not significantly more prevalent than traditional bullying, 2) online bullies and traditional bullies tend to be the same people, 3) online bullying carries the same detrimental mental health effects as traditional bullying, 4) cyberbullying doesn't appear to have increased over time (as of this 2015 paper), 5) the victims of cyberbullying are disproportionately LGBTQ+ students, and 6) cyberbullying is more difficult to intervene in, given how

it affords perpetrators anonymity and a virtual distance between themselves and the real harm they are causing.

Parent-Child Relationships:



Parents worry that technology is creating a “digital divide’ between themselves and their teens. (Free to use; kaboompics via Pexels.com)

Parents also worry that technology is creating a “digital divide’ between themselves and their teens. The evidence does suggest that adolescents spend more time on digital platforms than they do with their parents, and that teens who spend more than the average amount of time on the internet do report more strained relationships with their parents. To date, though, this data is correlational. There is no evidence that technology is causing the divide. It could be that strained parental relationships push teens toward technology. Two points of interest: the parent-child relationship can be strengthened when there is shared digital interest (e.g., playing video games together), but it is also weakened when parents reach out “too much” via digital means (as in, the parent is keeping near constant tabs on their child through texting).

Identity Development:

At the time this article was published, we were still in uncharted territory regarding the impact technology has on how teens and adolescents coalesce their identity – the key task of this particular life stage. However, evidence does suggest that teens are heavily leveraging the “online self” as a place to try out and explore identities and that young people do struggle to live up to their created online self in their offline life. But, in general, we still need more longitudinal data to see if the use of technology in identity development carries any specific risks or benefits.

Cognitive Performance:

In 2015 (when the George & Odgers review was written), the research was “lite” on the specific cognitive consequences of digital living, but at the time we could say that adolescents do engage much more in multitasking activity than they have ever before. The effects of this are unknown. While teens are not getting as many opportunities to benefit from sustained time on task and deep focused practice, they may be benefitting from how malleable and adaptable their developing brains are. But it is likely that the specific tasks that do require sustained attention (like driving, challenging problem-solving, and tasks that require careful critical thinking) are very much impeded by the teens’ tendency to have their attention pulled away by the phone.

Sleep Disruption:

These authors report that sleep is the one domain where the evidence is unequivocal: Technology is bad for adolescent sleep health (Carskadon et al., 2006; Calamaro et al., 2009; Chang et al., 2014; Lehart et al., 2010; Van den Bulck, 2004; Weaver et al., 2010 all as cited in George & Odgers, 2015). Technology use decreases both the amount and quality of sleep that adolescents get. Whether media consumption competes with sleep time, the emotional valence of the online interaction rouses rather than relaxes, or the blue “daylight” cue from the screen prevents the natural release of melatonin, technology, mostly in mobile device form, is no good for sleep. Sleep is important for healthy academic, cognitive, psychological, and social functioning as well as health and fitness. And sleep is of dire importance for adolescents in the throes of so many and simultaneous hormonal, neural,

musculoskeletal, and psychoemotional changes (Bruce et al, 2017; Galván, 2020).

The George & Odgers (2015) review doesn't fully explore several of the key concerns regarding child and adolescent development in the digital age including mental health and literacy, and the sheer amount of time spent on digital devices. Here is a brief look at what some current literature reviews have to say about each:

Mental Health:

There is a very wide and deep literature on the mental health effects of digital life on adolescence, which was recently reviewed by Sala et al. (2024). They end their report by saying that it is not accurate to draw blanket conclusions, given that mental health consequences vary between platforms, devices, and characteristics of the teen themselves.

However, the evidence these authors cite does suggest that social media use is associated with increased body dissatisfaction, that 10–15-year-olds are most at risk for social media-related anxiety and depression, and that the tone and tenor of the comments made to a teen's post and the number of "likes" it gets (or doesn't get) can have a negative impact on self-esteem and self-acceptance. Lastly, social media use does not appear to be detrimental to mental health in and of itself, but problematic use definitely is. There is an alcohol metaphor here. A drink now and again does not carry the same consequences as alcohol addiction does.

Literacy and Love of Reading:

Screen time competes with reading time, and screen time - with its ties to the attention economy - very often wins. A study by LeBlanc et al. (2015) found that more than half the children in their international sample of over 5,800 children (mean age about 10 years old) spent more than the recommended 2 hours a day with a screen. Sigman (2012) writes:

> Quote
>
> "Across the industrialised world, watching screen media is the main pastime of children. Over the course of childhood, children spend more time watching TV than they spend in school. When including computer games, internet and DVDs, by the age of seven years, a child born today will have spent one full year of 24 h days watching screen media. By the age of 18 years, the average European child will have spent 3 years of 24 h days watching screen media; at this rate, by the age of 80 years, they will have spent 17.6 years glued to media screens." (p. 935)

A lot can be inferred by the ever-increasing amount of time that young people are spending engaged in screen-based activities (video games, YouTube videos, movies, tv shows, etc.), and researchers often turn their attention to literacy. Time spent reading is largely responsible for literacy, and time spent reading is dramatically increased when there is a concomitant love of reading driving it (OECD, 2002). Indeed, reading for pleasure is an important indicator of reading comprehension (especially when specifically *not* done on a screen) (Torppa et al., 2020) and is more strongly associated with cognitive growth during adolescence than parental education (a traditional marker of socioeconomic status) (Sullivan & Brown, 2015). Reading level at age 7 is strongly associated with one's socioeconomic status in one's 40s (Ritchie & Bates, 2013). In sum, as Cremin & Scholes (2024) put it, "Being a [leisure] reader in childhood can play a role in reducing educational inequalities" (para. 5). This was one of the motivators behind Dolly Parton's famed and widely successful "Imagination Library" program. The goal was to give all children - from all socioeconomic positions - an early start in reading, language skills, and academic readiness before they entered school - and to inspire a love of reading through excitement (getting a book in the mail is fun) and togetherness (families could enjoy the new book and story together) (Dolly Parton's Imagination Library, n.d.).

There is a concern growing among parents and educators that the love of reading is waning and that increase in screen time and technology use is somewhat responsible for that waning. This worry is not new. In a national survey from more than fifteen years ago, 41% of parents said electronic devices were cutting into the time their children spent reading books (Scholastic, 2010). The concern has only grown since. In Scholastic's most recent nationally representative survey of 1,724 parents and children, 82% of parents of 6- to 17-year-olds said they wished their children read more books for fun, up from 73% in 2018, and 86% wished their children spent more time on activities that did not involve screens (Scholastic, n.d.). The 2019 Scholastic Kids & Family reading Report states:

Quote:

"Each edition of the Kids & Family Reading Report has, with the seventh being no exception, revealed a striking downward trend as children grow up: by age nine all three critical measures noted above [enjoying reading, thinking it is important, and reading frequency] decrease dramatically; more, they rarely rebound as kids move through adolescence. This loss of engagement means kids miss out on the benefits books provide – and those benefits are agreed on by both kids and parents." (p. 6)

And this list of "book benefits" includes:

- Understanding the world (74% of kids say that reading fiction and nonfiction help them with this; 88% of parents agree)
- Getting through a difficult time (53% of kids and 55% of parents think books are important for this)
- Having an easier time talking about or understanding current events (73% of kids say reading helps here)

Teachers are in a unique position to observe what screens are doing to the sustained attention that reading requires. In a Pew Research Center survey, nearly 90% of teachers said digital technologies were creating an easily distracted generation with short attention spans (Purcell et al., 2012). More specifically:

Quote:

"Overwhelming majorities of these teachers also agree with the assertions that “today’s digital technologies are creating an easily distracted generation with short attention spans” (87%) and “today’s students are too ‘plugged in’ and need more time away from their digital technologies” (86%). Two thirds (64%) agree with the notion that “today’s digital technologies do more to distract students than to help them academically.” (p. 7)

It is oft-argued that some of the screen time children might be engaging in could be considered "reading time" - a kind of sanctioned, educational screen use. After all, aren't students doing school work and learning on computers too? Reading their textbooks? Not all screen time is bad, surely. There is an interesting literature on that, particularly when it comes to reading.

Mangen et al. (2013) had 10th graders read the same texts either printed out on physical paper or as PDFs on a familiar computer screen. Students who read in print scored significantly better on a follow up reading comprehension test than those who read on screen, even though their baseline reading comprehension ability was the same (no significant difference).

The authors posit a few hypotheses as to why. First, they posit that the act of scrolling through a pdf (vs. turning pages) makes the text spatially unstable, which may weaken the reader’s mental picture of it. They write, "The fixity of text printed on paper supports reader’s construction of the spatial representation of the text by providing unequivocal and fixed spatial cues for text memory and recall" (p. 66). In other words, students' recall was helped by the addition of remembering where on a fixed page they saw something. They also suggested, per the results of Ackerman and Goldsmith's 2011 study that we simply treat screens as a medium for fast, shallow content absorption. Reading on paper is something we take seriously and as a cue "I'm going to learn something now." People view reading on screens as a passive, lazier activity (Mangen et al., 2013).

This finding is far from an isolated one. Upon reviewing 54 studies published between 2000 and 2017, Delgado et al. (2018) concluded that reading on paper is superior to reading on screens. The gap was most pronounced for informational texts, the kind students read for school, and when readers were working under time pressure. Delgado et al. called this pattern the “screen inferiority” effect, and it suggests that the textbook read on a laptop is not equivalent to the textbook read in print. Wolf (2018) argues similarly to both Mangen et al (2013) and Ackerman & Goldsmith (2011 as cited in Mangen et al., 2013). She posits that the tangible, tactile experience of a printed book inspires the slow, deep, sustained attention that comprehension requires. Screens, on the other hand, train readers to skim, scan, and move on. Even when screen time is spent reading, then, it may not be the kind of reading that builds strong readers.

It perhaps paints with too wide a brush to say that "technology" itself, on the whole and on its own, is to blame for any and all ills facing parents, teachers, and the kids themselves. To refine and add scientifically-supported nuance to Sigman's broad quote that led this section, Professor Lynne Murray (Science Media Centre, 2012) reminds us that it may not be the screens themselves, but the unintentional, unregulated, unshared use of screens that is the problem. She writes:

Quote:

"There is a well-established literature showing the adverse effects of screen experience on the cognitive development of children under 3 and the US Paediatric Association for example has recommended no screen time before this age. If children do watch, however, *adverse effects are mitigated by watching with a supportive partner [*emphasis added] - usually an adult, who can scaffold and support the child's experience, and by watching more familiar material. A lot of screen material is not well designed for a child's cognitive processes- eg, loud,fast changing stimulation- this is attention grabbing, but does not help processing. Much research in this area is quite well conducted and does take account of family variables which could of course confound associations." (para. 4)

The relationship between child and adolescent development and technology presents an interesting picture, one we cannot paint with too wide a brush. In other words, "technology good" is not the take home message here, but neither is "technology bad." The take home message is that technology can be good or can be bad depending on how it is used, how much it is used, who is using it, who is monitoring it or sharing it, what else they are doing besides it, and whether there is a good, functional set of brakes present that prevents tipping the scales toward "problematic use." And all this assumes young people have access to technology's benefits in the first place, which continues to drive public education's efforts to expand access and resources for all students within an equitable and inclusive classroom model.

Key Takeaways

1. Cyberpsychology is an evidence-based subfield of psychology that studies how people think, feel, and behave with technology. Its findings inform clinical practice, cybersecurity, and public policy.
2. Personality is both influenced and influences our use of technology. Traits like extroversion and narcissism predict social media behavior, dark triad traits (Machiavellianism, narcissism, sadism) predict trolling, and, interestingly, there are computer programs designed to help people change their personality over time if this is a goal of theirs.
3. Technology exploits the brain's reward system. Apps and games trigger dopamine-driven loops similar to substance addiction. Hacking can produce addictive "flow states" — explaining why this behavior - for as criminal or nefarious as it can be, is so hard for people to disengage from.
4. Research regarding technology's impact on cognition is mixed – technology is not "bad" for us cognitively, nor is it "good" for us. It can impair attention, spatial memory, and recall, but when used purposefully (as in the case of computer-assisted cognitive training), technology it can also strengthen thinking skills.
5. Technology's risks to children and adolescents is real. While technology can facilitate some aspects of education, inclusive learning, skill-building, and creativity, it is also very clearly associated with disrupted sleep, specific mental health/body-image concerns, love of reading, and attention deficits.

Exercises and Critical Thinking

1. Lee et al. (2014) and Lampropoulos et al. (2022) found opposite relationships between openness to experience and social media sharing. What are some possible explanations for this discrepancy (time period, sample, platform changes, measurement differences)? How should a social science student think about these two contradictory studies?
2. Several findings in this section (i.e., the association between teen internet use and strained parent-child relationships, or cell phone presence and reduced attention) are correlational. For each of these, can you generate at least two different causal stories that would produce the same correlation? Why does it matter, practically, whether technology causes the problem versus merely being associated with it?
3. "Technology can be good or bad depending on how it is used and by whom it is used." Is this a legitimate synthesis of complex evidence, or does it risk becoming an unfalsifiable claim that avoids taking a real position? What kind of research design would let scientists move past "it depends" toward more specific, actionable guidance (e.g., for parents, educators, or clinicians)?

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4.3: Psychology In Context- An Interdisciplinary Example

Remember that this chapter – for as psychology-focused as it has been – is presented in this book alongside several other social science disciplines. Indeed, for answers to be found, for moves to be made, and for real people to benefit from social science, our subfields must work together in an interdisciplinary way. And you'll be glad to know that we do! While we must be mindful of the tendency to hole up in our silos (you might notice that departments within universities are still separated into "sociology" and "psychology" and "anthropology" and "political science," and "gerontology") we are making efforts to view things more holistically and through all the lenses. As the old saying goes, if two heads are better than one, then five heads are better than two!

This interdisciplinary perspective is best captured with an example. Let's take one of the concepts we've explored specifically through the lens of psychology, but look at how the other social sciences might approach it. Then, we'll put it all together to understand this single phenomenon in its most complete, dynamic way. For the sake of this example, let's look at cybercrime.

An Interdisciplinary View of Cybercrime

Discipline	What it Explains	Why it Matters for Understanding Cybercrime
Anthropology	Subcultures, group identity, rituals, meaning-making within online communities	Reveals how hacker and dark web subcultures develop their own norms, status hierarchies, and justifications for offending, helping explain recruitment and identity formation among offenders.
Sociology	Social structure, routine activities, social learning, deviance and control	Shows how cybercrime follows patterned opportunities. In other words, how offenders and targets converge in "digital routines" absent capable guardianship, and how peer networks normalize offending.
Psychology	Cognitive biases, disinhibition, motivation, personality traits, victim decision-making	Explains why anonymity and physical distance lower moral restraint online, and why certain traits or persuasion techniques make individuals more likely to offend or fall for scams.
Political Science	Governance, international law, sovereignty, cyber policy, attribution and deterrence	Demonstrates how weak international coordination, jurisdictional gaps, and competing national interests make cybercrime hard to prosecute and enable state-tolerated or state-sponsored actors.
Gerontology	Age-related cognitive change, life-course vulnerability, social isolation	Highlights why older adults are disproportionately targeted by fraud schemes and why cognitive decline, trust patterns, and isolation increase both victimization risk and underreporting.

Cybercrime resists explanation from any single vantage point, which is exactly why an interdisciplinary lens is necessary (and not just "better"). Each discipline in the chart above represents a different piece of the same puzzle. In isolation, the pieces are simply that…individual pieces. It's when they are put together that a picture forms. And when that picture forms, a story is told. Here, the story is the full picture of how cybercrime happens, who it affects, and why it persists.



Seniors experience distinct, life-course-specific vulnerabilities including cognitive change, social isolation, and particular patterns of trust that make them both disproportionately targeted and unlikely to report what happened to them. (Free to Use; by Antoni Shkraba via Pexels)

At the individual level, psychology explains what happens inside of the offender or the victim, be this the disinhibition created by anonymity, the cognitive shortcuts we take that make us prey to phishing schemes, the traits that predispose someone toward exploitation. But no one acts in a vacuum. Sociology zooms out to show us that these individual behaviors follow a predictable pattern. Indeed, cybercrime clusters around routine digital activities, spreads through peer networks that normalize cybercriminal behavior, and takes over wherever capable guardianship is absent. Where psychology asks why this person offended, sociology asks why offending clusters here rather than there.

Anthropology adds the element of culture to this story. While to some extent hacker communities and the dark web are hotbeds of individually disinhibited actors following reinforced patterns, hackers also exist in their own subculture, which has its own social hierarchy, initiation rituals, and moral justifications. This subculture gives shared meaning to cybercriminal activity. If one endeavors to understand how any one person is indoctrinated into a life of cybercrime, one must know what a person would get – how they would benefit - by belonging to this subculture. And that simple notion of belonging might capture most of it.

Even if psychology explains the offender, sociology explains the social structures that set the backdrop, and anthropology explains the subculture, neither explains why so much cybercrime goes unprosecuted, or why some states tolerate or even sponsor the very actors other states are trying to arrest. This is where political science steps in. Jurisdictional fragmentation and geopolitical incentive structures have a lot to say here about how individual and cultural behavior plays out. The sociopolitical landscape is what both explains and determines where cybercrime is allowed to thrive.

Gerontology completes our puzzle by focusing on the victim, and specifically to a population the other four disciplines tend to overlook. Older adults aren't generic "users" who happen to have less digital literacy. On the contrary, seniors experience distinct, life-course-specific vulnerabilities including cognitive change, social isolation, and particular patterns of trust that make them both disproportionately targeted and unlikely to report what happened to them. Without this piece snapping into place, an interdisciplinary account of cybercrime risks overfocusing on offenders, leaving victimization understudied.

Another metaphor to add to our "puzzle piece" idea – the idea that we have a nested system here, too. Psychology lies at the core (the individual mind), sociology and anthropology surround it (the social and cultural structures that channel individual behavior into patterns and communities), political science serves as the outer shell (the governance structures that determine what gets punished and what gets tolerated), and gerontology cuts across all of it as a reminder that any complete account must also ask who bears the cost. No single discipline can hold all of this at once, which is exactly the point of teaching cybercrime this way. Students who can move fluidly between "why did this person do it," "why does this happen here," "why does this feel meaningful to the group," "why does no one stop it," and "who is hurt by it" are equipped to analyze cybercrime as the genuinely social phenomenon it is, rather than reducing it to a purely technical problem of "bad guys" and too simple passwords.

Key Takeaways

- No single social science discipline can fully explain human phenomenon. Cybercrime, as an example, is a genuinely interdisciplinary phenomenon — psychology, sociology, anthropology, political science, and gerontology each explain a different piece (the offender's mind, social patterns, subculture, governance failures, and victim vulnerability, respectively).
- Each discipline answers a different core question. Psychology asks "why did this person offend?", sociology asks "why does offending cluster here?", anthropology asks "why does this feel meaningful to the group?", political science asks "why does no one stop it?", and gerontology asks "who is hurt by it?." When a student is able to ask all of these questions, they have a much more complete picture rather than five disparate explanations.

Exercises

1. Take what you see here (an example of a technology phenomenon other than cybercrime) and do something similar – apply all social science disciplines to it to form the entire puzzle picture.
2. What gets lost when we default to a single-discipline explanation? Which populations or causes are most likely to be overlooked when one discipline dominates the conversation? Give some examples.

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4.4: References

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5: GERONTOLOGY- THE STUDY OF AGING

Learning Objectives

- Define gerontology using examples of how aging operates as a multidimensional process.
- Identify primary and secondary aging processes and describe how lifestyle and stress contribute to biological aging.
- Summarize major theories of aging and explain how they account for patterns of engagement, adaptation, and motivation in later life.
- Explain how intersectionality shapes diverse aging experiences across gender, race, socioeconomic status, and other social categories.
- Differentiate age, period, and cohort effects within the life course perspective and apply them to real demographic trends.
- Describe how rising longevity impacts social safety nets, caregiving systems, and public policy.
- Identify key applications of gerontechnology and evaluate how these tools support healthspan, independence, and care coordination
- Define gerontechnology and apply its major theories and applications.
- Evaluate the strength of the evidence for telehealth, smart-home monitoring, social robots, and conversational AI as supports for healthy aging.
- Analyze digital inequality, digital ageism, and ethical concerns about privacy, autonomy, and consent as social problems rather than individual shortcomings.

5.1: Introduction to Gerontology

5.2: Gerontology and Technology

5.3: Through an Interdisciplinary Lens- Technology-Supported Aging in Place

5.4: References

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5.1: Introduction to Gerontology

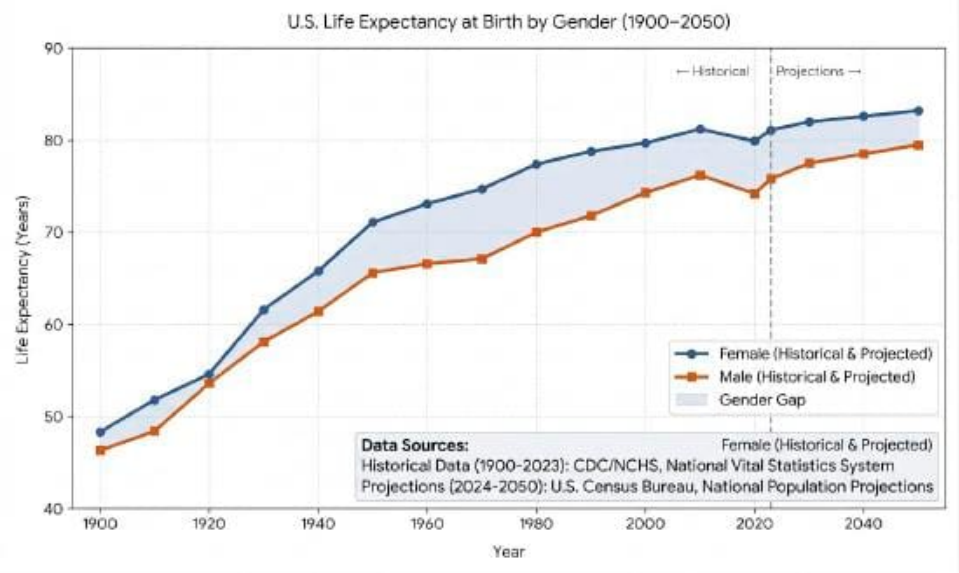
Learning Objectives

1. Define gerontology using examples of how aging operates as a multidimensional process.
2. Identify primary and secondary aging processes and describe how lifestyle and stress contribute to biological aging.
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4. Explain how intersectionality shapes diverse aging experiences across gender, race, socioeconomic status, and other social categories.
5. Differentiate age, period, and cohort effects within the life course perspective and apply them to real demographic trends.
6. Describe how rising longevity impacts social safety nets, caregiving systems, and public policy.
7. Identify key applications of gerontechnology and evaluate how these tools support healthspan, independence, and care coordination

Introduction

Gerontology is the scientific study of aging. While aging is a lifelong process that begins from the time we are born, gerontology is most often associated with aging in mid and later life. As populations worldwide live longer, understanding aging from biological, psychological, social, and cultural perspectives has become essential for individuals, families, communities, and institutions. Gerontology is by its very nature interdisciplinary. It draws from academic disciplines including sociology, psychology, biology, public health, economics, and increasingly, technology and data science. This chapter defines gerontology, introduces major concepts and theories, and surveys the research methods that underpin knowledge in the field.

Population aging is one of the most significant global trends of the 21st century. In 1900, global life expectancy at birth was about 32 years, compared to roughly 73 years today (Herre, 2025). In the US, life expectancy was 47 years in 1900, compared with 79 years today, and the proportion of adults aged 65 and older has increased steadily since the mid-20th century, driven by improved survival, lower fertility and birth rates, and cohort effects such as the aging of the Baby Boom generation (Vaupel, 2010). These dramatic shifts in longevity reflect significant improvements in public health, medical care, and living conditions over the past century.



These demographic trends raise important questions: How do bodies and minds change with age? How do social roles, work, family, and community participation evolve? How does policy address pensions, healthcare, caregiving, and social equity? Gerontology provides the conceptual and empirical tools to explore these questions.

Defining Gerontology, Age, and Aging

The field of gerontology began to take shape in the early 20th century as scholars and practitioners sought to understand aging as a scientific and social phenomenon. While aging had long been observed and discussed in philosophy and medicine, gerontology emerged as a distinct interdisciplinary field in the 1940s, when researchers started integrating biological, psychological, and social perspectives to study aging systematically.

The term "gerontology" itself was coined earlier, but its formal development accelerated after World War II, driven by demographic changes and increasing longevity. Foundational works such as Cumming and Henry's *Disengagement Theory* (1961) and Havighurst's *Activity Theory* (1963) marked the beginning of theoretical frameworks that shaped the discipline. By the mid-20th century, gerontology had established itself as a recognized academic and professional field, supported by organizations like the Gerontological Society of America (founded in 1945) and the launch of specialized journals.

Gerontology is grounded in theoretical frameworks that conceptualize aging as a multidimensional phenomenon, integrating biological, psychological, social, and cultural constructs to explain patterns and variability across the life course (Bengtson & Settersten, 2016). It differs from geriatrics, which is the medical specialty focused on health assessment, treatment, and care of older patients (Rowe & Kahn, 1997). While geriatrics addresses clinical practice, gerontology examines aging across the lifespan and within broader social and environmental contexts.

Most often, we define *age* as the number of years lived. However, *chronological age* offers an incomplete view of how people are aging (e.g., two individuals aged 70 may differ markedly in health, abilities, and roles). Gerontologists also consider *functional age* and *subjective age* when describing age. *Functional age* reflects an individual's health status and capacity to perform daily activities (e.g., one 70-year-old hikes five miles and lives independently, whereas a peer requires assistance with instrumental activities of daily living), while *subjective age* captures how old a person feels (e.g., feeling '10 years younger' often aligns with higher activity and engagement). Research has shown that functional and subjective age are influenced by attitude about aging (Chen et al., 2020) and lifestyle factors, such as physical activity, social engagement, and psychological resilience, which can promote better health outcomes and enhance perceived well-being (Veenstra et al., 2020; Westerhof et al., 2023).

Although age provides a numerical marker of time lived, aging represents a broader, ongoing set of biological, psychological, social, and cultural processes. Understanding this distinction is essential: *age* is a measure, while *aging* is an experience that unfolds across the life course.

Biological Aging

Biological aging refers to progressive physiological changes that occur over time, including cellular senescence, reduced regenerative capacity, and sensory decline (e.g., slower wound healing, presbycusis (age-related hearing loss), and diminished visual acuity) (López-Otín et al., 2013). These changes are influenced by a complex interplay of genetics, environmental exposures, and lifestyle factors such as diet, physical activity, and stress management (Kirkwood, 2005).

Gerontologists distinguish between primary aging, which encompasses normal, intrinsic changes associated with biological time, and secondary aging, which results from disease processes or environmental influences like smoking, poor nutrition, or chronic stress (Bengtson & Settersten, 2016). Related concepts include homeostasis, the body's ability to maintain internal stability, and allostatic load, the cumulative physiological burden of adapting to stress over time (Seeman et al., 2001). Every time we face stress, whether physical, emotional, or social, our body activates systems like hormones and heart rate to cope. When this happens too often or for too long, these systems stay activated, creating strain on organs and tissues. This cumulative burden can speed up aging and make us more vulnerable to chronic conditions such as heart disease, diabetes, and cognitive decline. In short, while homeostasis helps maintain stability, chronic stress can overwhelm these systems, leading to high allostatic load and poorer health outcomes later in life.

Psychological Aging

Psychological aging encompasses alterations in cognitive processes, emotional regulation, and motivation across the life course. Although some cognitive abilities (e.g., processing speed and episodic memory) tend to decline with age, other capacities, including vocabulary, general knowledge, and emotional stability, often remain strong or even improve. This resilience is supported by compensatory strategies, such as using memory aids or focusing on familiar tasks, and by cognitive reserve, the brain's ability to adapt and maintain function through lifelong learning, mental stimulation, and social engagement (Stern, 2009).

Emotional well-being in later life is shaped by adaptive strategies and motivational shifts, as described in theories such as Socioemotional Selectivity Theory, which emphasizes prioritizing emotionally meaningful goals as perceived time horizons shorten (Carstensen, 1995; Carstensen et al., 1999). Together, these processes illustrate that psychological aging is not solely about loss; it also involves adaptation, compensation, and growth in areas that support quality of life and well-being.

Social Aging

Social aging encompasses significant changes in roles, relationships, and social structures as individuals move through later life. These changes often include major transitions such as retirement, which can alter identity and daily routines; grandparenthood, which may strengthen family ties and caregiving responsibilities; and informal or formal caregiving roles for spouses, parents, or grandchildren. Social aging also involves shifts in friendship networks and community participation, as older adults may seek new social outlets through volunteering, clubs, or faith-based organizations.

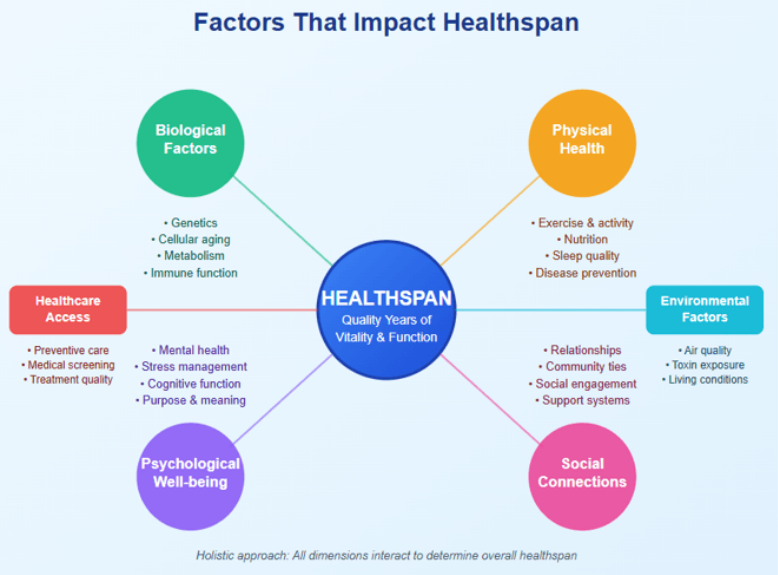
Importantly, societal attitudes toward older adults—such as ageism, or prejudice based on age—shape opportunities for engagement and influence self-perception. Positive social environments can promote well-being and active aging, while negative stereotypes or exclusion can lead to isolation and diminished quality of life (Butler, 1969). Gerontology also recognizes intersectionality, acknowledging that aging experiences differ across gender, race, socioeconomic status, and other dimensions. These social factors interact with biological and psychological processes to shape opportunities for engagement and overall well-being.

Combating ageism requires a multifaceted approach that addresses attitudes, structures, and opportunities. Educational initiatives, such as public awareness campaigns and professional training, can challenge stereotypes and promote positive views of aging. Intergenerational programs that bring older and younger people together through shared activities foster mutual understanding and reduce prejudice. Policy reforms—including stronger anti-discrimination laws, workplace flexibility, and inclusive community planning—ensure equitable access to employment, healthcare, and social engagement. Collectively, these strategies support active aging by creating environments where older adults can participate fully and maintain social roles across the life course (Ayalon & Tesch-Römer, 2018).

Healthspan

Healthspan refers to the length of time an individual lives in good health, free from chronic disease and disability (Crimmins,

2015). Unlike lifespan, which measures total years lived, healthspan emphasizes quality of life and functional ability during aging. Its core emphasis is on biological and functional well-being, rather than simply the number of years lived. However, in contemporary gerontology, healthspan is increasingly viewed through a holistic lens, which includes psychological and social dimensions because these factors strongly influence physical health and overall quality of life. The goal is not only to extend life but to maximize the years of vitality and independence, reducing the period of morbidity (state of being unhealty) at the end of life. This concept is central to gerontology because it shifts focus from mere longevity to well-being and active aging.



Concept Check:

- What is the difference between gerontology and geriatrics?
- Why is aging considered a multidimensional process?

Case Study 1

Biological Aging and Healthspan

Maria, age 72, has lived an active life but was recently diagnosed with hypertension and mild arthritis. She takes medication prescribed by her primary care provider and uses smart phone alarms to remind her to take her pills on time. She participates in a community exercise program three times each week and uses a wearable device to monitor her blood pressure. Maria's experience illustrates primary aging (normal physiological changes) and secondary aging (conditions influenced by lifestyle and environment). Her proactive approach, combining physical activity and technology, reflects efforts to extend healthspan, not just lifespan.

Thought Questions for Case Study 1: Biological Aging and Healthspan

1. How does Maria's use of technology illustrate strategies for promoting healthspan?
2. In what ways do primary and secondary aging interact in Maria's experience, and how might lifestyle choices influence these processes
3. What additional interventions could support Maria's goal of extending healthspan, and how might social or environmental factors influence these efforts?

Answer available at the end of this section.

Other Foundational Concepts in Gerontology

Gerontology extends beyond the study of biological, psychological, and social aging to include broader frameworks and societal factors that shape aging experiences. These concepts help explain

variability in aging and guide policy, practice, and research.

Life Course Perspective

The life course perspective views aging as a dynamic, lifelong process shaped by interconnected lives, historical context, and the timing of life events. It emphasizes that individual trajectories are not random but are influenced by social structures, cultural norms, and historical periods. This perspective recognizes that aging is embedded within broader social patterns, including family roles, education, and work, and that these patterns interact with historical events to shape opportunities and constraints across the lifespan (Bengtson & Settersten, 2016).

Gerontologists and researchers of aging distinguish among three critical types of effects:

- Age effects, which reflect changes tied to biological and psychological aging (e.g., sensory decline or cognitive changes).
- Period effects, which arise from historical events that impact all age groups, such as wars, economic recessions, or pandemics.
- Cohort effects, which capture differences among generations shaped by shared experiences, such as growing up during the Great Depression or the digital revolution (Ryder, 1965; Elder, 1998).

A central concept within this perspective is linked lives, which refers to the idea that the life trajectories of individuals are interconnected with those of significant others, such as family members and close relationships. For example, when an adult child moves across the country for a job, this decision can influence the aging experience of their parents, affecting caregiving arrangements, emotional support, and social engagement. Similarly, economic downturns may simultaneously impact multiple generations within a family, shaping retirement timing for older adults and employment opportunities for younger ones (Elder, Johnson, & Crosnoe, 2003).

These distinctions and interconnections are essential for interpreting research findings and understanding how social change interacts with individual development. They also highlight the importance of timing: the impact of life events often depends on when they occur. For instance, losing a job at age 30 may have very different consequences than losing a job at age 60, due to differences in recovery time, financial security, and social expectations.

Intersectionality

Aging does not occur in isolation; it intersects with multiple dimensions of identity, including gender, race, ethnicity, socioeconomic status, sexual orientation, and disability. The concept of intersectionality highlights how these factors combine to create unique advantages or disadvantages in later life. Rather than viewing aging as a uniform experience, intersectionality emphasizes that social categories interact to shape access to resources, health outcomes, and opportunities for engagement (Calasanti & Slevin, 2001).

For example, women often experience longer life expectancy than men but may face greater economic insecurity due to lifetime earnings gaps and caregiving responsibilities that interrupt careers. Similarly, racial and ethnic minorities frequently encounter health disparities, structural barriers to care, and cumulative disadvantage across the life course. These inequities can manifest in higher rates of chronic illness, limited access to quality healthcare, and reduced financial security in later life. Socioeconomic status further compounds these differences, influencing housing stability, nutrition, and access to preventive services. Intersectionality therefore provides a critical lens for understanding diversity in aging and for designing policies and interventions that promote equity across all social groups (Calasanti & Slevin, 2001).

Life Expectancy Versus Life Span

Two key measures of longevity are life expectancy and lifespan, which together provide important insights into aging and inform social policy. Life expectancy refers to the average number of years a population is expected to live, based on current mortality patterns. It is a population-level measure that reflects improvements in public health, medical care, and living conditions. For example, global life expectancy has more than doubled since 1900, rising from about 32 years to over 73 years today, while in the United States it has increased from 47 years in 1900 to nearly 79 years (Herre, 2025; Vaupel, 2010).

In contrast, lifespan refers to the maximum observed age for humans, which has remained relatively stable despite gains in life expectancy. Lifespan highlights biological limits to longevity, suggesting

that while we can extend average survival through better health and social conditions, there is likely a ceiling to human longevity. At present, the upper limit of lifespan appears to be about 122 years.

The oldest verified person to ever have lived was supercentenarian Jeanne Calment who lived to the age of 122 years and 164 days (Amiri, 2025).



Jeann Calment by Unknown Author is licensed under CC BY-NC-ND

The concepts of life expectancy, lifespan, and healthspan frame critical discussions about aging because they influence expectations for healthcare, retirement systems, and social planning. For instance, increasing life expectancy without corresponding improvements in healthspan - the years lived in good health - can lead to longer periods of disability and higher demand for long-term care (Crimmins, 2015). These extended periods of poor health carry significant economic costs for families and governments, increase physical strain on caregivers, and create social challenges such as isolation and reduced quality of life for older adults.

Public Policy and Aging

Understanding the distinction between life expectancy and lifespan is critical for policymakers and practitioners because these measures shape expectations for healthcare, retirement systems, and social planning. Life expectancy - the average number of years a population is expected to live - has risen dramatically over the past century, while lifespan - the maximum observed age -has remained relatively stable. This demographic reality means that more people are living longer, often with chronic conditions, which places unprecedented demands on social and economic systems (Herre, 2025; Vaupel, 2010).

Impact on Social Safety Nets

A safety net refers to programs and policies that protect individuals from severe economic hardship and ensure basic well-being during life risks such as unemployment, illness, disability, or old age. For older adults, this includes Social Security, which provides income support, and Medicare, which offers healthcare coverage. These systems aim to reduce poverty, promote health, and maintain dignity when personal resources are insufficient.

However, as people live longer, these programs face growing financial and structural pressure. They were originally designed when life expectancy was much lower, meaning benefits were paid out over fewer years. Today, many individuals spend decades in retirement, requiring sustained support. At the same time, declining birth rates mean fewer workers are contributing to these systems, creating an imbalance between contributors and beneficiaries. This raises concerns about sustainability, funding gaps, and intergenerational fairness; that is, how to share resources equitably between younger and older generations (Ayalon & Tesch-Römer, 2018).

The strain on safety nets also has broader implications:

- Economic: Increased government spending and potential tax adjustments to maintain benefits.
- Social: Greater reliance on family caregiving and community resources.
- Healthcare: Rising demand for long-term care and chronic disease management.

Policymakers are exploring strategies such as adjusting eligibility ages, revising benefit formulas, and expanding supplemental programs to protect vulnerable groups. Without these reforms, the risk of poverty, inadequate healthcare, and caregiver burden will continue to grow.

Caregiving and Support Systems

Caregiving is a critical issue in gerontology, encompassing both informal care, typically provided by family members and friends, and formal care, delivered through institutions or home-based services. Formal care often includes skilled nursing, rehabilitation, and long-term residential care, which may or may not be covered by traditional insurance (Butler, 1969; Ayalon & Tesch-Römer, 2018). In contrast, informal caregivers provide essential support with activities of daily living (ADLs) such as bathing, eating, and dressing, and instrumental activities of daily living (IADLs), including meal preparation, managing finances, and medication management. The economic value of informal caregiving is staggering. In the United States alone, family and friends contribute care worth an estimated $530 billion to over $1.1 trillion annually, underscoring their indispensable role in sustaining older adults' well-being (Smith & Kuretich, 2023).

Caregiver burden, the emotional, physical, and financial strain associated with caregiving, can significantly affect health and well-being for both caregivers and care recipients. Research shows that high levels of stress and role overload among caregivers are linked to poorer physical health, depression, and reduced quality of life, while care recipients may experience diminished outcomes when caregivers lack adequate support (Calasanti & Slevin, 2001). These challenges are compounded by demographic trends. As longevity increases and chronic conditions become more prevalent, societies face a growing demand for long-term care services (Crimmins, 2015).

To address these pressures, policies must prioritize support systems for caregivers, including respite services to reduce stress, financial assistance to offset caregiving costs, and workplace flexibility to accommodate dual roles (Ayalon & Tesch-Römer, 2018). Innovative strategies such as telehealth, caregiver training programs, and community-based resources can further alleviate burden and improve care coordination. Without these interventions, caregiver strain will continue to escalate, with implications for public health, economic stability, and social equity.

Case Study 2

Navigating Caregiving and Social Supports

Scenario:
Elena, age 58, cares for her 85-year-old mother who has moderate dementia. Elena works full-time and often feels overwhelmed balancing her job, caregiving responsibilities, and her own health needs. She relies on Social Security and Medicare for her mother's expenses but struggles with out-of-pocket costs for home modifications and respite care. Elena recently joined a local caregiver support group and is exploring telehealth options to reduce travel for medical appointments.

Thought Questions:

1. How do demographic trends and longevity contribute to caregiving challenges like Elena's?
2. In what ways do social safety nets help and fall short in supporting caregivers and care recipients?
3. How might workplace policies and community programs alleviate caregiver burden?
4. What role could technology play in improving Elena's caregiving experience?

Gerontechnology

Gerontechnology is an emerging interdisciplinary field that combines principles of gerontology with technological innovation to support health, independence, and quality of life in later life. As populations age and longevity increases, technology offers tools to address challenges related to healthcare, social engagement, and daily functioning (Xin et al., 2025).

Gerontechnology Applications·

- Assistive Devices: Hearing aids, mobility aids, and smart home systems help compensate for sensory and physical decline, supporting independence in activities of daily living (ADLs) and instrumental activities of daily living (IADLs).

- Telehealth and Remote Monitoring: Virtual healthcare platforms and wearable devices enable continuous health monitoring, medication reminders, and early detection of changes in health status, reducing hospital visits and improving care coordination
- Social Connectivity Tools: Video conferencing, social media, and voice-activated assistants help older adults maintain relationships and reduce isolation, aligning with socioemotional selectivity theory, which emphasizes emotionally meaningful interactions in later life.
- Cognitive Support Technologies: Apps and devices that provide memory aids, brain-training exercises, and adaptive interfaces promote cognitive reserve and compensate for age-related changes in processing speed and memory.

Technology can extend healthspan, enhance autonomy, and improve care coordination. However, barriers such as digital literacy gaps, cost, and ethical concerns about privacy and data security remain significant. Adoption often requires training and ongoing support to ensure usability and reduce frustration among older adults (National Council on Aging, 2022).

Emerging innovations include AI-driven predictive analytics for personalized care, robotics for assistance and companionship, and smart environments that integrate sensors to monitor safety and well-being. These developments reflect person-centered and equity-focused approaches in gerontology, aiming to reduce disparities and promote active aging across diverse populations.

Seminal Theories of Aging

Theories provide essential frameworks for understanding patterns and diversity in aging. They guide research, inform practice, and offer explanations for how individuals adapt to later life.

Disengagement Theory (Cumming & Henry, 1961)

Disengagement Theory proposes that aging involves a mutual withdrawal between older individuals and society, reducing social roles and interactions as a natural and adaptive process of aging. According to this perspective, withdrawal allows individuals to prepare psychologically for the end of life while enabling society to transfer roles to younger generations. This theory emerged during a period when aging was viewed primarily through a functionalist lens, emphasizing social stability and role succession.

However, Disengagement Theory has faced significant criticism for its assumption of universality. Research demonstrates that many older adults remain socially active and engaged well into later life, challenging the notion that withdrawal is inevitable or desirable. Cultural variation also plays a role; in collectivist societies, older adults often maintain strong intergenerational ties and community involvement. Critics argue that Disengagement Theory overlooks structural factors such as ageism and economic inequality, which may limit opportunities for engagement rather than reflect voluntary withdrawal.

Activity Theory (Havighurst, 1963)

Activity Theory emerged as a direct counterpoint to Disengagement Theory, asserting that continued participation in social roles and activities promotes well-being in later life. The theory suggests that older adults who maintain involvement in work, leisure, and community experience higher life satisfaction and better health outcomes. This perspective aligns with empirical findings that active engagement supports physical, cognitive, and emotional resilience.

Activity Theory has influenced interventions aimed at promoting active aging, such as volunteer programs, lifelong learning initiatives, and community engagement opportunities. However, critics note that Activity Theory may oversimplify aging by assuming that all individuals have equal access to resources and opportunities for participation. Structural barriers such as poverty, discrimination, and health limitations can constrain activity, making it essential to consider equity and diverse cultural and social influences when applying this framework.

Continuity Theory (Atchley, 1989)

Continuity Theory emphasizes stability and consistency across the life course, proposing that individuals adapt to aging by preserving familiar patterns of behavior, relationships, and identity. Rather than withdrawing or radically changing roles, older adults often seek continuity in activities and values, which provides a sense of predictability and control. This approach highlights the importance of personality and coping strategies in shaping aging trajectories.

Continuity Theory has practical implications for designing interventions that respect older adults' preferences and life histories.

For example, programs that build on existing hobbies or social networks may be more effective than those requiring dramatic lifestyle changes. Critics, however, argue that Continuity Theory may understate the impact of disruptive events, such as widowhood, illness, or economic hardship that necessitate significant adaptation.

Socioemotional Selectivity Theory (SST) (Carstensen, 1995)

Socioemotional Selectivity Theory focuses on motivational changes that occur as perceived time horizons shorten with age. Older adults tend to prioritize emotionally meaningful goals and relationships over novelty or future-oriented pursuits. This shift explains why social networks often become smaller but more emotionally satisfying in later life. SST also accounts for findings that older adults report higher emotional well-being despite physical decline.

The theory has been supported by research on decision-making, goal setting, and social interaction patterns among older adults. It underscores the value of interventions that foster meaningful connections rather than simply increasing the number of social contacts. SST also challenges stereotypes of aging as a period of inevitable loss, highlighting adaptive strategies that enhance quality of life.

Selective Optimization with Compensation (SOC) Model (Baltes & Baltes, 1990)

The SOC model describes adaptive strategies for managing gains and losses in aging. Individuals select goals that are most important, optimize resources to achieve them, and compensate for declines through alternative means, such as using assistive technology or modifying tasks. This model reflects a dynamic approach to aging, emphasizing agency and resilience rather than decline.

SOC has practical applications in rehabilitation, occupational therapy, and technology adoption. For example, an older adult might compensate for reduced mobility by using a walker while optimizing strength through targeted exercise. Critics note that SOC assumes access to resources and support systems, which may not be available to all individuals, highlighting the need for equity-focused interventions.

Successful Aging Model (Rowe & Kahn, 1997)

Rowe and Kahn's model defines successful aging as low disease risk, high physical and cognitive functioning, and active engagement with life. This framework shifted attention from mere longevity to quality of life, influencing public health initiatives and aging research. It emphasizes lifestyle factors such as exercise, nutrition, and social participation that promote health and independence.

Despite its influence, the model has been criticized for its narrow focus and lack of attention to structural inequalities. Many older adults face barriers beyond personal control, such as poverty or systemic discrimination, which limit opportunities for "successful" aging. Contemporary approaches advocate for more inclusive definitions that recognize diverse aging experiences.

Together, these theories illustrate that aging is not a uniform process but a dynamic interplay of biological, psychological, and social factors. They provide complementary lenses for understanding adaptation, resilience, and diversity in later life.

Case Study 3

Navigating Later Life Transitions

Scenario:
James, age 74, recently retired from a long career as an engineer. He enjoys gardening and volunteering at a local science museum but has reduced his social circle to a few close friends and family. James values emotionally meaningful interactions and spends most of his time with his grandchildren. He uses a tablet for video calls and online classes to stay mentally active. Recently, James experienced mild mobility issues and began using a walker, while continuing his daily walks in the park. He believes maintaining familiar routines helps him feel in control, even as he adapts to physical changes.

Questions:

- Which theory best explains James's preference for emotionally meaningful relationships and a smaller social network? Hint: Consider motivational changes as time horizons shorten.

- How does James's use of a walker and technology reflect principles of the SOC model? Explain how selection, optimization, and compensation apply in this case.

- Which theory is illustrated by James's effort to maintain gardening and volunteering as part of his identity? Why is continuity important for adaptation in later life?

- If James were evaluated using Rowe and Kahn's Successful Aging Model, what aspects of his lifestyle align with this framework, and what limitations might apply?

Research Methods in Gerontology

Gerontology employs a diverse set of research methods to capture the complexity of aging as a biological, psychological, and social process. Because aging unfolds across decades and is influenced by multiple factors, researchers use quantitative, qualitative, and mixed methods approaches to generate evidence that informs theory, policy, and practice.

Quantitative Approaches

Quantitative research in gerontology focuses on measuring patterns, relationships, and changes using numerical data. Large-scale surveys such as the Health and Retirement Study (HRS) provide longitudinal data on health, wealth, family dynamics, and retirement behaviors, enabling researchers to track aging trajectories over time. Cross-sectional studies compare different age groups at a single point in time, offering snapshots of age-related differences in health, cognition, or social roles. In contrast, longitudinal studies follow the same individuals across years or decades, capturing developmental changes and cohort effects (Singer & Willett, 2003). Longitudinal designs are particularly valuable for understanding causal relationships and the timing of life events, though they require significant resources and face challenges such as participant attrition.

Quantitative methods often employ standardized instruments to assess physical health, cognitive functioning, and psychosocial variables. Advanced statistical techniques, such as growth curve modeling and survival analysis, allow researchers to examine trajectories of aging and identify predictors of outcomes like disability or mortality. These approaches provide generalizable findings but may overlook the nuanced, lived experiences of older adults.

Qualitative Approaches

Qualitative research complements quantitative methods by exploring the subjective and cultural dimensions of aging. Techniques such as in-depth interviews, ethnography, and life history narratives illuminate how individuals interpret aging, cope with transitions, and construct meaning in later life. For example, interviews with caregivers can reveal emotional challenges and strategies for resilience that surveys might miss. Ethnographic studies in diverse communities help uncover cultural norms and social practices that shape aging experiences.

Qualitative approaches are particularly useful for studying topics such as identity, intergenerational relationships, and adaptation to chronic illness. They allow researchers to capture variability and complexity, offering insights into processes that cannot be easily quantified. However, qualitative studies often involve smaller samples and may face questions about generalizability, making them most powerful when integrated with other methods.

Mixed Methods

Mixed methods research combines quantitative and qualitative approaches to provide a more comprehensive understanding of aging. For instance, a study might use survey data to identify patterns of social engagement among older adults and then conduct interviews to explore the motivations behind those patterns. This integration allows researchers to validate findings across methods and enrich interpretation (Creswell & Plano Clark, 2017). Mixed-methods designs are increasingly common in gerontology because they bridge the gap between statistical trends and lived experiences, supporting evidence-based interventions that are both effective and culturally sensitive.

Ethical Considerations

Research with older adults requires careful attention to ethics. Key principles include informed consent, ensuring participants understand the purpose, procedures, and potential risks of the study. Researchers must minimize physical and emotional burden, particularly for individuals with health limitations or cognitive impairment. Inclusion of diverse populations is essential to avoid bias and ensure findings reflect the heterogeneity of aging experiences. Community-based participatory research models engage older adults and caregivers as partners, fostering trust and producing knowledge that is relevant and actionable (Israel, Schulz, Parker, & Becker, 1998).

Additional ethical challenges include safeguarding privacy in studies that collect sensitive health or financial data and addressing power dynamics when working with vulnerable populations. Institutional Review Boards (IRBs) play a critical role in safeguarding the rights and well-being of research participants. These committees review study protocols to ensure compliance with ethical standards, including informed consent, risk minimization, and equitable participant selection. IRBs evaluate whether research procedures pose undue physical, psychological, or social harm and confirm that vulnerable populations—such as older adults with cognitive impairment—receive additional protections.

Beyond initial approval, IRBs monitor ongoing studies through continuing review, requiring researchers to report adverse events and protocol changes. They also assess confidentiality measures to protect sensitive health and financial data, which is especially important in gerontology research involving longitudinal surveys and medical records. By enforcing these standards, IRBs uphold principles of respect, beneficence, and justice, as outlined in foundational documents like the Belmont Report, ensuring that research advances knowledge without compromising participant dignity or autonomy.

Summary

Gerontology addresses pressing issues that shape aging experiences and inform policy, practice, and research. Among the most critical challenges are ageism, diversity and equity, caregiving, and technology adoption, each requiring interdisciplinary solutions.

Ageism and Cultural Change

Ageism - prejudice or discrimination based on age - remains pervasive in workplaces, healthcare, and media. Negative stereotypes can limit opportunities for employment, social engagement, and access to care, while internalized ageism affects self-perception and health outcomes. Combating ageism requires a multifaceted approach that includes education, policy reform, and cultural change. Public awareness campaigns, professional training, and intergenerational programs can challenge stereotypes and promote positive views of aging (Butler, 1969; Ayalon & Tesch-Römer, 2018).

Intersectionality, Equity, and Access

Aging does not occur in isolation; it intersects with gender, race, ethnicity, socioeconomic status, and other dimensions of identity. Intersectional approaches highlight disparities in health, financial security, and access to resources. For example, women often experience longer life expectancy but face greater economic insecurity due to lifetime earnings gaps and caregiving responsibilities. Racial and ethnic minorities encounter structural barriers to healthcare and higher rates of chronic illness. Addressing these inequities requires policies that promote equitable access to healthcare, inclusive community planning, and social protections (Calasanti & Slevin, 2001).

Caregiving and Support Systems

As longevity increases, societies face growing demand for long-term care. Informal caregivers (family and friends) provide essential support with activities of daily living (ADLs) and instrumental activities of daily living (IADLs), often at significant emotional, physical, and financial cost. In the United States alone, informal caregiving is valued at hundreds of billions of dollars annually, underscoring its economic and social importance. Policies must prioritize respite services, financial assistance, and workplace flexibility to reduce caregiver burden and sustain well-being for both caregivers and care recipients.

Technology and Ethical Considerations

Technology offers promise for independence, health monitoring, and social connectivity. Innovations such as telehealth, wearable devices, and smart home systems can extend healthspan and improve care coordination. However, barriers remain, including digital literacy gaps, cost, and ethical concerns about privacy and autonomy. Future directions emphasize person-centered design and training to ensure usability and reduce frustration among older adults (National Council on Aging, 2022).

Looking Ahead

Future directions in gerontology call for person-centered, equity-focused, and interdisciplinary strategies to support well-being across later life. This includes integrating technology with social supports, addressing systemic inequities, and fostering environments that promote active aging. Research and practice must continue to adapt to demographic shifts, cultural diversity, and emerging innovations, ensuring that aging is understood not as decline but as a dynamic, meaningful stage of life.

Implications for Practice and Career Opportunities

Understanding aging through an interdisciplinary lens equips students and professionals to thrive in a world transformed by demographic change. As populations age and birth rates decline, older adults will represent a growing share of consumers, employees, and community members. This reality means that graduates across fields, including healthcare, business, technology, and public policy, must view aging not only as a biological process but as a social, psychological, and cultural experience.

An interdisciplinary perspective fosters appreciation for the strengths older workers bring, including institutional knowledge, problem-solving skills, and mentorship capacity. It also enables professionals to design inclusive policies and practices that support multigenerational teams, combat ageism, and leverage diversity of experience and thought. These competencies are increasingly valued as organizations adapt to a shrinking labor force and seek strategies to retain and engage older employees.

The Economic Impact of Longevity

The “Longevity Economy” - economic activity driven by people aged 50 and older - is reshaping global markets and workforce dynamics. In the United States, older adults already contribute $8.3 trillion annually, a figure projected to reach $12.6 trillion by 2030 and $26.8 trillion by 2050 fueling growth in healthcare, financial planning, and gerontechnology (AARP, 2020). The Bureau of Labor Statistics (2024) anticipates 5.2 million new jobs in healthcare and social assistance between 2024 and 2034, driven by demand for long-term care and aging-in-place models.

As longevity transforms economic priorities, employers seek professionals who combine theoretical knowledge with practical skills. Core competencies include expertise in aging theories and life course perspectives, research and data analysis, and clinical assessment for geriatric care (AGHE, 2020). Increasingly, technology proficiency in areas such as telehealth, wearable health monitoring, and age-tech integration is essential. These technical skills must be complemented by strong interpersonal abilities, cultural competence, and the capacity to work across disciplines.

Beyond technical expertise, professionals must demonstrate policy analysis and program development skills to design age-friendly initiatives and ensure ethical oversight. Adaptability and lifelong learning are indispensable as aging intersects with emerging technologies and global health challenges. Organizations value HR specialists and consultants who can create inclusive environments, implement flexible scheduling, and support knowledge transfer between generations. These trends underscore that gerontology is not only relevant to healthcare but critical to business, technology, and policy sectors navigating an aging workforce and society.

Expanding Career Pathways

These skills open doors to diverse careers:

- Healthcare and Long-Term Care: Geriatric care managers, rehabilitation specialists, and nursing home administrators.
- Community and Social Services: Case managers, senior center directors, and caregiver support coordinators.
- Policy and Advocacy: Aging policy analysts, program evaluators, and nonprofit leaders.
- Technology and Innovation: Gerontechnology specialists, usability designers, and telehealth coordinators.
- Research and Education: Faculty positions, aging researchers, and data analysts in think tanks and universities.

Employers increasingly value certifications in aging services management, care coordination, and assistive technology, alongside interdisciplinary collaboration and ethical decision-making. By mastering these competencies, graduates position themselves for leadership in a rapidly growing field that shapes health systems, communities, and technology for an aging world.

Answers

Case Study 1

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5.2: Gerontology and Technology

Learning Objectives

- Define gerontechnology and apply its major theories and applications.
- Evaluate the strength of the evidence for telehealth, smart-home monitoring, social robots, and conversational AI as supports for healthy aging.
- Analyze digital inequality, digital ageism, and ethical concerns about privacy, autonomy, and consent as social problems rather than individual shortcomings.

Aging in a Digital Society

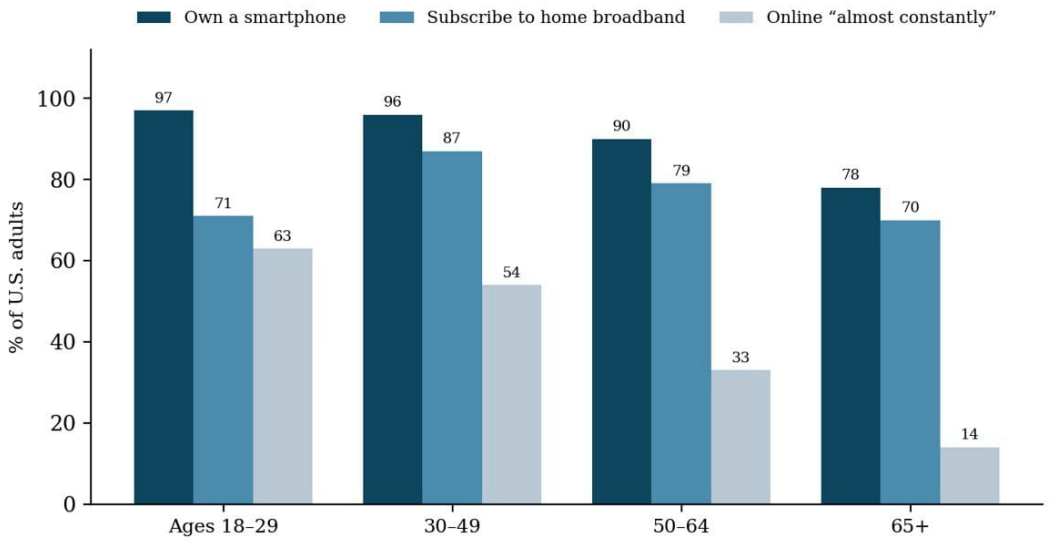
The previous section introduced three ways gerontologists think about change over time: age, period, and cohort. Technology provides a useful illustration of how they differ. Age-related influences are associated with moving through the life course. For example, age-related changes in vision, hearing, dexterity, or cognition may affect how easily some people interact with particular technologies. Period influences result from historical events or conditions that affect people living at a particular time, across age groups. The COVID-19 pandemic is a striking example: medical appointments, shopping, work, worship, and family interactions moved online rapidly for people of many ages. Cohort influences, by contrast, reflect the different historical experiences of groups born during different periods. People born in the 1930s, for example, entered adulthood in a technological environment very different from that encountered by people born in the 1960s. These differences do not mean that later-born cohorts are simply more technologically capable. Earlier cohorts may have developed skills with technologies and practices that later cohorts rarely encounter, such as navigating with paper maps, performing calculations without digital tools, repairing mechanical devices, or locating information using print reference sources. Conversely, later cohorts may develop greater familiarity with digital search, touchscreen interfaces, or online communication. As successive cohorts grow older, these accumulated experiences become part of the knowledge, skills, habits, and expectations they bring into later life (Ryder, 1965).

Consider telehealth as an example of all three influences operating at once. Suppose researchers find that adults in their 80s use video visits less often than adults in their 60s. Age-related changes in vision, hearing, cognition, or dexterity might make video platforms more difficult for some users and create barriers to using telehealth independently. At the same time, the COVID-19 pandemic created a period influence by rapidly expanding telehealth use across age groups. Cohort may matter as well: people now in their 80s and those now in their 60s came of age in different technological environments and accumulated different experiences with digital technologies across their lives. An observed difference between age groups, therefore, cannot automatically be attributed to physical or cognitive aging itself. What looks like an age difference may also reflect when people were born and the historical conditions through which they have lived. Age, historical period, and cohort are intertwined.

That distinction is important when interpreting contemporary patterns of technology use among older adults. The familiar image of older adults as “offline” is increasingly out of date. In a 2025 national survey, 78% of U.S. adults aged 65 and older owned a smartphone and 70% subscribed to home broadband. Yet 14% of this age group described themselves as online “almost constantly,” compared with 63% of adults aged 18 to 29, and 17% were smartphone dependent, meaning they had a smartphone but no home broadband subscription (McClain & Bishop, 2026). As Figure 1 shows, the age gap is less a question of whether

older adults use technology than of how extensively, how reliably, and with what resources and support they are connected.

Figure 1: Technology Access and Use by Age Group, United States, 2025



Note. Percentages of U.S. adults. Data from McClain and Bishop (2026), based on a Pew Research Center survey of 5,022 adults conducted February–June 2025.

These patterns matter for a reason that goes beyond statistics. The assumption that older people cannot or will not use technology is itself a form of ageism (Butler, 1969; Ayalon & Tesch-Römer, 2018). Such assumptions can shape what products get designed, which services move online, and who gets offered help. This section examines gerontechnology and its major applications, factors that shape technology use in later life, the inequalities and ethical questions technology raises, and the research methods used to study it.

What Is Gerontechnology?

In the previous section, gerontechnology was introduced as an interdisciplinary field that brings together knowledge about aging with technological innovation to support the goals and needs of people as they age (Bouma et al., 2007). Gerontechnology includes technologies intended to prevent or compensate for age-related changes as well as technologies that enhance everyday activities, communication, social participation, and independent living. Technology can therefore serve multiple roles in later life, from supporting abilities and reducing environmental demands to creating new opportunities for participation and connection (Charness & Boot, 2009).

In practice, gerontechnology encompasses two overlapping groups of tools. The first consists of technologies designed specifically with older adults or age-related needs in mind, such as medical alert pendants, fall-detection systems, medication reminders, and some forms of assistive robotics. The second consists of mainstream technologies that older adults adopt for their own purposes, such as smartphones, video calling, wearable devices, smart-home technologies, voice assistants, and generative AI tools. The distinction between these groups is not always clear. A smartwatch, for example, may be marketed to consumers of all ages but used in later life for health monitoring or fall detection.

Artificial intelligence increasingly cuts across both groups. AI-enabled technologies can analyze data from wearable and environmental sensors, identify changes in activity or health patterns, assist with fall detection and medication adherence, provide cognitive support, and contribute to health monitoring and caregiving. These applications illustrate how AI is becoming embedded within other forms of gerontechnology rather than functioning as a single, separate type of technology (McDaniel et al., 2025). Conversational AI and social robots may likewise be used for information, assistance, or social interaction, while AI-based systems can support decision making in health and care contexts. At the same time, these technologies raise questions about privacy, accuracy, autonomy, accessibility, and the role technology should play in human relationships and care (Gallistl et

al., 2024).

Business and policy discussions often use the term AgeTech when referring to technologies, products, and services aimed at the needs and opportunities associated with an aging population. Gerontechnology, however, is more than a market category. It is also a field of inquiry that examines how people and technologies interact across the life course. This distinction becomes particularly important with AI. Rather than asking only what AI can do for older people, gerontologists also examine how assumptions about aging shape the development of AI and how older adults' experiences with, adaptations to, and resistance to these technologies may in turn shape technological systems (Gallistl et al., 2024). Research on digital ageism similarly draws attention to ways that age-related stereotypes and inequalities may become embedded in or amplified by digital and AI systems (Chu et al., 2022).

Table 1 summarizes five major categories of gerontechnology, the gerontological needs they address, and some of the cautions that accompany their use.

Major categories of gerontology

Category	Examples	Gerontological need addressed	Key caution
Health monitoring and telehealth	Video and audio-only visits, patient portals, wearables, remote blood pressure monitoring, AI-assisted monitoring	Chronic disease management, access to care, healthspan	Depends on broadband, skills, accessibility, and payment policy; privacy and accuracy concerns
Safety and home environment	Fall detection, medical alert pendants, motion sensors, voice-controlled lights and thermostats, AI-enabled activity monitoring	Aging in place; support for ADLs and IADLs	Surveillance, false alarms, privacy, cost
Social connection and companionship	Video calls, social media, voice assistants, social robots, conversational AI	Loneliness, isolation, maintaining meaningful relationships	Uneven evidence; privacy; risk of substituting technology for desired human contact
Cognitive support and learning	Reminders, memory aids, online courses, games, AI-based assistance	Compensating for change; learning; cognitive engagement	Marketing claims may outpace evidence; accuracy and overreliance
Care coordination and caregiver support	Shared calendars, medication apps, caregiver platforms, AI-supported monitoring and decision support	Reducing caregiver burden; coordinating formal and informal care	Can add new tasks for caregivers; unequal access; privacy and accountability

Note. Categories synthesize common applications of technology and AI in later life. AI increasingly operates across multiple categories rather than constituting a single type of gerontechnology (Charness & Boot, 2009; Gallistl et al., 2024; McDaniel et al., 2025).

Gerontological Theories Meet Technology

The theories introduced in the previous section offer useful lenses for understanding why technology matters in later life and why people make different choices about its use.

Selection, optimization, and compensation (SOC). In the SOC model, individuals select the goals that matter most, optimize the resources available to pursue them, and compensate for losses through alternative means (Baltes & Baltes, 1990). Technology can serve as a compensation strategy. A hearing aid with Bluetooth, a voice-to-text feature, or a medication reminder may allow a person to continue doing something they value despite changes in functioning. From an SOC perspective, technology adoption is therefore not an end in itself. A person may embrace a technology that helps achieve a valued goal while ignoring another technology that offers little perceived benefit.

Socioemotional Selectivity Theory (SST)

As perceived time horizons shorten, people increasingly prioritize emotionally meaningful goals and relationships (Carstensen, 1995). Applied to technology, SST suggests that an older adult may value a video call with a grandchild more than a platform designed to generate many new social contacts. From this perspective, the success of a technology intended to promote social connection cannot be judged simply by how many contacts or interactions it generates. The meaning and quality of those interactions matter as well.

Continuity Theory

Older adults often adapt to change by preserving familiar patterns, identities, activities, and relationships (Atchley, 1989). Technology may be more readily incorporated into everyday life when it extends something a person already values or does. A lifelong gardener might use a plant-identification app, while a retired engineer might enjoy programming a smart thermostat. By contrast, a device that feels imposed or inconsistent with a person's identity, routines, or goals may be rejected even if someone else considers it useful.

Person-Environment Fit

Lawton and Nahemow's (1973) ecological model proposes that functioning and well-being depend partly on the relationship between an individual's competence and the demands, or press, of the environment. Technology can lower environmental press, as when voice controls allow a person with arthritis to operate lights without manipulating a small switch. It can also raise environmental press, as when a patient portal requires multiple authentication steps that are difficult for a person with low vision to navigate. The same technology may therefore fit one 70-year-old and poorly fit another. This perspective shifts attention away from asking what is “wrong” with the user and toward asking whether the environment, including its technology, is appropriately designed.

Technology Acceptance

The Technology Acceptance Model emphasizes perceived usefulness and perceived ease of use as important influences on people's willingness to use technology (Davis, 1989), while later models incorporate factors such as social influence and facilitating conditions (Venkatesh et al., 2003). Research involving older adults further demonstrates that technology adoption cannot be explained by chronological age alone. Attitudes, abilities, previous experience, self-efficacy, and characteristics of both the technology and its context can influence technology use (Czaja et al., 2006; Charness & Boot, 2009). Longer-term research has similarly found that computer efficacy, earlier technology use, and executive functioning can help predict continued technology adoption, suggesting that opportunities to gain experience and confidence can matter (Mitzner et al., 2019).

Critical Perspectives

Technologies are not neutral. Their design reflects decisions about which problems should be solved, which users are imagined, what data are collected, and what outcomes are valued. This issue has become particularly important with artificial intelligence. Gallistl et al. (2024) argue that aging and AI should be understood as co-constituted rather than treating AI simply as a tool applied to aging. They call attention to the datafication of aging, the political economy of AI and aging, and people's everyday engagement with AI technologies. Related scholarship on digital ageism examines how age-related assumptions and biases can

become embedded in digital technologies and AI systems, potentially affecting both how older adults are represented and how resources and opportunities are allocated (Chu et al., 2022). Critical gerontologists therefore ask not only whether a technology works, but who designed it, who was represented in the data used to create it, what assumptions about aging it carries, who benefits from its use, and who may be excluded.

Concept Check

- What is gerontechnology? Why can a mainstream technology such as a smartphone or smartwatch be considered gerontechnology even if it was not designed specifically for older adults?
- A study finds that adults in their 80s use patient portals less often than adults in their 60s. Why can researchers not conclude from this finding alone that aging causes lower portal use? Use age, period, and cohort influences in your answer.
- Why is it potentially ageist to assume that lower use of a particular digital technology among older adults reflects an inability or unwillingness to learn it? Identify at least two alternative explanations.

Health and Healthcare

Telehealth, patient portals, and wearable devices have become routine parts of care for many older adults. Their availability, however, depends on policy as well as technological capability. Medicare's pandemic-era telehealth flexibilities temporarily lapsed twice in 2025 and early 2026, disrupting coverage before Congress extended them through December 31, 2027 (Center for Medicare Advocacy, 2026). The extension preserved Medicare coverage for many visits delivered to patients in their homes as well as audio-only telehealth (Baker Donelson, 2026). Audio-only options can be particularly important for people who lack video-capable devices or reliable broadband. The broader lesson is that access to technology-based care depends not only on whether a technology exists, but also on the policies that determine who can use it and who will pay for it.

Wearables and remote monitoring, such as connected blood pressure monitors, may support earlier detection of health problems and help reduce the need for some in-person visits. They also generate data that someone must interpret, which requires clinicians with time to review the information and patients or caregivers who understand what it means and what, if anything, they should do in response. Used well, these tools can support the goal introduced in Section 1 of extending healthspan, not simply lifespan (Crimmins, 2015).

Home, Safety, and Independence

Most older adults say they want to remain in their own homes (AARP, 2024), and a growing set of tools aims to make that possible: motion and door sensors, fall detection, voice assistants, and AI-enabled security devices. In a 2025 national poll of 2,883 adults aged 50 and older, 96% of those who had used AI-powered home security devices said these technologies helped them live independently and safely at home (National Poll on Healthy Aging Team, 2025). At the same time, a scoping review of 15 studies of adults aged 50 and older found that 13 discussed privacy concerns about how smart-home data are collected and accessed, and the authors noted that digital technology is most often designed for younger adults (Percy Campbell et al., 2024). In Lawton and Nahemow's (1973) terms, a smart home can reduce environmental press, or the demands the environment places on a person, but it can also introduce a new kind of press: the sense of being watched.

Social Connection and Companionship

Loneliness is a major concern in gerontology, and technology is increasingly proposed as a way to support social connection. Video calls and social media can help older adults maintain relationships with family and friends. More recently, researchers have studied social robots, including robotic pets and conversational agents. A meta-analysis of 19 studies involving 1,083 older adults found that AI-enabled social robots significantly reduced loneliness, with larger effects among people living in institutional settings than among those living independently (Mehrabi & Ghezelbash, 2025). The size of the effect also varied across countries and study designs, suggesting that context matters. An umbrella review examining socially assistive robots across a broader range of health and well-being outcomes found that evidence varied across outcomes (Nichol et al., 2024). Taken together, the evidence suggests that social robots may reduce loneliness under some conditions, but their broader effects on well-being remain uncertain.

Generative AI adds a new dimension. In the 2025 National Poll on Healthy Aging, 55% of adults aged 50 and older reported having used an AI technology they could speak or type to, and 14% had used AI to obtain health information. At the same time, 92% wanted to know whether information they received came from a person or from AI, and 46% reported very little or no trust in AI-generated health information (National Poll on Healthy Aging Team, 2025). Older adults, in other words, are neither technophobes nor uncritical enthusiasts. Many are using AI while remaining cautious about its reliability and risks.

Cognition and Learning

Some commentators have warned of "digital dementia," the idea that using digital technologies may harm thinking and memory as people age. Research, however, does not support this simple conclusion. A large analysis of 57 studies involving more than 411,000 adults over age 50 found that people who used digital technologies were less likely to experience cognitive impairment and tended to show slower cognitive decline than those who used them less (Benge & Scullin, 2025).

This does not mean that technology use causes better brain health. The studies show a relationship between technology use and cognition, but they cannot establish which causes which. Using digital technologies might provide mental stimulation that helps people maintain cognitive abilities, but another possibility is that people with stronger cognitive abilities are simply more likely to use technology. Benge and Scullin use the term "technological reserve" to describe the possibility that regularly using digital technologies may provide mental challenges that help support cognition as people age. More research is needed to determine whether technology itself produces these benefits.

Digital skills may also be related to well-being in other ways. A study of 1,016 older adults found that people with greater digital literacy reported a higher quality of life. Part of this relationship was explained by greater confidence in using technology and a better ability to find and understand health information online (Xin et al., 2025).

Caregiving

The scale of family caregiving in the United States is substantial and growing. A 2025 national survey estimated that 63 million Americans, nearly one in four adults, provided ongoing care in the previous year, an increase of 20 million since 2015 (AARP & National Alliance for Caregiving, 2025). Telehealth, shared calendars, medication apps, and sensor alerts can reduce travel and help families coordinate care. But technology can also create new work. Someone must set up devices, troubleshoot problems, monitor information, and respond to alerts. Technology may therefore redistribute caregiving work rather than simply reduce it.

Concept Check

· Why does access to a technology not necessarily mean that an older adult can benefit from it? Identify two factors from this section that can affect whether a technology is useful or accessible.

· How can the same technology both support independence and create new problems? Use an example from telehealth, smart-home technology, social robots, AI, or caregiving.

· Why should we be cautious about concluding that technology causes better outcomes for older adults? Explain the difference between an association and evidence of cause and effect.

Case Study

Case Study: Aging in Place in a Connected and Disconnected Community

Scenario: Rosa, age 81, is a widow who lives alone in a small rural town. Her cardiologist is two hours away, and her daughter Carla, aged 54, lives three hours away and works full-time. Rosa owns a smartphone but has no home broadband, and video visits freeze, so her clinic now conducts audio-only follow-ups. Carla bought her a smart speaker and a fall-detection pendant and enrolled her in remote blood pressure monitoring. Rosa enjoys video calls with her grandchildren when she visits Carla's home but rarely makes them from her own. She keeps the pendant in a drawer because it "makes me feel like a patient," and she recently hung up on a caller claiming to be from her Medicare plan. Meanwhile, Carla receives alerts at work and finds herself checking her phone constantly.

Thought Questions:

1. Rosa has access to several technologies, but she does not benefit equally from all of them. What factors in the case help explain these differences? Which are individual, and which are structural?
2. How do the technologies in Rosa's home support independence while also creating new concerns or burdens for Rosa and Carla? Consider health, privacy, autonomy, and caregiving.
3. What changes to technology, services, or public policy might improve Rosa's ability to age in place while preserving her choices and independence?

Barriers, Inequalities, and Digital Ageism

Researchers distinguish several layers of the digital divide. The first is access: do people have devices and reliable internet connections? The second is skills: do people know how to use digital technologies effectively (Hargittai, 2002)? A third is outcomes: does using technology actually produces health, social, educational, or economic benefits? Having a smartphone, in other words, does not necessarily mean that someone can successfully complete a telehealth visit, navigate a patient portal, or recognize an online scam.

Older adults can encounter barriers at each of these levels, but chronological age alone does not determine who is excluded. Income, education, race, gender, disability, and geography can intersect to shape people's access to and experiences with technology (Calasanti & Slevin, 2001). Among U.S. adults in 2025, for example, 54% of those living in households earning less than $30,000 subscribed to home broadband, compared with 94% of those in households earning $100,000 or more (McClain & Bishop, 2026). Policy decisions can widen or narrow these gaps. The Affordable Connectivity Program, a federal subsidy that helped more than 23 million households pay for internet service, ended on June 1, 2024 when its funding ran out (Federal Communications Commission, 2024).

Limited access is only part of the problem. Older adults may face barriers to participating fully in digital environments while also being targeted by online fraud and scams. In 2025, adults aged 60 and older filed more than 201,000 complaints with the FBI's Internet Crime Complaint Center and reported more than $7.7 billion in losses (Federal Bureau of Investigation, Internet Crime Complaint Center, 2026). Technology policy for older adults must therefore address not only access but also the knowledge and protections needed to navigate digital environments safely.

Barriers can also be built into technology itself. Limited access is only part of the problem. Older adults may face barriers to participating fully in digital environments while also being targeted by online fraud and scams. In 2025, adults aged 60 and older filed more than 201,000 complaints with the FBI's Internet Crime Complaint Center and reported more than $7.7 billion in losses (Federal Bureau of Investigation, Internet Crime Complaint Center, 2026). Technology policy for older adults must therefore address not only access but also the knowledge and protections needed to navigate digital environments safely. A review of 74 publications on age-related bias in artificial intelligence found that common sources of bias included inadequate representation in data and problems in evaluating how AI systems performed for different age groups. Age-related issues appeared particularly often in applications involving age estimation and facial recognition (Chu et al., 2023). This can create a self-reinforcing cycle. Designers assume older adults will not use a product, so they do not adequately include them in its design and testing. The resulting product may work poorly for some older users, who consequently use it less. Their lower use may then be interpreted as evidence that older adults simply do not want or cannot use the technology.

Ethics: Autonomy, Privacy, and the Meaning of Care

Technologies that monitor, remind, and respond raise ethical questions that reach the core of gerontology's concern with dignity, autonomy, and independence. Four issues are especially important.

Autonomy and Consent

Monitoring intended to protect an older adult can also limit that person's choices, particularly when family members purchase, install, or control the system. Consent becomes more complicated when cognitive impairment limits a person's ability to understand or continually agree to monitoring. Ethical questions include: Who requested the technology? Who benefits from it? Who controls the information it collects? And who has the power to turn it off?

Privacy

Sensors and monitoring systems can collect detailed information about people's daily activities, sometimes in highly private spaces. Data collected by consumer devices may also be stored or shared in ways that users do not fully understand. Privacy concerns reported in research on smart-home technology demonstrate that older adults themselves recognize this tradeoff (Percy Campbell et al., 2024).

Replacement versus Complement

James Wright's (2023) ethnographic research on eldercare robotics in Japan shows that care robots do not necessarily eliminate human labor. Technologies may require people to operate, maintain, monitor, and adapt to them while also changing how care work is organized. Technology, therefore, does not simply replace human care. It can redistribute, reshape, or sometimes hide the human labor required to provide it.

Participation

One way to address these ethical challenges is to involve older adults in designing and evaluating technologies intended for their use. Rather than treating older adults simply as recipients of technology, participatory approaches treat them as partners whose experiences, preferences, and concerns should shape design decisions (Israel et al., 1998).

Researching Technology and Aging

How do we know whether a technology actually improves people's lives? Imagine that researchers want to evaluate a new smart-home system designed to help older adults live independently. They could ask whether the system prevents falls or reduces hospital visits. But those outcomes would tell only part of the story. Researchers might also want to know whether people can use the system easily, whether they find its alerts helpful or annoying, whether they feel safer with it, and whether constant monitoring makes them feel that they have lost some privacy. Different questions require different kinds of evidence.

An experiment might help determine whether people who use the system experience better outcomes than people who do not. A large survey could reveal who uses the technology and whether its use is associated with health or well-being. But an association does not necessarily tell researchers what caused it. Studies have found, for example, that older adults who use digital technologies tend to have better cognitive outcomes, but researchers cannot yet say whether technology helps maintain cognition, people with stronger cognitive abilities are more likely to use technology, or both are true (Benge & Scullin, 2025).

Numbers also cannot tell researchers everything they may want to know. Watching people actually use a device can reveal that a button is difficult to see or that instructions are confusing. Interviews can uncover why someone chooses not to use a device that appears useful to its designers. Ethnographic research can go even further by examining how technology changes everyday life and relationships. Wright's (2023) research on eldercare robots in Japan, for example, examined robots not simply as pieces of equipment but as technologies that became part of the work and experience of providing care. Combining quantitative and qualitative approaches can therefore provide a more complete picture of whether a technology works, for whom, under what circumstances, and at what cost.

Researchers also have to remember that today's findings may not describe tomorrow's older adults. Someone who is 85 today encountered smartphones, the internet, and artificial intelligence at very different points in life than someone who is 85 several decades from now will. Benge and Scullin (2025) point out that the first generations with substantial exposure to digital technologies are only now reaching the ages when the risk of cognitive impairment becomes greater. Research on technology and aging therefore offers a good reminder of the importance of cohort: findings about today's older adults should not automatically be treated as timeless facts about aging.

Finally, the technology being studied can create ethical questions of its own. A researcher studying a pill organizer can ask a participant to return it at the end of a study. Research involving smart-home sensors, wearables, or continuous monitoring can be more complicated. What happens to the data already collected? Who has seen them? Does the participant understand what is being recorded? Can the person truly turn the monitoring off? In technology research, understanding whether something works is important, but so is understanding what people give up, gain, or experience when they use it.

Concept Check

- What is the difference between a structural barrier and a design-related barrier to technology use? Give one example of each.
- Why is providing access to a device or internet connection not enough to eliminate digital inequality?
- Why is involving older adults in the design of technology both a practical and an ethical strategy?

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5.3: Through an Interdisciplinary Lens- Technology-Supported Aging in Place

Learning Objectives

- Analyze how anthropology, sociology, psychology, political science, and gerontology contribute different perspectives to understanding technology-supported aging in place.
- Evaluate how individual experiences, social relationships, public policies, and technological systems interact to influence older adults' ability to age in place.

Aging in place, remaining in one's home and community as one grows older, might seem primarily a gerontological issue. Add technology, however, and the questions quickly become larger. A fall-detection system may help someone remain at home, but who decides that monitoring is necessary? Who pays for the technology and the internet connection it requires? Who sees the data? Who responds when an alert sounds? And what happens when the person being monitored does not want to use it?

Anthropology

Consider Rosa. From one perspective, her fall-detection pendant is a practical safety device. But Rosa keeps it in a drawer because wearing it “makes me feel like a patient.” Anthropology helps us see why the meaning of the object matters. A home is not simply a location in which technologies are installed; it is a personal and cultural space associated with identity, privacy, relationships, and independence. Ethnographic research is especially useful for discovering what happens after a technology leaves the laboratory and enters everyday life. Research on care and eldercare technology shows that devices intended to simplify care may instead require ongoing adjustment and additional human work (Mol, 2008; Wright, 2023).

Sociology

Rosa's choices, however, cannot be understood only by examining what the technologies mean to her. She has no home broadband, her cardiologist is two hours away, and her daughter Carla lives three hours away and works full time. Sociology shifts the focus from Rosa's choices to the social conditions surrounding those choices. Access to technology is shaped by income, geography, education, disability, family resources, and the availability of unpaid care. The “smart home” does not operate by itself. Someone may have to buy the equipment, install it, troubleshoot it, monitor alerts, and respond when something goes wrong. In Rosa's case, some of that work shifts to Carla. Technology can therefore redistribute care work rather than eliminate it.

Political Science

But neither Rosa nor Carla controls all the conditions under which these technologies operate. Whether Rosa can obtain an audio-only telehealth visit, whether affordable broadband is available, and what protections apply to the data collected in her home are also political questions. Public policy determines which services are covered, which infrastructure is subsidized, and what protections consumers receive. Technology-supported aging in place is therefore not simply the result of better devices or better individual choices. It also reflects decisions about how resources, risks, and responsibilities are distributed.

Psychology

Psychology brings the focus back to the person, but asks different questions. Does Rosa trust the technology? Does she believe she can use it successfully? Does it make her feel safer or less independent? Her decision to keep the pendant in a drawer is not evidence that older adults resist technology. She uses other technologies when they meet her needs. Similarly, older adults' cautious attitudes toward artificial intelligence can reflect judgments about usefulness, reliability, privacy, and trust rather than a general fear of technology.

Gerontology

Gerontology brings these pieces together across the life course. It asks whether a particular arrangement fits this particular person, in this environment, at this point in life. A technology that increases independence for one person may create new burdens for another. And because today's older adults encountered smartphones, the internet, and AI at different points in their lives than future cohorts will, the relationship between aging and technology will continue to change.

Conclusion

Seen through an interdisciplinary lens, Rosa's situation is not a technology problem with a single technological solution. Helping her age in place might require a better-designed device, affordable broadband, stable telehealth coverage, meaningful privacy protections, support for Carla, and, most importantly, Rosa's participation in deciding what forms of support fit the life she wants to live. The disciplines are most useful not when they provide competing explanations, but when their questions are combined. Together, they reveal the person, the relationships, the institutions, and the policies surrounding the technology.

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6: POLITICAL SCIENCE- EXPLORING GOVERNMENT, POWER, AND SOCIETY

Learning Objectives

- Define political science and explain how power shapes relationships among states, institutions, groups, and individuals.
- Compare and contrast major forms of government and political systems, including democracies, republics, monarchies, autocracies, oligarchies, federations, confederations, and unitary states.
- Differentiate among major political ideologies and evaluate how they influence political beliefs, public policies, and government action.
- Apply major political science theories and research methods to explain political behavior, decision-making, and policy outcomes.
- Evaluate the influence of social media, digital activism, misinformation, and globalization on political participation and political outcomes.
- Explain how data analysis and emerging technologies such as artificial intelligence are used to study political behavior, inform policy decisions, and predict political trends.
- Compare how sociology, psychology, anthropology, and gerontology examine digital activism and explain how these perspectives contribute to a more comprehensive understanding of social and political change.

6.1: What Is Political Science

6.2: Political Science and Technology

6.3: An Interdisciplinary Approach to Digital Activism

6.4: References

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6.1: What Is Political Science

Learning Objectives

- Define political science and explain how power shapes relationships among states, institutions, groups, and individuals.
- Compare and contrast major forms of government and political systems, including democracies, republics, monarchies, autocracies, oligarchies, federations, confederations, and unitary states.
- Differentiate among major political ideologies and evaluate how they influence political beliefs, public policies, and government action.
- Analyze the roles of political actors, including citizens, political parties, interest groups, NGOs, and institutions, in shaping political outcomes.
- Apply major political science theories and research methods to explain political behavior, decision-making, and policy outcomes.

As William Shakespeare wrote in As You Like It, "All the world's a stage, and all the men and women merely players" (Shakespeare, 1599/1974). This quote illustrates how politics, including domestic politics, operates on a global stage, with many different actors influencing outcomes. Political science is most often defined as the theory and practice of politics at the local, state, national, and international levels. It is the study of how states, individuals, and other key actors interact with each other. These interactions may use hard (military) and/or soft power (diplomacy) to influence or control the behavior of others on the local, state, national, or international stage. In other words, political science is the study of power.

Types of Government

When one thinks of political science, government is often the first thing to come to mind. There are many different forms of government, including democracy, dictatorship, monarchy, oligarchy, and aristocracy, to name the most popular.

Democracy

Democracy has three core elements: individual sovereignty, equality amongst citizens, and democratic norms and values. In a democracy, it is the public who is sovereign, or the holder of power. In other words, authority is derived from the consent of the people. In a direct democracy, such as Ancient Greece, the public directly make policy. Most democracies today, including the United States, are representative democracies, where citizens elect representatives to make policy decisions and laws on their behalf.

Within democracies, there are three different types of party systems. Dominant party systems such as Japan have multiple parties, but only one party consistently holds a significant majority of the power and influence over the government. The majority party maintains control through institutional advantages, restrictive laws against opposition parties, and media manipulation. Two party systems, such as the United States, are dominated by two major political parties, winning most elections and alternating power. Other parties may exist but do not have much representation or influence. The third-party system is the multi-party system found in Canada. In this system, there are more than two meaningful and distinct parties that regularly win elections. At times no party in a multi-party system is able to win a majority. In these cases, parties form a coalition, with one party, usually the one with the highest percentage of votes, as the leader.

Republics

Republics are another common form of government. A republic is a form of government where the head of state is not a monarch. Both democratic and non-democratic forms exist. Examples include the United States, France, China, and India. Typical republics have an elected head of state, often a president, but in some republics, the head of state (president) serves alongside an elected head of government or prime minister (Issitt, 2013).

Monarchy

As the name hints, a monarchy is a form of government where a monarch is the head of state. It is important to note that the head of state is different from the head of government. The head of state is the ceremonial representative of a country, while the head of government has significant authority over legislative matters. Sometimes the head of state and head of government is the same person; other times, such as in the United Kingdom, they are separate. King Charles III is the United Kingdom's head of state while the Prime Minister is the head of government. Brunei is an example of a country where the monarch is both the head of government and the head of state, it is also referred to as an absolute monarchy ("World Population Review", 2026). These examples show that a monarch can be both democratic and non-democratic.

Autocracy and Totalitarianism

In today's world, the terms autocracy and totalitarianism are often used interchangeably, but they are different. An autocracy is a form of government in which the government involves itself in the daily lives of its people, including social and economic activities, with the state authority dominating over all other types of authority. This form of government can permit some degree of personal freedom in non-political areas. Sudan, Vietnam, and Zimbabwe are all examples of autocracies. Totalitarianism is an extreme form of autocracy. In a totalitarian government, the government holds absolute control over all aspects of public and private life. This control is often through a guiding ideology. Totalitarian regimes are more extreme in their control and suppression of dissent than typical autocracies. North Korea, Afghanistan, and Syria are examples of totalitarian governments. In other words, key differences between autocracies and totalitarian regimes are the scope of control, ideological drive, and control over private life ("Comparing Political Regimes", 2026)

Oligarchy

The final major type of government we will explore in this chapter is oligarchy. An oligarchy is a form of government where a small group of wealthy people, a specific class or a single-family hold power instead of the general population. The basis of power can be from wealth, noble birth (i.e. aristocracy), or military control. Political participation amongst the general population is limited in an oligarchy to those in the inner circle. Unlike an autocracy, where leaders are not held accountable for their actions, it is not as clear cut in an oligarchy. Depending on the specific oligarchy, leaders may or may not be held accountable for their actions. In most oligarchies decisions are made by group or majority rule through consensus of those who are holding the power. Two examples of oligarchies in the 21st century are Russia and Iran (Ramos, 2017).

Political Systems

Political systems are the set of formal institutions that form a government. This includes both the social institutions and processes through which policy is made. Understanding what a political system is and how it functions is critical to understanding how society functions. Political systems influence nearly every aspect of civic life. The nature of a political system will determine whether minorities will be empowered, minority rights will be safeguarded, the system can protect against tyranny, and if conditions for freedom and stability will exist. Political systems include confederations, federations, and unitary state.

Confederation

In a confederation, a group of units or independent states join together for a common action while retaining a level of autonomy. Confederations can be formed for a variety of reasons including defense and the economy. A weak central government is common, with power residing with member states. This means that members of the confederation maintain their sovereignty. The United States under the Articles of Confederation and the modern-day European Union are both examples of confederations. Due to their weak structure, confederations are not a common political system in the 21st century ("Confederation Political System", 2026).

Federation

A federation, on the other hand, is a group of states with a central government who maintain independence in their internal affairs. It combines the centralization of some political powers while decentralizing others. Sovereignty is divided and shared between the federal government and the regional, provincial, state, or republic governments. A constitution details the division and sharing of powers between the levels of government. Typically, the powers are separated, but sometimes specific powers are shared.

Disputes between the level of government are normally decided by an impartial judicial branch. Within the federal government, federations commonly have a bicameral legislature. The separation of powers between states and the federal government in the United States is an example of a federation (Feeley & Rubin, 2007).

Unitary State

A unitary state is a political system where governing power is concentrated in a single central government, which holds authority over regional and/or local governments. There are uniform laws and regulations throughout the state with no allowances for regional differences. The regional governments of unitary states serve to support, implement and administer the policies and authority of the central government. The unitary state is the most common political system, with 165 out of the 193 members of the United Nations using a unitary system (Greene, 2021). France is an example of a centralized unitary state, while the Netherlands is an example of a decentralized type of unitary system. In this decentralized unitary state, provincial and municipal governments are granted excision making powers, including the authority to pass and implement their own laws within their own jurisdiction so long as they do not violate the federal constitution. While similar to a federation, the decentralized unitary system permits the central government to intervene at the regional level of government at any time (Greene, 2021).

Political Ideologies

Political ideologies are the set of beliefs, values, principles, doctrines, and ideas of how a society, including government, and the economy should be. Each ideology offers its own vision for society. While there are many political ideologies, political scientists generally agree on the existence of eleven major ideologies. We will explore them below.

Anarchism

Anarchism is a political ideology that opposes all forms of authority. It seeks to eliminate the state in favor of self-governed societies. Voluntary association, individual freedom, and a stateless society are all major elements of anarchism. The term “anarchism” means no beginning, no leadership, no rule. In other words, there is no government. Anarchists believe that change should be tried through experimentation and in the need to act now rather than waiting for a revolution, as advocated for in other ideologies (Bergman, 2018).

Communism

Communism is a philosophical, social, political, and economic system where all property is communally owned, and the means of production are controlled by the public. Similar to anarchism, the goal is a stateless society where all are equal. A classless society, communal ownership, centralized control, suppression of freedom, and a state-controlled society are all major elements of communism. It directly opposes the ideas of capitalism and private ownership of resources. This ideology was developed by Karl Marx and Friedrich Engels. Marx believed that the roots of inequity in society arose from the unequal distribution of wealth and the exploitation of workers. According to Marx, a violent revolution by the workers overthrowing the capitalist class would mark the beginning of a communist society. Communism was the dominant ideology in Eastern Europe, the USSR, and China in the mid 19th century ("What is Communism", n.d.).

Conservatism

Conservatism, on the other hand, focuses on the importance of tradition, including established institutions. It is aimed at maintaining a good society and judging the goodness of a society by its contributions to the lives of the people who live in it. History is viewed as the best guide to understanding the present and planning for the future because it provides evidence of what political arrangements are likely to make lives good or bad. Conservatives look to history for both possibilities and limits of a good society as well as to help them understand what deserves their allegiance and what is important to a good society (Kekes, 1997). Gradual changes, limited government, traditional values, national defense, and order are all major hallmarks of conservatism.

Environmentalism

Environmentalism emphasizes the protection of the environment from harmful human actions. It is a broad term that is an ideology, philosophy, and social movement. It focuses on protecting ecosystems and biodiversity by reducing pollution, promoting sustainability, and environmental justice. Influencing legislation, raising awareness, and lobbying are major strategies

of environmentalism. The goal is to maintain the primary relation between humans and the natural systems upon which they are dependent to achieve sustainability ("Environmental Structure", n.d.)

Fascism

Fascism is a term that is used frequently these days, often incorrectly. It is an authoritarian system of government with a powerful dictator, a one-party state with extreme nationalism. This ideology advocates the supremacy of select groups over the individual. Supremacy is based on characteristics such as race, religion, ethnicity, or nationalism. Fascist regimes have charismatic leaders and foster a cult of personality. Often fascist regimes align with business interests and are highly supportive of traditional values. Totalitarian control, militarism, suppression of opposition, and often national purity are all major elements of fascism ("What does Fascism Really Mean", 2024).

Feminism

In contrast, feminism as an example of identity politics. It is viewed as a means of empowerment aimed at challenging power structures based on gender. Feminists believe in the social, economic, and political equality of the sexes. Modern feminism has had four waves. The first wave (1848-1920) focused on women's suffrage; the second wave (1960s-1980s) focused on women's autonomy, questioning the concept of gender roles and women's sexuality. The third wave (late 1980s-1990s) was an expansion of the second wave, aiming to rid the movement of the perceived rigid ideology of second wave feminists. This wave focused on choice. The fourth wave of feminism is estimated to have begun between 2007 to 2012 and continues today. This wave focuses on justice for women, especially for those who have experienced sexual violence. It also has an increased focus on intersectionality and sub-narratives, including transgender activism (Guy-Evans, 2024).

Identity Politics

Identity politics is more than just feminism. It is a means of empowerment aimed at challenging power structures based on shared group identities such as gender, race, class, and sexuality. It is founded on the shared experiences of injustice of members of a certain group. Identity politicians aim to secure the political freedom of their marginalized group within a larger society. It is a struggle for recognition and social justice (Heyes, 2002).

Liberalism

One of the better-known ideologies is liberalism. Liberalism focuses on individual rights, liberty, and equality with an emphasis on the consent of the governed. The equal application of the law, political, economic, and social freedom, with minimal state intervention, are major elements of liberalism. Classical liberalism considers liberty and privacy to be intimately related. In other words, an economic system based on private property is consistent with individual liberty. In fact, many argue that liberty rights are forms of property rights (Courtland, et. al., 1996). Modern liberalism, on the other hand, argues for a more balanced approach to freedom and equality. It argues for a proactive state that involves welfare policies and social programs that support the disadvantaged and promote social justice ("Modern Liberalism", 2025).

Nationalism

Unlike liberals, nationalists identify with their own nation and their own self-interests to the exclusion and detriment of other nations. While nationalism's unity and self-determination played a role in the formation of modern nation-states, it is also linked to xenophobia, exclusion, and violence. With the focus on supreme loyalty to the nation, nationalism often conflicts with globalization and supports limited immigration. National pride and identity, national interests, and self-determinism are all major elements of nationalism ("The Rise and Growth of Nationalism", 2026).

Populism

Populism is a term that is increasingly heard in the news. While it is rooted in political tradition, it became a household term in the 2010s. Populist movements often have a charismatic leader and are combined with other ideologies such as nationalism, liberalism, or socialism. It strives to champion the interests of the common people, viewed as a moral good force, who are in opposition to a real or perceived corrupt and self-serving elite. However, populism lacks a single clear definition. Common threads in populist definitions include the concept of the people and the corrupt elite. This lack of clarity allows populists to adapt the

terms according to their respective host ideology (Greenleaf, 2025).

Socialism

Socialism is a political and economic system that aims to reduce class distinctions by prioritizing social welfare. Under socialism, the government and the community own and control the means of production with a focus on social welfare over private profits (Heilbroner, n.d.). Democratic socialism, as the name suggests, is a democratic form of socialism. Under democratic socialism, the government takes control of certain sectors of society, usually health care, utilities, and transportation, to benefit the public (Treisman, 2025). The private sector still owns the majority of businesses. Norway and Sweden are two examples of democratic socialist countries.

Key Actors in Political Science

Political science examines not only governments, but also the individuals, groups, institutions, and political parties that influence policy. At the individual level, there are leaders, representatives in all levels of governments, voters, and government workers. In democracies, the role of the individual voter is critical in giving consent and feedback to their representatives. Individuals also have the power to make changes. Erica Chenoweth, a noted political scientist, introduced the 3.5% rule. According to the 3.5% rule, a mass movement with 3.5% of the population or more participating can succeed in forcing political change without violence (Delaney, 2025). Chenoweth's data shows the power of the people to affect change against their government.

Example

Serbia 1997-1997

In December 1996, civilians and students began mass protests that lasted for three months in response to the falsification of local election results in approximately 40 Serbian cities by Slobodan Milosevic. Led by students, who quickly organized after the election, tens of thousands of Serbian citizens protested in the streets across Serbia. Despite the bitterly cold Serbian winter and a severe police crackdown, the daily marches against the Milosevic government continued. In February 1997, the protests ended when Milosevic's government conceded and recognized the opposition's victories in the December election (Beotura, n.d.).

Non-Governmental Organizations

Groups including non-governmental organizations (NGOs) are often instrumental in developing policies and laws as well as educating members of the government and public. They are central to understanding how political power is exercised. The group theory of politics argues that political outcomes often result from interaction and competition amongst organized groups representing diverse interests. The government serves as a mediator, balancing competing pressures to maintain stability ("Group Theory: The Influence of Interest Groups on Public Policy", 2026). Interest groups, often NGOs, often lobby on behalf of their constituents and issues. They are also instrumental in mobilizing voters.

Political Parties

Political parties are another type of group that plays an integral role in democracies, wielding power to shape policies to support their platforms. They are coalitions of politically active citizens seeking to advance a political agenda. Despite the cynicism around political parties, they are vital in mobilizing political ideologies and philosophies. Whether a part of the two-party system or a multi-party system, they are a natural by-product of political development (Auerbach, 2023).

Domestic and International Institutions

Finally, there are institutions at both domestic and international levels. Domestic institutions include legislative, judicial, and executive government bodies. These institutions set policies and the direction of a nation (see institutional theory below). International institutions, or organizations that manage and regulate activities on a global scale, are important actors in international relations (Sandhu, 2023).

Subfields in Political Science

Political science is a broad field that has many subfields, each focusing on different aspects of politics. Key subfields include political theory, comparative politics, public policy and administration, international relations, and regional politics such as American politics. Each subfield helps inform historical, comparative, and theoretical frameworks that come together to provide a broader understanding of politics, the actions of key actors, how power operates, and how societies are structured.

Public Policy and Administration

The study of public policy is the analysis and creation of government and non-government responses to public issues, including but not limited to, government accountability, environmental policy, public health, cybersecurity, education, and crime. Public administration is the study of the execution and management of public policies, i.e. bureaucracy. Public policy and public administration are frequently studied together and are often considered the same subfield as they are closely related. Combined, they are the interconnected aspects of governance and public decision-making forming the backbone of governance. They two disciplines work together to ensure that government initiatives are both designed effectively and implemented efficiently. Public administration focuses on the day-to-day operations of government, bridging the gap between policy decisions and application, while public policy focuses on the research, analysis, creation and evaluation of laws and strategies that address societal challenges ("Group Theory: The Influence of Interest Groups on Public Policy", 2026).

Comparative Politics

Comparative politics, on the other hand, is the study of domestic politics across countries with a focus on the patterns and differences in governance, public policies, and electoral systems. This subfield seeks to understand how political systems operate and how they differ from one another. Comparative politics is a broad field, unlike the older field of comparative government, which focuses only on the formal structures of government. Instead, comparative politics includes the study of both formal and informal institutions, political parties, processes, and their impact on society. The study of comparative politics helps to inform policy decisions, promote democratic values, and enhance global understanding (“Nature and Scope of Comparative Study of Politics”, 2025).

Regional Politics

Regional politics provides a wider focus than comparative politics. Rather than focusing on different domestic political systems, regional politics studies the politics within a specific country or region such as the United States, the Americas, Europe, or Asia. This subfield focuses on the interactions between and among states within specific geographical regions. This includes bilateral, as well as multilateral relations, including larger international governmental organizations (IGOs) such as the European Union (EU) and the Organization of American States (OAS), as well as the interactions of key global actors within a specific region (Badie, et.al., n.d.)

International Relations

International relations is the widest focus of the political science subfields. It is the study of interactions between states and other key global actors such as IGOs and non-governmental organizations (NGOs). This subfield includes a broad scope of topics, including diplomacy, war, economics, law, and state sovereignty. International relations studies how countries interact with each other, focusing on gaining an understanding of decision-making, economic activities, global governance issues, foreign policies, and security challenges. This understanding helps to foster diplomatic agreements and cross-border initiatives, including security, trade, economics, health, and environmental concerns. International relations helps political scientists to gain insights into how we interact as political actors on a global scale in order to ensure peace and safety around the globe (Santos, n.d.).

Research Methods in Political Science

Like the other fields in the social sciences, political scientists use both qualitative and quantitative methods in their research tool kit. Some political scientists prefer to use a single method in their research, but many use a combination of both qualitative and quantitative methods. Using multiple methods allows the political scientist to gather more data and evaluate information from different perspectives as well as avoiding some of the limitations of each style of research. This helps to provide more accurate and well-rounded results.

Qualitative Methods

Qualitative methods in political science focus on analysis of documentary sources, ethnographic research, digital ethnography, interviewing, fieldwork, and case studies. Of these, interviewing is the most common method utilized by political science. Interviewing voters on their views on important issues, or government officials on policy questions are just two examples of how political scientists use interviews as a part of their research (UMGC, 2025).

In general, qualitative methods are useful in identifying causal relationships. They create depth over the breadth of quantitative methods of research. However, there are limitations to qualitative methods. They are resource intensive, expensive in both time and money. In addition, qualitative methods are harder to replicate. Researchers will likely face different conditions or have access to different government agencies, making it difficult to replicate a study exactly. One workaround used by political scientists is to use mixed methods to triangulate data across multiple sources (UMGC, 2025).

Quantitative Methods

Political scientists also use quantitative, or number driven, methods in their research. These methods use statistical analysis and structured data to find relationships between variables. Polling, survey data, and census information are just some examples of quantitative data that political scientists use in their research. As with qualitative research, there are limits to quantitative research in political science. Quantitative analysis has the potential to oversimply complex data, as well as miss context, depth, and causality. It can also be limited by the sample size and availability of data, which can lead to incomplete findings. Using a combination of qualitative and quantitative methods helps political scientists ensure the accuracy of their research (UMGC, 2025).

Theoretical Frameworks in Political Science Research

Political scientists use theoretical frameworks when conducting their research. These frameworks provide the basis for analyzing relationships within and amongst political systems. In other words, the frameworks provide guide rails for the researchers to help them focus their research through a specific lens. Frameworks are divided into two main types of theory: normative theory and empirical theory. Normative theory focuses on how things should be while empirical theory focuses on how things are, based on evidence. Both these frameworks are useful in understanding how political systems operate, and what policies would be most useful in moving forward. Normative and empirical theories are broad frameworks. Rational choice, institutional theory, systems theory, and critical theory are other frameworks within these categories that further guide political science research (UMGC, 2025).

Rational Choice Theory

Rational choice theory assumes that individuals make political decisions rationally, weighing the costs and benefits of their choices to maximize their personal utility. This theory focuses on self-interest over idealism as the primary motivator for political actions. Rational choice theory assumes that individuals making decisions utilize all available information and resources available in order to make the best choice. Key domestic uses of rational choice theory include explaining voter behavior, modeling how governmental bodies make decisions to help create more effective public policy choices, and studying how institutions emerge and function. On the international level, rational choice theory is used by political scientists to understand why actors behave in certain ways. This information can be used by governments and other international actors to predict how others will behave in given situations (Ainsworth, 2020).

Anthony Downs, an American economist specializing in public policy and public administration, was one of the early rational choice theorists. In his work, An Economic Theory of Democracy (1957), Downs argued that many elements of political decisions could be explained in terms of voter self-interest. In democracies, most voters possess moderate views, with more partisan views being held by the minority of voters. Downs argued that this fact forces political parties to adopt centrist positions in order to win elections. In other words, voters will choose the candidate that best serves their personal interests (Downs, 1957).

Rational choice theory is both normative and empirical. In its normative role, rational choice theory suggests how individuals should make decisions to be rational, providing a standard for ideal decision making. On the other hand, in its empirical role, rational choice theory serves as a tool to explain and predict real-world behavior by assuming that people make calculated decisions to achieve their goals. It is used to test the degree to which an individual's actual behavior aligns with the theory's assumptions. In other words, did the individual(s) pursue their own self-interest, or did they make logical, rational decisions

(Ainsworth, 2020).

Institutional Theory

Another framework for conducting political science research is institutional theory. This framework focuses on institutions and how they shape political behavior and outcomes. It uses a broad definition of institutional, arguing that it includes laws, norms (informal practices), cultural scripts, shared beliefs amongst political actors, and routines. In this framework, institutions are not neutral structures. They shape what political actors want and how they act, utilizing various mechanisms for exerting their influence. For example, rules within a legislature control which bills are put to a vote and when. This has a profound effect on which laws are passed and when (Hoefer, 2022).

Key institutional theorists in political science include American political scientists James March and Michael Cohn, and Johan Olsen, a Norwegian political scientist. Together, March and Olsen created the garbage can model of organizational decision making. In this model, the chaotic reality of decision making is described as an organized anarchy (Hoefer, 2022). The garbage can is used as a symbol to illustrate how decision makers and their range of choices are fluid, changing with each given problem. This theory highlights the ambiguity of decision making.

Like rational choice theory, institutional theory can be both normative and empirical. Normative institutionalism focuses on how shared values and norms guide decisions and creates obligations. Are decisions guided by self-interest or by institutional rules? Do individual actors feel obligated to act in a specific manner? On the other hand, empirical institutionalism uses observation and data to explore how institutions affect political decisions and often focuses on historical data and how things have changed over time (Hoefer, 2022).

Systems Theory

As its name suggests, systems theory is an abstract, mostly holistic view of politics. It views the political system as made up of interrelated parts that form a whole. It is used to analyze how policies are created and implemented, offering a framework for comparing different political systems. In systems theory, the institutions (authority and regime) and the political actors who process the inputs combine to create the political system. The framework includes the study of the system and its environment, or how governmental outputs influence future inputs. Limitations to this framework are its rigidity, focus on Western political systems, and lack of ability to account for factors such as social change. It also fails to explain the decision-making process within the system (Hanumanthappa, 2023).

David Easton, a Canadian political scientist, is one of systems theory's main influencers. Easton's systems theory is abstract in nature, allowing for scientific generalizations with regard to political science. His five-step approach to systems theory groups political acts into feedback loops between diverse people and leaders in a political system (Hanumanthappa, 2023). Human behaviors and actions form the basis of all actions. Easton views politics as a living object that evolved to endure. He was the first to use abstract models to explain the patterns and processes of politics in general (Hanumanthappa, 2023).

Unlike the other theories explored above, systems theory is solely an empirical theory. Theorists such as Easton observe the relationships and interactions of political systems, focusing on their actual interconnectedness and dependencies rather than how they should act. However, there are some systems theorists who incorporate a normative approach to their research, including researching how to improve a system and judgements about desirable outcomes (Hanumanthappa, 2023).

Critical Theory

In political science, critical theory provides a framework that uses social, political, and economic structures to critique or expose both challenges to power and imbalances and inequalities. This framework focuses its lens on power and inequality or how some groups benefit at the expense of others. It emphasizes the social reality within its historical context, challenging existing power structures and norms. Critical theory is multidisciplinary, drawing from political science, sociology, philosophy, and psychology. The purpose of critical theory is to both understand society and to transform it by empowering marginalized groups (Celikates & Flynn, 2023). Unlike traditional theories, critical theory reflects the context of its own origins and aims to be transformative. For these reasons, critical theory is a fluid framework, changing over time.

The Frankfurt School is one of the largest influences on critical theory. The Frankfurt School came out of the Institute for Social Research in Frankfurt in the 1930s. The Institute is known for its interdisciplinary social science research aimed at furthering emancipation, and is heavily influenced by Kant, Marx, Weber, Horkheimer, and Adorno (Celikates & Flynn, 2023).

As with the other political science theories described in this chapter, critical theory is both a normative and empirical theory. It is normative because it critiques society, advocates for change, and explores how society should be. The reliance on data to support the researcher's arguments and ability to understand the social dimensions of power dynamics shows the empirical side of critical theory (Celikates & Flynn, 2023).

Conclusion

Thus far in this chapter, we have defined political science and studied its main components. On one side, we explored political science as an academic discipline, with its subfields, major theories, ideologies, and research methods. On the other hand, we examined the players and types of players including types of institutions, governments, and actors. Uniting the two sides is the concept of power and how power dynamics change relationships. Now, we will turn to technology and how it has shaped power dynamics, and political science over the past century.

Discussions

1. Many countries describe themselves as democratic, yet their political systems can operate very differently. Select two countries discussed in the chapter and compare how their form of government or political system influences political participation and decision-making.
2. Political ideologies provide different visions for how society should be organized. Choose one ideology from the chapter and discuss how its core beliefs might influence government policy on an issue such as healthcare, immigration, education, the environment, or economic inequality.
3. The chapter discusses Erica Chenoweth's 3.5% rule and the Serbian protests of 1996-1997. Do you think ordinary citizens still have the ability to create meaningful political change in the digital age? Why or why not? Use examples to support your position.
4. Consider rational choice theory, institutional theory, systems theory, and critical theory. Which theory do you think provides the most useful explanation for political behavior today? Explain your reasoning and apply the theory to a contemporary political issue or event.

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6.2: Political Science and Technology

Learning Objectives

- Analyze how technological developments have transformed political communication, public engagement, and the relationship between political actors and citizens.
- Evaluate the influence of social media, digital activism, misinformation, and globalization on political participation and political outcomes.
- Explain how data analysis and emerging technologies such as artificial intelligence are used to study political behavior, inform policy decisions, and predict political trends.

Technology plays an important role in political science, helping, among other things, to shape policy, elect politicians, inform voters, identify trends, and predict outcomes. Data analysis, social media, and globalization all influence political science today. However, the use of technology in political science is not new. For example, the invention and popularization of the radio gave President Franklin Delano Roosevelt the ability to speak directly to the public in his Fireside Chats starting in 1933. These chats marked the first time a president was able to speak to the masses without the message being filtered through the media. FDR effectively used the chats to build public trust and sway public opinion, building support for his New Deal (Biser, n.d.).

The Evolution of the News

For centuries, newspapers and public announcements were the main sources of information for the public. News traveled slowly and was often old by the time people heard it. In 1916, inventor Lee Deforest announced plans to broadcast the returns of the presidential election between Woodrow Wilson and Charles Evans Hughes. This marked the first time election results were broadcast to an estimated audience of several thousand people. Early news broadcasts were often a staff announcer reading either newspaper or wire copy or live reports from special events. News journalism continued to develop throughout the 1920s, with one tenth of all radio time devoted to news by 1938 ("The Living Room Fixture", n.d.). This allowed the news to be delivered much more rapidly, giving the public current, not stale, news.

As radio was reaching its heyday, television was just beginning. Like radio, television would have a profound impact on politics. The first live television broadcast news was on December 7,1941 during the attack on Pearl Harbor. It marked the first time that the public could witness historical events in real-time. Live broadcasts helped to create shared experiences in ways that were impossible before, uniting people over time and space. These shared experiences helped to shape societies and their cultures, which in turn helped to shape the political system around them ("When TV Went Live", 2024)

Example

The Nixon-Kennedy Debates

Technology also played a part in another pivotal moment in American history. In the fall of 1960, the presidential debates between Nixon and Kennedy were the first to be broadcast on television. The broadcast gave voters something new: a chance to see the candidates in a more personal way. Prior to the debates, Nixon was favored to win the election. Nixon, who arrived for the debate looking tired, refused stage makeup. Kennedy was young, photogenic, energetic, tan, and used stage makeup. On television, Nixon looked pale and tired, while Kennedy looked and sounded good. Analysis after the debate showed that those who watched the debate on television listed Kennedy as the winner, while those who listened to the debate over the radio listed Nixon as the winner (NCC Staff, 2017).



Kennedy Nixon Debate Chicago, 1960, Associated Press, Public Domain

For many decades, Americans tuned into the news several times a day at scheduled times to get the latest information. Then, in 1980, CNN launched the first 24-hour news channel. The 24-hour news model shifted the structure from scheduled news broadcasts to a relentless cycle of never-ending reporting. Some researchers argue that this has helped to engage the public, fostering deeper engagement and accountability. Other researchers argue that the 24-hour news cycle leads to sensationalism, bias, and mental health repercussions. The number of 24-hour news channels allow for networks to cater to specific political ideologies. Examples include MSNBC and Fox News (DiLascio, 2025).

Social Media

As noted above with FDR's use of the Fireside Chats to build support for his New Deal, the media has long served as a political science tool. The media in all forms can be used by politicians to control the narrative, sway public opinion, build public trust and support for specific programs, or attempt to increase public distrust by spreading misinformation. The advent of social media in the 21st century has only increased the role of the media in shaping politics to levels that have not been seen before. In addition to allowing candidates to connect and interact with potential voters, lobbyists, NGOs, and politicians use it to gain support for their causes. Almost every candidate and politician now has a social presence, often controlled by staff members rather than the candidate herself. Social media has become an important part of political campaigns, often combining a mix of strategic communication and letting the audience do the rest. While having a social media presence is not a guaranteed win for a candidate, it can positively influence political success (Connolly, 2025).

Political scientists study how social media affects the political process, from political participation in elections to policy outcomes. Some questions asked by political scientists with regards to social media include but are not limited to how political content on social media affects the public's knowledge and participation, the role of social media in political polarization, and how campaigns utilize social media to get out their message and voters. Key areas that political scientists focus on include political participation, democratization, and collective action.

Echo Chambers

Social media has helped people connect with friends and family, their local communities, people with similar interests, and bargain hunters. However, the algorithms used by social media serve to reinforce users' biases, eventually showing them only information that agrees with or echoes their viewpoints, and extremist ideas are amplified (Barbera, 2020). This bubble or echo chamber prevents people from hearing different viewpoints or perspectives and reinforces their political views. The reality, however, is much more complex. It's true that echo chambers are common on social media, but cross-cutting interactions, including those from weak connections, are also common. Research on the role of cross-cutting interactions is mixed, with some studies showing that repeated exposure leads to political moderation, while other studies suggest that it may have polarizing effects (Barbera, 2020).

Political scientists researching echo chambers study how they affect the political process, elections, and the role of increasing political polarization of the political process and government institutions (Barbera, 2020). Some questions asked by political scientists about echo chambers include but are not limited to what is the extent of echo chambers in political discourse, how do echo chambers influence the public's perception of the democratic process, how do political echo chambers form, and how can their influence be limited. Key areas that political scientists focus on include political polarization, democratization, and collective action.

Misinformation and Disinformation

Technology allows for the rapid spread of misinformation and disinformation. Misinformation is false information that is spread without the intent to harm while disinformation is the deliberate spread of false information. Social media makes the spread of both misinformation and disinformation easy. People sharing posts often do not verify the information, increasing the spread of false information. The more often false information is repeated, the more believable it becomes. Effective democracy relies on informed citizens and evidence-based discourse. However, political scientists are not in agreement as to the true effects of misinformation and disinformation on the political process. Countering misinformation and disinformation has become an essential part of the political process. Educating people to verify information, or fact-check, prior to sharing is one method of countering false information. Forewarning or pre-emptive correction either in fact-based or logic-based information is another proven method. (Ecker, 2024).

Political scientists study how misinformation and disinformation affect the political process, from political participation, elections, to policy outcomes. Some questions asked by political scientists with regards to misinformation and disinformation include but are not limited to what is the effect of misinformation and disinformation on the political process, how do state actors, campaigns and other political actors utilize disinformation as a political tool, and how does AI alter the credibility of news? Key areas that political scientists focus on include political polarization, political participation, and collective action (Ecker, 2024).

Digital Activism

Political activism can take many different forms, from public demonstrations to strikes, boycotts, sit-ins, and so on. Changes in technology have led to new forms of activism, including digital activism. Digital activism involves the use of social media, blogs, email lists, websites, or other digital platforms to organize, communicate, and mobilize individuals for social and political causes. Beginning with email advocacy and email lists to spread information, the use of technology for advocacy has exploded in the 21st century. Email, newsletters, and social media all serve to engage a movement's audience, informing them of events and campaigns. Social media platforms have become essential to modern activism. It has the added benefit of allowing followers to participate in the movement by commenting and sharing their own stories and content, including visual content, to keep the movement going. Regular posting on social media helps movements to build community. Using social media influencers with large numbers of followers and hashtags can further spread a movement's message. Online platforms also assist movements with organization and digital petitions ("Digital Activism and Online Campaigns", 2025).

Political scientists study digital activism and how it influences political participation, public policy, elections, and governance. Some questions asked by political scientists with regards to political science include, but are not limited to, how does digital activism increase or decrease political participation, how does digital activism affect policy and political institutions, as well as how to governments respond to digital activism. In other words, when studying digital activism, political scientists often focus on political participation, collective action, and democratization.

While digital advocacy has many benefits, there are some downsides. Among them is the spread of misinformation, which was discussed above. Astroturfing is another downside to digital advocacy. Astroturfing is an artificially manufactured political movement that appears to be a grassroots movement. Often presenting a skewed or biased view of public opinion, astroturfing is a coordinated effort by a small group of people or organizations. These well-funded campaigns do not have actual support from voters. Instead, they are used as a means of manipulating public opinion or gaining support for a specific issue. Astroturfing also allows people from outside a community to influence events from afar without support from the local community (Goddard, 2026).

Example

#MeToo

Digital activism allows small groups of people to effect greater change. One example is the #metoo movement and its fight against sexual violence. Starting in 2006 as a small grassroots movement by survivor and founder Tarana Burke, #metoo went viral in 2017. The #metoo movement drew worldwide attention to the magnitude of the issue with millions of people chiming it to say that they too were victims of sexual violence. This led to significant cultural, legal, and workplace changes with numerous prominent men losing their jobs after public accusations. Today, #metoo is a global movement that continues to support survivors of sexual violence from all walks of life, advocating for justice while seeking to collaborate and encourage action in communities across the globe ("Take Action", 2025).

Globalization

Globalization is a term that has been around for decades, but what does it really mean? Political globalization is the intensification and expansion of political interrelations around the world. In other words, it is the increased interdependence politically, economically, socially, and culturally. From a political perspective, globalization, including the growth of supraterritorial institutions, has put pressure on the traditional forms of global governance, including the concepts of sovereignty and nation-state. Other effects of globalization on the political process include greater tolerance due to increased cultural interactions and, on the other side, an increase in political resistance and opposition to change and increased interdependence (Steger, 2020).

Political scientists study how globalization affects the political process, from political participation to policy outcomes, political economy, and international relations. Some questions asked by political scientists with regards to globalization include but are not limited to how globalization has changed the concept of national sovereignty, does globalization increase or decrease democratization, and how effective are international organizations. Key areas that political scientists focus on include political participation, democratization, and collective action.

Data Analysis

Media is not the only way that technology is used in political science. Data analysis, or systemic collection, organization, and interpretation of data is an essential aspect of political science. It allows political scientists to study various aspects of politics and gain insights into the functioning of political systems and the behavior of political actors. Political scientists use data analysis to test hypotheses, make predictions, and draw conclusions about political behavior. Data is used to bridge the gap between raw data and actionable insights (V., 2022).

Today's political scientists use artificial intelligence (AI) to collect and analyze data. Machine learning techniques are used to build artificial intelligence agents that can assist with pattern recognition, classification, and prediction faster than traditional statistical methods. Computers can also help political scientists to interpret data, including visual content such as political ads, protest footage, and political posters. AI and its ability to rapidly analyze data expand the political science toolkit by allowing them to uncover new insights at a greater scope than ever before (Sakhri, 2024).

Identifying Trends and Predicting Outcomes

Two common uses for data in political science are to identify trends and predict outcomes. Identifying trends includes pattern recognition, historical analysis, qualitative insights, and data transformation. This focuses on current and past trends. Predicting outcomes, on the other hand, focuses on future events or conditions. Prediction uses statistical modeling, probabilistic estimates, and scenario analysis. When combined, identifying trends and predicting outcomes help political scientists to understand the political landscape, project likely outcomes under different scenarios, and validating predictions.

As with data analysis, artificial intelligence plays an important role in identifying trends and predicting outcomes. Political scientists use AI to create models that run simulations to help them predict outcomes in any number of situations, from war games to election outcomes. It can also help to identify trends that can help policy makers formulate effective policies or candidates focus on the issues that matter most to voters. In addition to using AI to identify trends and predict outcomes, political scientists use digital information such as public social media posts, online news coverage, speeches, and public documents to identify trends and help them to predict outcomes (V., 2022).

Dewey Wins

The November 1948 presidential election was one of the biggest upsets in U.S. presidential election history. Polls taken ahead of the election predicted that Dewey would beat Truman by a landslide. Press deadlines in 1948 required that the next day's paper go to press before election results were announced. However, Truman beat Dewey by a substantial margin in the Electoral College and by a few million votes in the popular vote. Relying on the polls, the Chicago Daily Tribune famously published a large headline: DEWEY DEFEATS TRUMAN. Two days after the election, as Truman was traveling to Washington, D.C., someone handed him a two-day old copy of the Tribune during a stop in St. Louis. W. Eugene Smith took the famous picture below. (Cosgrove, 2020).



W. Eugene Smith, Public Domain

Data and Elections

Data analysis plays an important role in elections. It has evolved from simple polling to complex data analytics to seek to predict voter behavior. Today's candidates and political parties rely on data to help them refine their strategies, target voters, and maximize their chances of winning elections. Data analysis provides campaigns with information on which groups can be persuaded on specific issues. This allows campaigns and political parties to tailor their messages accordingly. Past voting data is used to predict which demographics are the most likely to vote, allowing candidates and their campaigns to focus on specific areas that allow them to garner the most votes. Data analysis is also used to track voter sentiment on social media posts and internet searches, allowing campaigns to pivot in real time and allocate resources where it will make the most difference. Analysis can be done on the national, state, and local levels. Machine Learning Algorithms or AI can be used to analyze large data sets to simulate and predict election outcomes under a variety of situations, providing candidates with valuable information on how to focus their messages, advertising, and outreach (El Khirani, 2024).

Data and Policy Making and Optimizing Public Services

In the 21st century, data has become essential to both policy decisions and optimizing public services. Data is involved from the formation of policy to its implementation and optimization over time. It has the ability to help policy makers turn policy goals into effective policy with measurable results. At the policy formation stage, data analysis allows policy makers to run various scenarios, evaluating alternatives, anticipating consequences, and understanding possible broader policy implications. The ability to critically examine real-world challenges using multiple research approaches discussed above builds a comprehensive understanding of possible policy effects. This knowledge helps policy makers create effective and efficient policies (UMGC, 2026).

Once a policy has been implemented, governments rely on real-time dashboards and performance measurement systems to track both policy implementation and outcomes. This close monitoring of policies allows governments to adjust policies in real time. The data also permits government officials and other stakeholders to identify trends, outliers, and where to best focus their attention. Furthermore, access to data allows more stakeholders the ability to participate, incorporating diverse perspectives, and

better identifying power dynamics and structural barriers (UMGC, 2026).

Facilitating Public Engagement

Technology, including data analysis, serves to facilitate public engagement in the political process. This can be as simple as electronic voting or the ability to interact directly with candidates on social media. However, it can also be more complex. Today's technology allows policy makers, among others, to easily turn data into visuals, such as charts and graphs. This visualization exposes patterns in the data. Visualization helps policy makers interpret data to create and improve policies as well as improve the delivery of services. Data visualization is not just for policy makers. It allows those with interests in policy, such as lobbyists, to develop and disseminate easy to understand policy suggestions from their own perspectives. Policy makers use data visualization to inform the public about why and how policy decisions are being made. This helps to get public support for policy decisions. In other words, open data and data visualization provide more access and invite public participation (Williams, 2016).

Data is not the only way to facilitate public engagement. Live streaming meetings and hearings along with the ability to submit comments electronically means the public can engage more deeply in the political process. The posting of government hearings online also means that the public can remain informed even when meetings/hearings conflict with their work schedules. An informed public is more likely to participate in the political process, including voting.

For those interested in exploring the use of data further, check out U.S.Government Data [data.gov] which has over 350,000 open datasets available for public use.

Data and Compliance Checks

Compliance checks or audits are an essential component of political science. Compliance checks or audits are detailed reviews by government agencies, individuals, or other entities that show how an individual or group is following the rules and regulations set by government officials. These compliance checks help to ensure that all government rules and regulations are being properly followed. This comprises all aspects of society, including food safety, environmental, and health regulations. While there is no single method for conducting compliance checks, data and technology have made the process much easier. There are many different compliance software programs on the market, including those that use Artificial Intelligence (AI), that are designed to help entities check their compliance and make any necessary adjustments. Compliance software allows businesses to use real-time data to monitor their activities, spot risks early, helping to ensure compliance, and streamline the required regulatory reporting ("How Real-Time Data Makes Compliance Easier to Manage", 2025).

Data and Prediction of Increased Risk of Politically Based Violence

The final use of data in political science that will be explored in this chapter is to predict areas at increased risk of politically based violence. Political scientists use data to analyze incidents of political violence and unrest to predict future trends. These predictions help law enforcement, governments, IGOs, and NGOs to create resilience and response strategies to prevent or mitigate future politically based violence. Prediction of increased risk of politically based violence is done at all levels of government but is essential to international relations and diplomacy with regards to conflict prevention. In the past, conflict prevention depended largely on individual political and diplomatic knowledge and was subjective in nature. Today's technology, including AI, allows large amounts of data to be pulled from various sources, including satellites, social media, and other forms of open source (public) information. The larger data set allows for fewer biases and creates more consistent results allowing for a more proactive response to be developed (Macis et. al., 2024).

Downsides of Data Analysis

Data analysis frees up policy makers to focus on strategic content and increase transparency. The benefits provided are immeasurable to policy makers and political scientists. However, it is important to note that any analysis is only as good as the data collected, and data sets are only as good as their programmers. Biased data will result in biased outcomes. These biased outcomes in turn can lead to unfair or discriminatory policies. Biases can influence or be used to manipulate data resulting in biased and inaccurate results. It is essential that biases be addressed, and the sources of data be validated prior to relying on any analysis. Consent, privacy, and transparency are also factors in data analysis. Consent is often not required for data to be collected, and regulations vary on how this information is kept private and secure. Data breaches are common and may lead to cases of identity theft and other forms of misuse ("Pros and Cons of Big Data", 2024).

Discussion

1. The chapter describes how radio, television, and social media changed the way political leaders communicate with the public. Which technological development do you think has had the greatest impact on politics, and why? Use examples from the chapter to support your response.
2. Social media can increase political participation and provide a platform for diverse voices, but it can also contribute to misinformation and political polarization. Do you think social media has had a more positive or negative effect on democracy? Explain your reasoning.
3. The chapter discusses digital activism and movements such as #MeToo. In your view, can online activism create meaningful political or social change, or is real change more dependent on offline actions? Support your argument with examples.
4. Political scientists increasingly use data analysis and artificial intelligence to predict elections, develop policies, and identify political trends. What are the potential benefits and risks of relying on data and AI in political decision-making? Do the advantages outweigh the concerns? Why or why not?

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6.3: An Interdisciplinary Approach to Digital Activism

Learning Objectives

- Compare how sociology, psychology, anthropology, and gerontology examine digital activism and explain how these perspectives contribute to a more comprehensive understanding of social and political change.

As discussed previously in this chapter, digital activism is when people or groups of people use technology to advocate for political, social, and/or cultural changes. The different social sciences view digital activism through different lenses. In this part of the chapter, we will explore how sociology, psychology, gerontology and anthropology view digital activism through their own lenses. Each discipline highlights a different aspect of how digital activism is used to make changes. When taken together, along with the political science perspective, one can start to gain an understanding of the important role digital activism plays in societies.

Sociology and Digital Activism

Sociology focuses on societies, their interactions, and the processes that preserve or change them. With regards to digital activism specifically, sociologists study how digital activism shapes social movements, collective identities, and social change. They explore how digital platforms and tools are reshaping collective action, societies, and identities. Digital activism allows more people to contribute, adding to the flow of information and further increasing participation. When studying digital activism, sociologists ask questions that include but are not limited to how do underlying structures and resources influence digital activism, how do these movements form and spread, and what is the impact of these movements on societies and individuals? Sociologists also study the evolution of digital activism, its empirical impacts, and its demographic patterns. These patterns help sociologists identify challenges as well as future trajectories of digital activism. Key topics in sociology and digital activism include social movement theory, how the public networks, collective identity, and resource mobilization (Sci-Tech society, 2025).

Psychology and Digital Activism

Psychologists, on the other hand, study the mind and behavior, including both conscious and unconscious behavior. With regards to digital activism, psychologists focus on individual attitudes, emotions, motivations, cognition, and behavior related to digital activism. They explore psychological impacts, including how digital activism empowers and amplifies voices, but also its costs, such as increased anxiety, stress, and trauma. Digital activism leverages psychological needs for belonging, identity, and agency. When studying digital activism, psychologists ask questions that include, but are not limited to, what motivates people to engage in digital activism, how emotions spread through social media, and how it allows individuals to express experiences and options. Psychologists also examine motivations for collective identity, shared values, the ability and desire to influence public discourse, and how anonymous online posts change individual behavior both on and offline (Greijandus, 2020). Digital activism allows individuals to relate to collective causes by expressing experiences and opinions. Data shows it has the ability to amplify youth voices and drive real-world change, making it a vital means of mobilizing change. Psychologists also explore the effects of generational differences in viewing digital activism and how these differences affect individual and group behavior (Stern, 2025). Key topics in psychology and digital activism include individual motivations, emotions, behavior, and the effects of gaslighting and anonymity on individual and group behavior.

Anthropology and Digital Activism

Anthropologists are social scientists who focus on culture, meaning, and lived experience. Digital anthropology is a subfield that is gaining ground. This subfield focuses on digital media and the study of online communities (Lee, 2025). With regards to digital activism, anthropologists, and especially digital anthropologists, focus on understanding online cultures and communities, identifying shared values and mobilization opportunities, and analyzing the impact of digital activism. Anthropologists analyze the impact of digital activism, including strategies and power dynamics. They seek to understand how to enable and constrain digital movements. When studying digital activism, anthropologists ask questions that include but are not limited to how digital activism influences social norms, values, and behaviors; the role of digital rhetoric in digital activism; and how social, cultural and economic context shape digital activism. By studying the cultural and social dimensions of movements, anthropologists provide

activists and policymakers with information that can help them develop more effective strategies for social and political changes (Lee, 2025). Key topics in anthropology and digital activism include culture, lived experience, communities, and shared values and their impacts.

Gerontology and Digital Activism

Gerontology is an interdisciplinary study of aging. Gerontologists study the roles of biology, psychology, public policies, public health, physiology, and mental health across the aging process. With regards to digital activism, gerontology focuses on aging populations, digital inclusion, and civic participation among the elderly. Gerontologists explore the digital participation of older adults, their inclusion or lack thereof in civic engagement, and aging in digital societies. When studying digital activism, gerontologists ask questions that include, but are not limited to, how older adults use digital technologies for advocacy or activism, the barriers to their digital participation, and how digital activism can support healthy aging and civic engagement. By studying older adults and digital activism, gerontologists can seek to understand how to increase their digital literacy and thereby increase digital participation and civic engagement (Reuter, et al, 2020). Gerontologists also seek to learn from older activists who have appropriated a wide range of media technologies to support their advocacy (Barranquero, 2022). Understanding how older adults become digital activists can help all social scientists to increase public participation and civil engagement for all. Key topics in gerontology and digital activism include digital inclusion, civic engagement, digital literacy, and social participation.

Social Sciences and Digital Activism

This section showed how the different social sciences research a single topic, digital activism. However, social scientists do not work in a vacuum. Each field focuses on a different aspect of digital activism. When combined, the social sciences can provide a fuller picture of an issue. Policy makers and activists seeking to understand the role of digital activism can use information from each of the social sciences. This has the potential to lead to better organized, more effective and efficient campaigns, increased civil engagement, and better policies.

Discussion

1. Each social science examines digital activism from a different perspective. Which disciplinary lens (sociology, psychology, anthropology, or gerontology) do you think offers the most useful insights into digital activism, and why? Use examples from the chapter to support your response.
2. The chapter suggests that digital activism can amplify voices and increase participation. In your opinion, does digital activism create meaningful social and political change, or does it primarily raise awareness? Explain your reasoning.
3. How might a sociologist, psychologist, anthropologist, and gerontologist each interpret the #MeToo movement differently? Identify at least two disciplinary perspectives and discuss what unique insights each would contribute to understanding the movement.

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7: AN INTERDISCIPLINARY APPROACH TO THE SOCIAL SCIENCES

Learning Objectives

- Define interdisciplinarity and distinguish it from multidisciplinarity in the study of complex social issues.
- Explain why complex social problems often require the integration of perspectives from multiple social science disciplines.
- Analyze how anthropology, sociology, psychology, political science, and gerontology contribute complementary insights to understanding human behavior and social phenomena.
- Apply an interdisciplinary approach to evaluate contemporary issues such as technology, aging, public health, education, or inequality.

7.1: The Social Sciences- An Interdisciplinary Approach

7.2: References

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7.1: The Social Sciences- An Interdisciplinary Approach

Learning Objectives

- Define interdisciplinarity and distinguish it from multidisciplinarity in the study of complex social issues.
- Explain why complex social problems often require the integration of perspectives from multiple social science disciplines.
- Analyze how anthropology, sociology, psychology, political science, and gerontology contribute complementary insights to understanding human behavior and social phenomena.
- Apply an interdisciplinary approach to evaluate contemporary issues such as technology, aging, public health, education, or inequality.

Human beings live within families, communities, organizations, cultures, economies, and political systems. We are influenced by social norms, public policies, technological developments, historical events, and cultural values, often at the same time. Because these influences overlap and impact one another, social scientists increasingly rely on interdisciplinary approaches to better understand the world around them.

In the introduction to this textbook, we asked you a simple question: What are the social sciences? Through each chapter of the book, you learned about anthropology, sociology, psychology, political science, and gerontology as disciplines that help us understand people in their social worlds. We discussed how each field emerged, the questions it asks, the theories it uses, and the methods employed to study human behavior and society. Although each discipline approaches social life from a unique perspective, one of the most important lessons of this textbook is that none of them operates in isolation. Human behavior is complex, and social life is too interconnected to be fully understood through a single disciplinary lens. For each of the disciplines in this book you learned how they address the single issue of technology through each of their unique perspectives. A case study of one technology was presented in each chapter as an example of how the social sciences work together to address a single issue.

When publishing a study in a peer-reviewed journal, authors are tasked with identifying the limits to their work in a "limitations" section. Peer-reviewers are tasked with the same – they ask themselves, "What angle did this author not consider?" A common theme among these "limitations" – the realization that the study focused on one part of a complex issue. Consider a psychologist who found that people under save for retirement because they tend to be over-focused on "the now." In their limitations section they might caveat that this finding doesn't speak to the Black family in a formerly redlined neighborhood who simply has less home equity to save from in the first place.

Likewise, a sociologist's investigations could uncover that lower-income students are less likely to apply to competitive colleges - *even when their test scores qualify them*. Their limitations section might admit they are missing the psychological angle, which would take into account how financial scarcity narrows attention and makes long, complicated application processes harder to follow through on.

An anthropologist conducting an ethnography might note in their manuscripts that residents in the community they are living in view of accepting welfare as shameful. A peer reviewer might write back with the suggestion that the author speak to how such a stigma was reinforced by the 1996 welfare reform law. That law set work requirements and time limits that reinforced the notion that if one needed assistance it was a personal issue. And that this personal issue should be solvable in said time limits and with ready opportunity for work.

Note that in each case, the single-discipline account is not *wrong*, simply incomplete. The fuller explanation comes into sharper relief when the psychological, structural, cultural, and policy pieces are considered together.

Defining Interdisciplinarity

The term interdisciplinary refers to the integration of knowledge, theories, concepts, methods, and perspectives from two or more disciplines to address a complex question, problem, or phenomenon (Klein, 1990; Repko & Szostak, 2020). The main concept in this definition is integration. Interdisciplinary work is not only about bringing together different disciplines, viewing them "side by side." It means *combining* their perspectives to create a richer, fuller understanding than any single field could produce on its

own.

This characteristic is important because *interdisciplinarity* is often confused with *multidisciplinarity*. In multidisciplinary work, scholars from different disciplines may examine the same issue, but their perspectives remain largely separate. Each researcher contributes findings from their own disciplinary perspective. Interdisciplinary work goes a step further by actively connecting and synthesizing those perspectives into a unified explanation (Repko & Szostak, 2020).

For example, imagine a research team investigating adolescent social media use. A multidisciplinary approach might involve psychologists studying the mental health angle, sociologists taking on the forming of peer networks, political scientists exploring the government's responsibility to regulate adolescent social media use, and anthropologists analyzing subcultures that only exist in these virtual spaces. Obviously, each researcher would contribute important findings. However, an interdisciplinary approach would strive to connect those findings and explain *how* online culture, peer dynamics, mental well-being, and platform regulation interact in various ways to influence social media-using adolescents.

Interdisciplinary research developed because some questions cannot be answered effectively from within disciplinary boundaries. Complex problems often require multiple points of analysis because reality itself is not delineated into strict academic fields (Klein, 1990). In other words, human behavior is not psychological, social, cultural, economic, *OR* political. It is all those things, all at the same time.

Why Interdisciplinary Thinking Is Important

Interdisciplinary thinking matters because the social world and the humans in it are multidimensional, interconnected and, well, super complex. A tornado is caused by warm, humid air rising up into cooler air. But a human's behavior? Can it be reduced to one simple explanation like that? Obviously not. There are almost too many variables to count! Take education, for example. You have learned in previous chapters that while it may be tempting to attribute academic success entirely to intelligence or individual motivation, social scientists have shown that educational outcomes are influenced by a much broader range of factors - cognitive development, learning styles, memory, motivation, school quality, social class, peer groups, family resources, cultural beliefs about education and achievement, educational policy and funding structures. And believe it or not, the list could continue on!

We can apply the same logic to the issue of public health. Medical conditions are traditionally viewed as "biological problems," yet social scientists have demonstrated that our health is very strongly influenced by income, housing, education, social support, and access to healthcare (Link & Phelan, 1995). During the COVID-19 pandemic, for instance, researchers quickly realized that understanding the spread of disease required much more than epidemiological knowledge. Public health officials needed psychological insights about behavior change, sociological analyses of inequality, anthropological understanding of cultural practices, and political science research on governance and public trust.

Interdisciplinary thinking is also important because major societal challenges rarely fit neatly into disciplinary categories. Issues such as climate change, artificial intelligence, political polarization, migration, population aging, and economic inequality all involve multiple dimensions of social life. Attempts to address these issues from a single perspective often overlook important factors that contribute to the problem. Therefore, social scientists have begun to increasingly recognize that solving difficult social problems requires the collaboration of individuals trained to think from a variety of perspectives (National Research Council, 2005).

The Roots of Interdisciplinarity

Throughout the twentieth century, social scientists increasingly encountered questions that could not be answered through one disciplinary lens. Tech booms, globalization, population growth, climate change, pandemics, and the increasingly obvious wealth gap exposed the limitations of a single discipline approach. Specialization was certainly valuable, but it was insufficient for understanding modern day social issues (National Research Council, 2005).

From this need, disciplines like gerontology, public health, environmental studies, urban studies, cognitive science, communication studies, and gender studies were born; these fields integrated theories, concepts, and methods from multiple disciplines to yield fuller explanations of society's most pressing issues (Klein, 1990; Repko & Szostak, 2020).

In recent decades, interdisciplinary research has increased in popularity. Universities built interdisciplinary research centers and began offering academic programs that facilitated collaboration across disciplinary silos. Interdisciplinary research has become increasingly valued by universities and funding bodies, and successful grant applications in some research areas often rely on

interdisciplinary collaboration (Evis, 2022).

Similarly, professional organizations have expanded opportunities for collaboration among researchers from different disciplinary backgrounds. These developments reflect academia's increasing awareness that most contemporary issues cannot be understood through a single lens. Interdisciplinary approaches are needed to develop practical solutions to real-world problems (Ledford, 2015; Mahringer et al., 2023).

It is important to note that no babies are being thrown out with the bathwater here. Interdisciplinarity depends on the traditional disciplines it draws from. Consider, as an example, a gerontologist who is studying trends in retirement. This researcher might use economic models of household savings, psychological research on identity and well-being, and sociological work on family caregiving. This researcher is making connections and integrating long-standing expertise and traditions within each of these individual academic "silos." Without the depth that each discipline has built over time, there would be little to integrate.

How Interdisciplinarity Works

Interdisciplinarity is used in the social sciences in several ways. First, researchers frequently borrow theories and concepts from neighboring disciplines. Some examples:

- Sociologists may incorporate psychological theories of personality and identity into their studies of social interaction.
- Political scientists are very aware of sociological theories of inequality as they endeavor to understand things like voting behavior.
- Anthropologists draw on psychology's understanding of human thinking and cognition to explain how people develop cultural meaning in their lives.

Second, interdisciplinary researchers share their research methods with each other, often integrating their expertise in mixed methods approaches – approaches that combineuantitative and qualitative methods. For example, survey data may be paired with ethnographic observations. Experimental findings may be supplemented with interviews. Large-scale statistical analyses may be combined with case studies.

Third, interdisciplinary approaches are often conducted by collaborative research teams. Large research projects may include psychologists, sociologists, anthropologists, political scientists, economists, and public health researchers working together to address a common research question. An apt example of this would be the Health and Retirement Study (HRS), a long-running survey of Americans over age 50 based at the University of Michigan. Since 1992, economists, sociologists, psychologists, demographers, and medical researchers have used this rich and multidisciplinary database to examine how health, wealth, work, and family relationships influence the aging experience (Sonnega et al., 2014).

And lastly, it is often the case that completely new fields emerge from prolonged interdisciplinary collaboration. Here are a few examples:

- Behavioral economics: combines psychology and economics.
- Political psychology: integrates political science and psychology.
- Medical anthropology: bridges anthropology and healthcare.
- Environmental sociology: examines interactions between society and the natural environment.
- Gerontology: considered one of the most interdisciplinary social science fields of all since it incorporates insights from sociology, psychology, biology, anthropology, public health, and political science!

Technology as an Interdisciplinary Issue

We've used technology as the recurring example throughout this book because it demonstrates how interdisciplinary thinking works in practice. Artificial intelligence (AI) for example - AI is not "just" a technological development. It is also a social, psychological, cultural, and political phenomenon.

Psychologists study AI's impact on human attention span, learning, critical thinking, and trust; sociologists, on the other hand, might focus on AI's effects on work and inequality. Anthropologists might consider how communities adopt (or resist) new technologies, and political scientists would look at how and whether governments regulate AI.

A gerontology case shows us how interdisciplinary work can create solutions for a pressing, real-world, AI-focused issue. Example:

AI-powered home monitoring for older adults. A gerontologist might find that fall-detection sensors let people stay in their homes longer. Whether older adults *actually* use these systems, though, depends partly on how much they trust them, which is a psychological question. Who can afford them is a question of inequality, and whether families see monitoring as care or as intrusion varies across cultures. Because the devices collect data inside people's homes, they also raise privacy concerns that fall to policymakers. A study drawing on only one of these fields might conclude that the technology works while missing why people don't use it.

Aging as a Model of Interdisciplinary Research

Speaking of gerontology - no discipline discussed in this book demonstrates interdisciplinarity more clearly than gerontology. Aging no doubt involves biological changes, psychological development, social relationships, cultural expectations, and political institutions. Consequently, gerontology has always relied upon multiple disciplines.

Let's consider an older woman who, after her husband dies, must decide whether she wants to stay in her home or move to a long-term care facility. And consider you have a psychologist, sociologist, anthropologist, and political scientist in a room together talking about her. The conversation might go like this:

> **Psychologist**: "Would grief or early memory loss affect her ability to live alone?"
>
> **Sociologist**: "If she does stay home, it is likely that more care responsibilities would fall to a daughter which is a consideration; but if she wants to move to a long-term care home, she'll need to consider the size of her savings."
>
> **Anthropologist:** "In some cultures having an adult child provides some level of care is expected. But in others, it is the proverbial nail in the coffin on one's independence. We should look at her and her family's cultural values here."
>
> **Political scientist:** "In the United States, Medicaid requires states to cover nursing home care but most home care is considered 'optional.' This is the 'institutional bias' that often strongarms older adults toward nursing home living they really don't want" (Caldwell & Machledt, 2022; Mohamed et al., 2025).

The **gerontologist** understands this: Her decision feels personal, but family expectations, finances, and public policy also drive it. Millions of families face decisions like hers, and research that treats them as only psychological or only economic will oversimplify this really important decision-making process.

The Benefits of Interdisciplinary Thinking for Students

One benefit of interdisciplinary thinking is intellectual flexibility. Students who learn to integrate knowledge across disciplinary boundaries become better equipped to evaluate social issues from multiple perspectives and develop more sophisticated understandings of complex social phenomena (Ivanitskaya et al., 2002). Interdisciplinary thinking also promotes critical thinking by encouraging students to explore multiple explanations and consider how different forms of evidence can be integrated before reaching conclusions (AAC&U, 2009). Rather than asking which explanation is correct, interdisciplinary thinkers often ask how multiple explanations may work together.

Another benefit is practical problem solving. Real-world challenges – of any variety, social or otherwise – rarely conform to the boundaries of a single discipline. Interdisciplinary learning encourages students to draw upon diverse forms of knowledge when engaged in any important problem-solving activity (Zhang et al., 2025). Higher education institutions view interdisciplinary education as an important way of preparing students to collaborate across multiple areas of expertise and address complex societal challenges in their future careers (Visscher-Voerman et al., 2026).

Additionally, interdisciplinary thinking helps students become more informed and engaged citizens. Contemporary public debates surrounding issues like healthcare, education, technology, and economic inequality require flexible, open, and fully informed thinking. Helping students develop these capacities is a central goal of higher education in democratic societies (AAC&U, n.d.).

And, lastly, it is exactly this kind of informed, engaged person that the workforce is looking for. The employment-seeking graduate might consider this: Who would you rather hire? Someone who:

- has deep knowledge in one area and relies on it, or
- has that same depth of knowledge but also recognizes the other issues at play and wants to learn more about them?

For most employers, the answer is obvious.

Challenges and Limitations of Interdisciplinary Work

Despite its advantages, interdisciplinary research is not without challenges.

Different disciplines often use different terminology, methodologies, and standards of evidence. Psychologists, for example, often lean heavily on experimental research, while anthropologists prize ethnographic observation. Political scientists focus on institutional analyses, while sociologists will always go to understanding structural relationships first. These differences can make collaboration difficult. Researchers must learn how to communicate across disciplinary boundaries and appreciate alternative ways of generating knowledge. The ego, the bias, and the "if one is right the others are wrong" perspective, if they are there, must go.

Interdisciplinary work can also require significant time and effort. Developing expertise across multiple areas is challenging. Scholars must balance breadth with depth, ensuring they do not sacrifice disciplinary rigor while endeavoring to understand the "big picture." Nevertheless, most researchers view these challenges as worthwhile because the benefits often outweigh the difficulties. The intricacies of contemporary social problems make interdisciplinary collaboration increasingly necessary.

The Future of the Social Sciences

In the future, interdisciplinarity within the social sciences is likely to become even more important. As society progresses, things certainly don't become simpler; indeed, they get more and more complicated. The future of the social sciences will almost certainly require greater collaboration among disciplines. Researchers will continue developing innovative methods that integrate insights across fields. Computational social science is an example of this (Lazer et al., 2009). Researchers now combine computer science with sociology, psychology, and political science to study huge amounts of digital data (e.g., social media posts, search trends, phone location data). They might use big data to track how misinformation or disinformation spreads or how people's movement changed during COVID lockdowns.

On top of that, new interdisciplinary areas of study will emerge as social conditions change and new challenges arise. In 2023, the U.S. Surgeon General declared loneliness and isolation a public health epidemic (Office of the U.S. Surgeon General, 2023). To curb this epidemic, we must study it. And studying it draws on psychology (mental health), sociology (shrinking social networks), public health (links to heart disease and early death), and policy (what communities can do).

At the same time, traditional social science disciplines will remain important. Interdisciplinary work depends upon strong disciplinary foundations. Scholars must first understand the theories, methods, and concepts of individual fields before they can effectively integrate them. For students, this means that specializing is not the opposite of interdisciplinary thinking. Instead, it is the foundation upon which interdisciplinary thinking is built.

Final Reflections

At the beginning of this textbook, you learned that the social sciences help us understand human behavior within its social context. Now it should be clearer that understanding those contexts requires more than one perspective. Human beings are influenced by "all the things" (in the parlance of our times) - culture, social relationships, psychological processes, political institutions, and life course experiences.

The greatest strength of the social sciences is not that they offer "an" explanation for all things human. It is that they offer multiple complementary perspectives that can be blended into a more complete understanding of human life.

Discussion

1. The chapter argues that no single social science discipline can fully explain complex social issues. Do you agree, or do you think some problems can be adequately understood through a single disciplinary lens? Defend your position.
2. The chapter claims that interdisciplinary explanations are more complete than single-discipline explanations. Is a more complete explanation always a better explanation? Why or why not?

3. If you had to remove one discipline (anthropology, sociology, psychology, political science, or gerontology) from the study of AI, which would contribute the least and why? What would be lost by removing it?
4. The chapter suggests that future social problems will require more interdisciplinary collaboration. Identify a current social problem and explain which discipline you think would have the greatest influence on solving it.
5. Interdisciplinary work requires researchers to balance breadth and depth. Is it better to know a great deal about one discipline or a moderate amount about several disciplines? Explain your reasoning.

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GLOSSARY

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Sample Word 1 | Sample Definition 1

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