PSYCHOLOGY, ART AND CREATIVITY

Shannon Whitten

ROUTLEDGE

Psychology, Art and Creativity

This comprehensive text challenges the taken-for-granted opposition of science and art by combining the fundamental principles of psychology, art, and creativity and presenting the interdependent disciplines together in one unique, clear, and accessible resource.

The author, Shannon Whitten, begins with an introduction to the foundations of art and psychology, providing readers with a critical understanding and history of the key concepts in both disciplines before establishing their interdependency. Drawing on a solid evidence base, the book then presents an assortment of extensive topics, from the human perception of color to the ability of art to impact mental health. The exploration of these topics enables the reader to reflect on the phenomenal power of human creativity. The chapters include vital categories of human psychology, such as emotion, perception, personality, and social psychology, to show the extensive connections between these elements of experience and art. Featuring a wealth of additional resources, this illuminating text equips the reader with sound knowledge of the vocabulary and issues in the study of empirical aesthetics through visual content and stimulating prompts for reflection.

Emphasizing the link between creativity and good mental health, the book is an essential read for students of the psychology of art, creativity, art therapy, and empirical aesthetics as well as any discipline within the humanities, arts, and science. It will also be of relevance to anyone interested in understanding the psychology behind creativity and its therapeutic effects on the artist.

Dr. Shannon Whitten received her PhD in cognitive psychology from the University of Memphis 2003 and is now a senior lecturer at the University of Central Florida. Her research interests include psychology of creativity, literature, and art. She has also undertaken several research projects, including readers' ability to infer the theme of a story, comprehension and memory for song lyrics, and the role of creativity in coping with academic stress. When she has spare time, she enjoys creating products using mixed media, watercolor, and acrylics and reading stories of all kinds; but she especially loves creative time with her four nieces and her nephew.

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Routledge
Taylor & Francis Group
NEW YORK AND LONDON

Designed cover image: Getty

First published 2023
by Routledge
605 Third Avenue, New York, NY 10158

and by Routledge
4 Park Square, Milton Park, Abingdon, Oxon, OX14 4RN

Routledge is an imprint of the Taylor & Francis Group, an informa business

Library of Congress Cataloging-in-Publication Data
A catalog record for this title has been requested

ISBN: 9780367856885 (hbk)
ISBN: 9780367856878 (pbk)
ISBN: 9781003014362 (ebk)

DOI: 10.4324/9781003014362

Typeset in Bembo
by Apex CoVantage, LLC

To my father, Michael Edward Whitten. I miss you so much.

Contents

Acknowledgments

My students! I always learn so much from you, and this book wouldn't be possible without all those conversations and sparks of insight.

I also want to thank my family for always supporting me and having my back. You are all so special to me, and I love you all so much!

Dad – Thanks for supporting me by being my rock. Thanks for all you have done to support my education and well-being through the years. I'm glad I got your grit.
Mom – Thanks for being my emotional support at the end of every semester of my life when I inevitably freak out. I'm glad I got your "art gene."
Todd – May the force be with you. You are such a dork. ⋆
Jeff – Engage! You are also a dork. ⋆
Jenny – I do what I want. Actually, you are pretty cool. ⋆
⋆ So, you know this means I love you, right?!

Also, Angie, Mitzie, Sarah and all those Scites-Litrell-Whittens – *thank you* for being there for my dad and my family when we needed you most!

To my merry band of artists:

Thanks to Teagan, my acrobat and drama girl for making me laugh when I was so stressed out. BTW, I'm so impressed that you can *actually* fly!
Thanks to Madelyn – the Fairy Queen, brilliant visual artist, literary genius, and future scientist – for sharing stories of your own and talking about Harry Potter with me and lending me *The Tale of Despereaux*.
Thanks to Amelia – beautiful dancer by day, astounding Superhero by night – for being so kindhearted and strong spirited. Also, you are so smart; you impress me every time I see you with your impressive insight. You were born to be brave, my girl!
Thanks to MJ, the architect, because there is no puzzle or problem you can't solve. I thank you for being *so* amazing. You are even better than the amazing Spider-Man! That *is* amazing!
Thanks to precious little Hannah, the little creative genius who wanted Nana's cane so bad, she just built her own out of markers when it was taken away – you are still just an adorable baby now, but I know someday you will rule us all!
Thanks to my amazing research team: Solimar Rodriguez, Christie Iribarren, Valerie Davis, Niti Contractor, and Lily Butler. You have helped in so many ways, I can't even list them! Thanks for taking my chaotic lists of articles and creating references, for taking my mad bouts of data and creating spreadsheets, and *especially* for feedback

on what it is like to read a textbook from a student's point of view. You have all certainly elevated this book!

Thanks to Katja Wiemer for keeping me sane since grad school, especially through the year while I was writing a book in lockdown. We are long overdue for some raspberry sage tea!

Thanks to Frank Hakemulder, my DEAP friend – thanks so much for your feedback on earlier drafts and for your endless empathy and wisdom.

Also, special thanks to Ceri McLardy and Saloni Singhania at Routledge, whose diligence and patience with me has helped my initial vision for this project come to life. Then to Khyati Sanger, who helped me see my vision through the darkest of times! Keep shining, Khyati! I will always be so grateful!

There are way too many people to personally thank at UCF, but, my friends, you know who you are: the best boss ever (Florian Jentsch – OK, you do get a personal shout-out), the Friday writers' group, the Knighted Faculty, and FCTL. I'm so lucky that I work in such a great place and to have such an abundance of great people around me!

Introduction

Why I Wrote This Book (and a Call to Action)

Certainly, the most important principles guiding my life have been those of art and science. I find it strange that these should be separated, much less opposites. I find it even less believable that they could be *such* opposites that one can't inform the other. The empirical study of art is, to me, not an oddity: Art is important. Scientists study important things. So, of course, scientists study art. Yes, they can also study mutating viruses and the march of commerce, and those are also important things to study. But without the reflection on the human experience provided by art, defeating viruses and gaining money isn't meaningful. To me, art is the reason to take vaccines and go to work; art is what makes life worth living.

I wrote this book because I didn't have one like it when I was a student, and I really would have liked a book like this. This is the book I would have wanted for myself; it's the book I want for my students. The purpose of this book is to educate students coming from any discipline – humanities, arts, and science – in the vocabulary and issues in the study of empirical aesthetics. Each chapter is driven by questions and has note-taking prompts to consolidate memory and connect the material to examples and your own personal experiences. I have been teaching an undergraduate course called The Psychology of Art since 2004 and have often lamented not having a textbook that encompasses the scope of that topic.

That brings me to a few limitations of the book. The scope of it is both a strength and a limitation. It is great because in one textbook, a foundation can be made that touches on most aspects of this exciting, rapidly growing field of inquiry. Yet, the scope of this topic is *huge*. As a result, I have more pages of text that I have cut out of the book than pages that made it here! This topic is so broad that a lot of important material must necessarily be left out of a single volume. Moreover, what is left out is certainly influenced by my own culture and education. For example, there is an emphasis in this textbook on visual art and literature, which are my areas of expertise. But dance, music, theater, and so many more disciplines are certainly part of the family of art. Worse, this book reflects the lack of diversity found in the museums, media, and scientific journals of my own cultural experiences. It reflects what I have been taught – and I think there is value in the education I have received. But I am acutely aware that I am missing a lot.

So, I end this introduction with a call to action: for students who read this book to use the knowledge here as a mere foundation to go and create art, heal cultural rifts, and conduct experiments that represent the diversity of the human experience. Also, enjoy one of the most satisfying elements of human experience: learning.

1 Psychology

What You Will Learn

This chapter aims to provide actionable insights on psychology as a scientific discipline that leverages the tools of empirical observation and analytic reflections to further the understanding of what we refer to as the quintessential human mind. To begin with, you will learn some rudimentary psychological terms and concepts. Next, this chapter will provide a cursory overview of how psychologists adopt the scientific approach to advance their understanding of the mind. This point needs to be reiterated because a lot of what you learn from this book will use scientific terminologies introduced in this section. Thereafter, this chapter will take you to an exploratory journey of eight different branches of psychology that are most relevant to the understanding of art and creativity and the symbiotic relationship shared between them. Specifically, you will be better informed on how each branch gathers and then coalesces a diverse array of information to better understand what drives individuals against the backdrop of art and creativity. Notably, you will also learn how to use the pivotal tools of observation and reflection to deepen your personal experience of art in general and the creative process in particular.

Chapter Outline

What Makes a Good Artist or Scientist?
What Is Psychology?
What Are the Goals of Scientific Research in Psychology?
Why Is It Important to Apply Psychology to Art and Creativity?
Why Do We Study Psychology as a Science?
What Branches of Psychology Are Most Relevant to the Psychology of Art?
How Do Themes of Observation and Reflection Apply to Personal Experiences of Art and Creativity?

Terms to Identify as You Read

Archival Research
Bias
Case Study
Client-Centered Therapy
Clinical Psychology
Cognitive Psychology
Conceptual Definition

DOI: 10.4324/9781003014362-1

Terms to Identify as You Read

Confirmation Bias
Default Mode Network
Empiricism
Experimental Psychology
Experimental Research
Folk Psychology
Historiometric Research
Humanistic Psychology
Measurement Variable
Model
Neuroscience
Nonexperimental Research
Observation
Operational Definition
Personality Psychology
Population
Positive Psychology
Psychodynamic Psychology
Psychology
Reflection
Reliability
Representative Sample
Sample
Science
Selection Bias
Social Psychology
Validity

What Makes a Good Artist or Scientist?

That's a million-dollar question! Before that, it may be helpful (and important) to point out that artists and scientists are more alike than different. Both science and art put in efforts to understand and make sense of the world around us. While the methods and objectives of achieving this goal are different, the goals/motivations fundamentally remain unchanged. After all, one of the most visceral needs of humans is to understand the world surrounding them and then share that understanding. Throughout the history of mankind, artists have proved themselves as great partners in the navigation and communication of scientific research. That is why existing practices in scientific research have much to gain by involving artists in the process early and often.

Coming back to the question, it often takes a combination of factors to unite in a cogent manner because, as is the case with fingerprints, the mind of each individual functions uniquely. Having said that, there are two key practices that are crucial to both the arts and sciences: observation and reflection. *Observation* can be defined as consciously using the senses to gather information. Observation is the art of genuinely looking, hearing, feeling, etc. at what is there rather than at the construct of what should be there. As an observer, you would consciously direct your attention to an object and use your senses to know more about it. *Reflection*, on the other hand, entails thinking critically and analytically about what you see to draw conclusions. Contrary to popular notion, the arts and sciences are united in their ever-evolving cycle of direct observation followed by

critical reflection and back to observation and so on. Let's get started and delve deeper to observe and reflect on art.

What Is Psychology?

Put succinctly, *psychology is the study of the mind, brain, and behavior of individuals*. Needless to say, this is a copious body of study that has inspired tens of thousands of books, literature, articles, discussions, conferences, and even policies. Given this backdrop, psychology inexorably encompasses the entire spectrum of the human mind. Some topics include mental health and mental disorders, the cognitive/perceptual processes that help us understand our environment, developmental processes of growth throughout the lifespan, and much more. It is important to note that although psychology may include the study of how culture and social systems influence individuals, within the scope of psychological research, those generic systems are not studied on their own.

When adopting the scientific approach to study psychology, the endeavor is to answer fundamental questions about humans' mental experiences and behaviors. In this context, some of these questions within the purview of psychological research are poignant: What thought processes lead to healthy experiences? What causes people to make maladaptive choices? How is it that people with an atypical neurological profile are able to lead their best lives? Why do people discriminate, and how can we alleviate discrimination? How can we improve learning in online courses? As you can see, the study of psychology is as diverse as humanity itself, evidenced by these life-transforming questions!

Psychologists use *scientific methodology* to answer these questions, primarily because it combines observation with logical reasoning to draw logical inferences about individual behaviors. However, do note that science is only one such approach; other approaches include the use of intuition, individual testimonials, or appeals to authority to examine these critical questions. However, these approaches have the disadvantage of exacerbating rather than reducing biased conclusions.

There is a difference between the scholarly study of psychology and *folk psychology* – that is, people's intuitive notions about how the mind works and the myriad behavioral catalysts. The fact remains that psychology is a rigorous scientific discipline. There are many accounts about how our intuitions are at odds with the reality documented by trained psychologists and social scientists. For example, it is a common perception that watching a violent movie or sport tends to be cathartic because it allows people to express their anger. However, many studies have systematically found that catharsis may actually exacerbate anger rather than subduing it (Bushman, 2002). In a similar vein, there is another widespread belief that positive affirmations like "I am a lovable person" will increase confidence; however, careful observations demonstrate these affirmations may backfire if the individual repeating them suffers from low self-esteem (Wood et al., 2009). Let us take another popular example: Are you a left- or right-brained person? This refers to the popular notion that some people use one hemisphere more than the other and that this accounts for individual differences in personality, with right-brained folks deemed the creative types and the left-brained as the logical ones. Many people believe that left- and right-brained personalities do exist, but research has disproved this idea (Kosslyn & Miller, 2013). This makes it fairly apparent that a dissonance exists between popular belief and what is found to be true through rigorous observation and analysis, which is a problematic scenario. Therefore, this book approaches the human experience of art and creativity from an essentially scientific perspective.

Throughout this textbook, we will rely upon, discuss, and frequently criticize scientific articles and findings, which is why it is paramount that you have an understanding of how psychologists approach questions about behavior through a scientific prism. We will start by reviewing the goals of research in the social sciences.

What Are the Goals of Scientific Research in Psychology?

Psychological research aims to achieve 4 goals:

1. Describe behavior
2. Predict Behavior
3. Explain behavior
4. Change behavior

First things first! Like any science, psychology is grounded on careful observation. Therefore, the first goal of psychology is to simply *describe* behavior by collecting careful observations through various methods: case studies, naturalistic or systematic observation, self-reports, surveys, or archives, to name a few. An example of a descriptive statement would be "38% of 47 artists had been diagnosed with a mood disorder" (Jamison, 1989). The second purpose of psychological research is to *predict* behavior. Under this goal, psychologists look to determine the likelihood of a behavior under a specified condition or set of conditions. A poignant example will be that mental illness does not predict entry into a creative profession for the majority of mental ailments (Kyaga et al., 2013). The third goal of psychology is to *explain* behavior. After psychologists observe and predict behavior, it is only natural for them to try to understand *why* a behavior manifests under certain conditions. An example of an explanatory statement would be: "Harsh early life experiences lead to the autonomy and independent thinking necessary to think creativity" (Ludwig, 1995). The important part about this quote is that is backed by scientific procedure and analysis. Finally, psychologists aim to promulgate the conditions of *behavioral change*. A critical tenant of psychology is to find ways of increasing healthy, desirable behaviors while simultaneously reducing unhealthy behaviors. An example of this would be "Systems of rewards are not effective for increasing creativity" (Pink, 2011).

NOTE-TAKING PROMPT: What are the four goals of research in psychology? Think of or find your own example of each.

Why Is It Important to Apply Psychology to Art and Creativity?

This, again, is a very important question that needs a convincing answer. Some erroneously opine that scientific approach is unsuitable to study art because art seems to be imbued with mystery and enigma. An extension of that core question is whether the arts are perceived as a psychological or spiritual capacity. As we will see in Chapter 3, creativity has traditionally been perceived as a spiritual capacity and only recently as a cognitive one. Be it possession by angels or demons, creativity has been relegated to the realm of the supernatural. Many continue to see it as a spiritual drive, often regarded as an overpowering possession that completely takes over some chosen (make that "special") people who have been warped or wired to see

beyond the mundane. In all fairness, there is something endearingly arcane about this view and for those who espouse it. As a case in point, you can't be held accountable for exhibiting a palpable lack of creativity if it comes from an unknowable realm. Another fear of approaching the arts from a scientific point of view is that it will undermine the spiritual value.

Here is why I think it is important to adopt a scientific approach to understanding art and creativity:

1. **Art and creativity become more inclusive**: Have you ever thought that you aren't quirky enough to try abstract art or innately talented enough to take amazing photographs? If you have convinced yourself that only special people have creative proclivities, you are not alone. But what if you are wrong? What if art doesn't come from a demonic possession, a quirky personality, or an inexplicable visceral talent? What if creative capacity is just another cognitive capacity that can be studied and honed? If that is indeed true, you might be more inclined to pick up that paintbrush or camera. An increasing number of studies demonstrate that anyone can develop their creative capacity *and* that acts of creativity have immense benefits. Thus, creative aspirations no longer have to be relinquished due to flawed perceptions of one's own self.
2. **Understanding doesn't undermine the awe factor of artistic work.** Unlike what you hear from those who claim to "know it all," understanding how something amazing was built doesn't necessarily detract from its power to inspire. In fact, it often adds to it. Similarly, understanding the nature, creativity, or advancement of an artist doesn't undermine the sagacity of his/her work.
3. **Art and creativity are foundations of our humanity, so let's use the best resources at our disposal to understand it!** Let's face it – science is one of the most sophisticated tools we have to further understanding of humanity. We might as well use this tool to understand one of the best parts of being human.

NOTE-TAKING PROMPT: What do you think about approaching art in a scientific way? Write out the reasons for approaching it systematically. Do you agree with each? Why or why not? Do you have any other personal reservations?

Why Do We Study Psychology as a Science?

What is science? In my view, the definition provided by The Science Council (2020) is very appropriate: *Science* is the pursuit and application of knowledge and understanding of the natural and social world following a systematic methodology based on evidence. In particular, these two terms used in the definition are worthy of further exploration: *evidence-based* and *systematic*, because they reinforce the importance of observation and reflection. Let's take a closer look at these terms:

Evidence-based: Importantly, science is rooted in empirical observation. *Empiricism* is the idea that knowledge should be obtained through evidence from direct observation, as opposed to reason alone. Though reason is an integral part of science, it is critical for this reasoning to be founded on observations and not potential subjective rationales.

Systematic: Systematic denotes something that is careful and planned. Scientists leverage the scientific method to carefully gather observations and formulate and test hypotheses as well as form and revise conclusions.

Note that we are merely referring to observation and reflection. *Empiricism* means observation, and *systematic* means processes set in place to carefully collect and clearly ruminate on those observations. To better explain these principles, let's take an example of one topic we will explore in this book: *Is creativity related to mental illness?* If we adopt a scientific perspective to this discussion, we will then be talking about carefully collected observations rather than traditional ideas, stories, or intuitions. But if that is the case, *why* is science deemed such a vital mechanism to answer this question? Asked differently, why *not* rely on, say, personal reflections to explore this question?

One of the biggest advantages of adopting a scientific approach is its propensity for making a reasonable, accurate prediction of behaviors. Specifically, science has many advantages when it comes to the ability to *generalize* – that is, to extend the findings of a study to many people. While there is a time and place for traditions, stories, and intuitions, science remains the most valuable approach when it becomes necessary to make observations that can be reliably and accurately applied to many people across situations.

Another advantage of using scientific methodology is its systematic nature, which emerges as a tool to reduce *biases*. For the unversed, *bias* refers to an inclination to perceive reality in a certain way that is both unreasoned and habitual. As a cognitive psychologist, I can testify that perceiving things in a very biased way is an intrinsic part of human nature. In fact, John Manoogian designed a graphic categorizing over 180 documented biases that stymie our thinking! This graphic is presented in Figure 1.1. For now, let's focus on two important ones: confirmation bias and selection bias.

One bias that is particularly difficult to surmount is a *confirmation bias*, which denotes the tendency to search for or interpret information in a way that *confirms* one's preconceptions. You are likely to have seen this while scrolling through your favorite social media platform: very liberal or very conservative people tend to pay more attention to articles or stories that support their viewpoint. They are more likely to eagerly accept these stories without much in the way of criticism. Conversely, many tend to be *very* critical of any information that is in contrast to what they believe. That is confirmation bias at work!

In terms of our question, if we already believe that there is a linkage between creativity and mental illness, we may be more tempted to seek out biographies of artists who were known to be beleaguered with mental illness. To be more precise, we may wholeheartedly accept these accounts but dismiss counterexamples with statements such as "Oh, that artist is probably really insane but just really good at hiding it." We hang on to this tendency to confirm our preexisting ideas *despite* knowing all about this bias and its consequences. Confirmation bias is truly a difficult bias to shake off!

The aforementioned example I cited about selecting biographies that support our preexisting idea is referred to as a *selection bias*. This may be done consciously or subconsciously. Our choices are subconsciously motivated by our biases; we must follow a system of collecting and documenting observations that reduces biases. Yes, it is this system we lovingly call science. Put differently, the subconscious nature and stubborn persistence of our biases explains why embracing the scientific method is such a crucial basis for understanding psychology.

NOTE-TAKING PROMPT: What are some biases? How does a scientific approach help alleviate the effects of these biases?

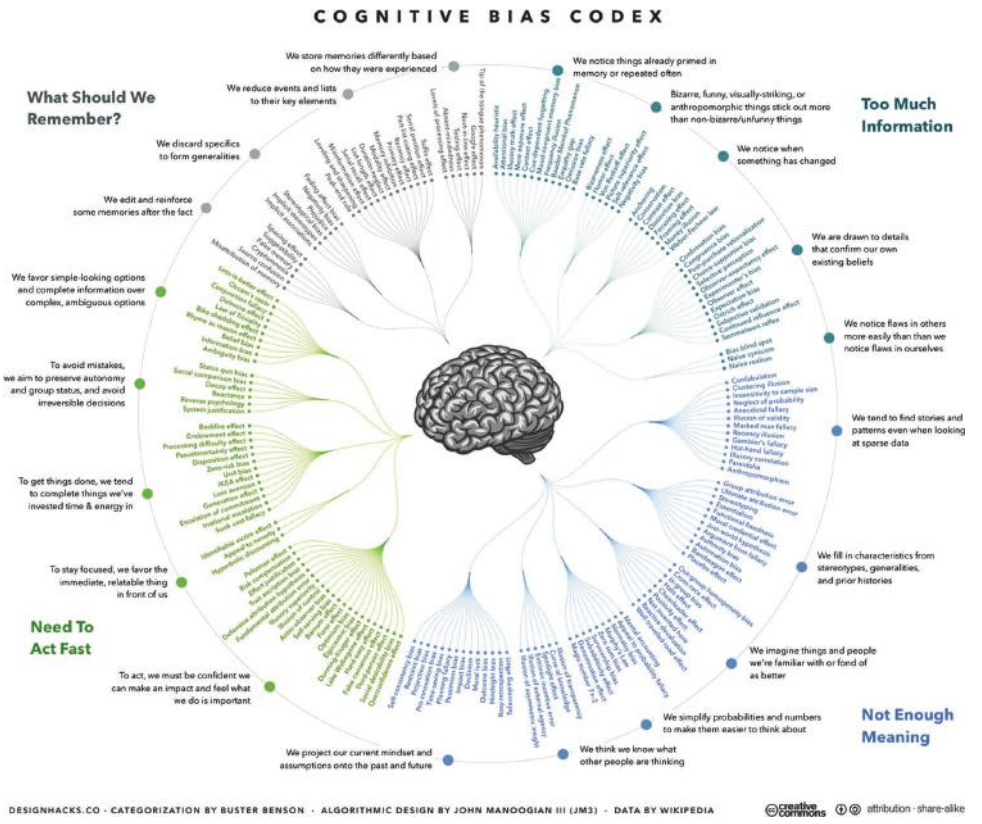

Figure 1.1 The cognitive bias codex illustrates the myriad of human biases that challenge our decision-making in an organized way

Source: From Heick (2020) TeachThought.com. Image designed by John Manoogian III.

The observations collected by scientists are called *data*. In this section, you will learn four methods of collecting data:

- Case study
- Archival research
- Nonexperimental (correlational) methods
- Experimental studies

A *case study* is an in-depth descriptive account of one *specific individual*. This account typically includes the individual's history, behavior, and other factors concerning the topic under investigation. In general, case studies are conducted with individuals with rare conditions or unprecedented circumstances, such as a particular genetic or brain disorder and/or exceptional level of creativity. As a case in point is psychologist Nancy Andreasen, who conducted a case study of the acclaimed author Kurt Vonnegut to unveil sources of his astounding creativity (Andreasen, 2014).

Archival research entails the use of existing information sources to carry out research. These sources may include statistical records and survey archives as well as written records like letters and newspapers. In this book, we will specifically reference *historiometric research*, a methodology that gathers numerical data from historic individuals and events before analyzing this information to form inferences. In order to understand them better, we will read many studies that have collected archival data on imminently creative individuals, using their medical records, interviews in periodicals, and letters from relatives, among others.

Nonexperimental (or correlational) methodologies refer to the use of quantitative variables to determine whether or not the variables are related to one another. Under this methodology, there is no control over the variables in question. By contrast, each variable is just measured to establish whether a relationship exists between them or not. For example, the question of whether or not creativity has a correlation with mental illness falls under this category since we cannot control who is creative and who is mentally ill. At best, we can measure how creative people are, measure their level of mental illness, and calculate the relationship between these measures.

By contrast, there is the *experimental method*, which helps determine whether or not variables are related wherein the researcher manipulates the independent variable and controls all other variables, either through randomization or by direct experimental control. Because of this control, no other variables – for example, family history, practice, dietary habits, etc. – could possibly account for the relationship between creativity and mental illness. As a result, we would have absolute control over who was creative and who was not, thus ensuring that creativity was indeed the root cause of mental illness. Of course, when we have a *participant variable*, which concerns something intrinsic to the individuals taking part in the study, we cannot use the experimental method because we cannot control who is creative, who is female, who is a smoker, and so on. That being said, we could utilize the experimental method using several varieties of nonparticipant variables, such as investigating the effect of instructions or settings on creativity. This is relevant because, for example, numerous studies have demonstrated that the involvement of a reward tends to render people less creative. We know this because, researchers randomly assigned participants to the reward group or the no-reward group before measuring the performance of each group on a creative task (Pink, 2011).

Causality is a very special term in science. Like the name Voldemort in the Harry Potter books, no one uses this term unless they are being *very* careful! This is because there are very specific conditions that must be met to arrive at the conclusion that one state causes another. Specifically, three conditions must be met:

1. **Covariation of cause and effect**: There must be a relationship between the cause and effect.
2. **Temporal precedence**: It must be demonstrated that the cause came first.
3. **Elimination of alternative explanations**: All alternative explanations must be eliminated.

Typically, you cannot meet all three conditions unless you can randomly assign people in your study to conditions.

NOTE-TAKING PROMPT: What are the four different methodologies discussed above? What are the advantages and disadvantages of each method?

As previously stated, we usually want to generalize our findings from a small sample to a larger population. Considering the aforementioned example, we want to carry out a study that is applicable to all creative people ubiquitously and not just the ones in our sample or at our university. Here are some useful terms:

A *population* encompasses all the people you want your study to apply to. All adults? All English speakers? All artists? All students? All creative people? If yes, then those individuals comprise the population. Put succinctly, whatever group you want to make a claim about on the basis of your findings, that is your population.

A *sample* comprises all the people you have included in your study. Despite our wishes to have this study apply to all adults in the world, we may have included only the 30 psychology students who answered our ad. This sample could be a problem because we want it to be representative.

A *representative sample* is one that truly reflects the population under investigation. Usually, a large random sample is desired to increase representativeness.

Now that we are grounded in some basics about data collection, let's look at what we are using to collect data: our *measures*. We want to make sure what we are using to measure our variables – creativity and mental illness in our example – is a quality measure. Otherwise, it'll be like a watch that is off by a couple of seconds – slowly but surely, we'll get into trouble by drawing the wrong conclusion. In order to talk about the quality of our measure, let's go over a couple of definitions: operational definitions and conceptual definitions. An *operational definition* is how the concept is defined in a specific study. It serves to quantify the concept being studied so as to investigate it. On the other hand, a *conceptual definition* is a general, abstract, or theoretical definition, much like a dictionary definition.

Some Examples of Conceptual Definitions

Creativity: The ability to routinely generate original and meaningful work
Mental illness: Having a mental condition that drastically impedes rational thought

As mentioned before, these are general, dictionary-like definitions. But we will need to quantify them to study these concepts.

Now, let's look at some possible corresponding operational definitions of creativity:

- Score on the Torrance Test of Creativity
- Number of paintings completed during a lifetime
- Having won a Nobel Prize

Mental Illness

- Score on a test of mental illness
- Whether or not the participant has ever tried to commit suicide
- Number of times a person has been admitted to a mental health institution

Owing to the fact that these definitions quantify the concepts of interest, it is possible to actually study them. Bear in mind that there may be varying operational definitions for

each conceptual definition, which can often cause problems for people trying to wrap their head around a concept because there is no uniformity in the way researchers themselves have defined it. In this context, it is worthwhile to note that we sometimes rely on tests to quantify concepts. When we refer to a score on a test – for example an IQ test or test of creativity or mental illness – this is referred to as a *measurement variable*. Using measurement variables as operational definitions requires us to confirm that the test is both reliable and valid.

This brings us to the first point. *Reliability* reflects whether or not the test measures consistently over time and situations. For example, if you get on a bathroom scale and it says you weigh 100 lbs., then get right back on and it says 200, it wouldn't take a rocket scientist to figure out that something wrong with the scale. Likewise, if we have a test of creativity that says a person is a creative genius at one point and a complete robot the next moment, we cannot rely upon that scale to assess creativity.

Validity refers to a measure that measures what it is supposed to measure. Let's suppose we have a reliable scale of creativity but it asks people to draw figures. In that case, we may actually be measuring drawing ability more than creativity. Similarly, we could have a reliable test of creativity that is verbal in nature, so we may actually be demonstrating proficiency with words rather than creativity. Indeed, creativity tests have been criticized on these grounds, which will be elaborated further in Chapter 3.

This was a very basic overview of the scientific terms you are likely to be exposed to in this text. I am sure I have overlooked some, but this is definitely a good start before we get straight into the remainder of the book. Now, let's digress into learning about the major areas of psychology most important to our investigation of art and creativity.

What Branches of Psychology Are Most Relevant to the Psychology of Art?

Two Main Divisions of Psychology

Generally speaking, psychology can be divided into two main branches: *clinical psychology* and *experimental psychology*. *Clinical psychology* is primarily concerned with the treatment of maladaptive behaviors and mental illness, whereas *experimental psychology* mainly pertains to the scientific understanding of behavior.

Clinical psychologists diagnose and treat people struggling with mental illness and help them to foster heathy functioning. They work in a wide variety of settings, including private practice, hospitals, schools, and even industrial settings. This book will explore both art and creativity from a clinical psychology standpoint in terms of their relevance to mental health and illness (see Chapters 4 and 5, specifically).

Contrastingly, experimental psychologists conduct scientific experiments to answer fundamental questions about the human experience. Working in universities and other research institutions, they typically publish findings for the scientific community to review. On that note, let me tell you that the information presented in this book was actually discovered by experimental psychologists, so a big shout-out to them!

As you would have guessed by now, the two branches are *not* mutually exclusive. Each informs the other, and it is common for practitioners to assume both roles; for example, they may work at a university as well as have their own private practice or consult with hospitals.

Psychology is a very broad area that covers a large number of subareas. Currently, the American Psychological Association (APA, n.d.) has 54 major divisions within its organization. For the purposes of this book, let's focus on eight general branches. An understanding of areas will inform our material in subsequent chapters.

NOTE-TAKING PROMPT: What is the difference between clinical and experimental psychology? How do you think they relate to one another?

The Eight Branches Considered in This Book

Although art may be of relevance to all 54 divisions of the APA in some way, this book will focus on the following eight. Let's consider how each branch might approach the following questions:

- Does engaging with the arts improve our well-being?
- Can creativity be improved?
- Does art facilitate social change?

All these questions have already been approached by researchers in the past. We will discuss these questions, along with many others, at various stages of this book. For now, let's look at how these different branches of psychology would approach such questions. The eight branches most relevant to art and creativity are the following:

- Psychodynamic Psychology
- Humanistic Psychology
- Positive Psychology
- Physiological Psychology and Neuroscience
- Cognitive Psychology
- Perceptual Psychology
- Social Psychology
- Personality Psychology

Branches With a Clinical Orientation

Psychodynamic, humanistic, and positive psychology are generally associated with clinical applications. That is, the goal of researchers within these branches is to eliminate dysfunction and promote well-being.

1. Psychodynamic (a.k.a. Psychoanalytic) Psychology

This branch investigates the role of unconscious motivations on behavior. A psychoanalyst would typically examine early childhood experiences that have triggered emotional responses below the individual's awareness. These emotional responses may create maladaptive behavior patterns that aggravate the individual seeking therapy. A psychoanalyst may conclude that the individual's behavior patterns are driven by unconscious motives to resolve hidden conflicts rooted in childhood.

Some Questions and Goals for Therapy From a Psychoanalytic Perspective

- Does the creation of art reveal symbols of unconscious motives or emotions?
- Can art be used for catharsis (that is, the purging of negative emotions)?
- Can the process of art making be used to integrate aspects of the self?

Wadeson's (1975) analysis of sexual symbolism in drawings by patients in the Research Ward of the National Institute of Health in Bethesda, Maryland, serves as a valid example of a psychoanalytic perspective. In this study, she examined a sample of the patients' drawings. One emerging theme was that many patients struggling with sexual identity draw themselves as asexual or childlike. What follows is a series of drawings by a patient. The first drawing, Figure 1.2, depicts her outside self as innocent. Meanwhile, the second one, shown in Figure 1.3, portrays her innocence dismantling and the "rotten core" within, whereas the third drawing was a depiction of her true "repugnant" sexuality. The artistic process is used here to help this patient not just identify but also transcend her maladaptive drives that are underneath the level of her consciousness. Notably, the psychodynamic approach is much less common today owing to paucity of scientific rigor, although many art therapists still practice a form of this general approach.

2. Humanistic Psychology

This branch of psychology postulates that individual behavior is influenced by our choices rather than by unconscious forces or the environment at large. Typically, humanistic psychologists claim that the attainment of personal growth and, as a consequence, a meaningful life is a primary motivation for behavior. They would examine the choices made by individuals to explicate their behavior. As an example, a humanistic psychologist may state that a natural desire to express themselves and discover what is meaningful to them may drive an individual to creativity.

Humanism makes three assumptions: 1) people are essentially trustworthy; 2) people are responsible for the quality of their own lives; and 3) people are capable of self-directed and meaningful change. According to Bruce Moon (Aron, page 204), humanism in therapy is most closely linked with the *client-centered therapy* put forward by Carl Rodgers. Some tenets of client-centered therapy are as follows:

- The relationship with the therapist is more important than the therapeutic technique.
- The client is regarded as the primary change agent.

Some Questions and Goals for Therapy From a Humanistic Perspective

- Can the art-making process be used to promote self-esteem and/or self-actualization?
- Can art making be used as a tool to foster the therapeutic relationship?
- Can art promulgate a meditative state of being fully in the moment, thereby enhancing quality of life?

Let's look at a real-life example of humanistic art therapy, Bruce Moon (2016) described a client called Lorraine who was hospitalized and deeply depressed. She refused to engage with

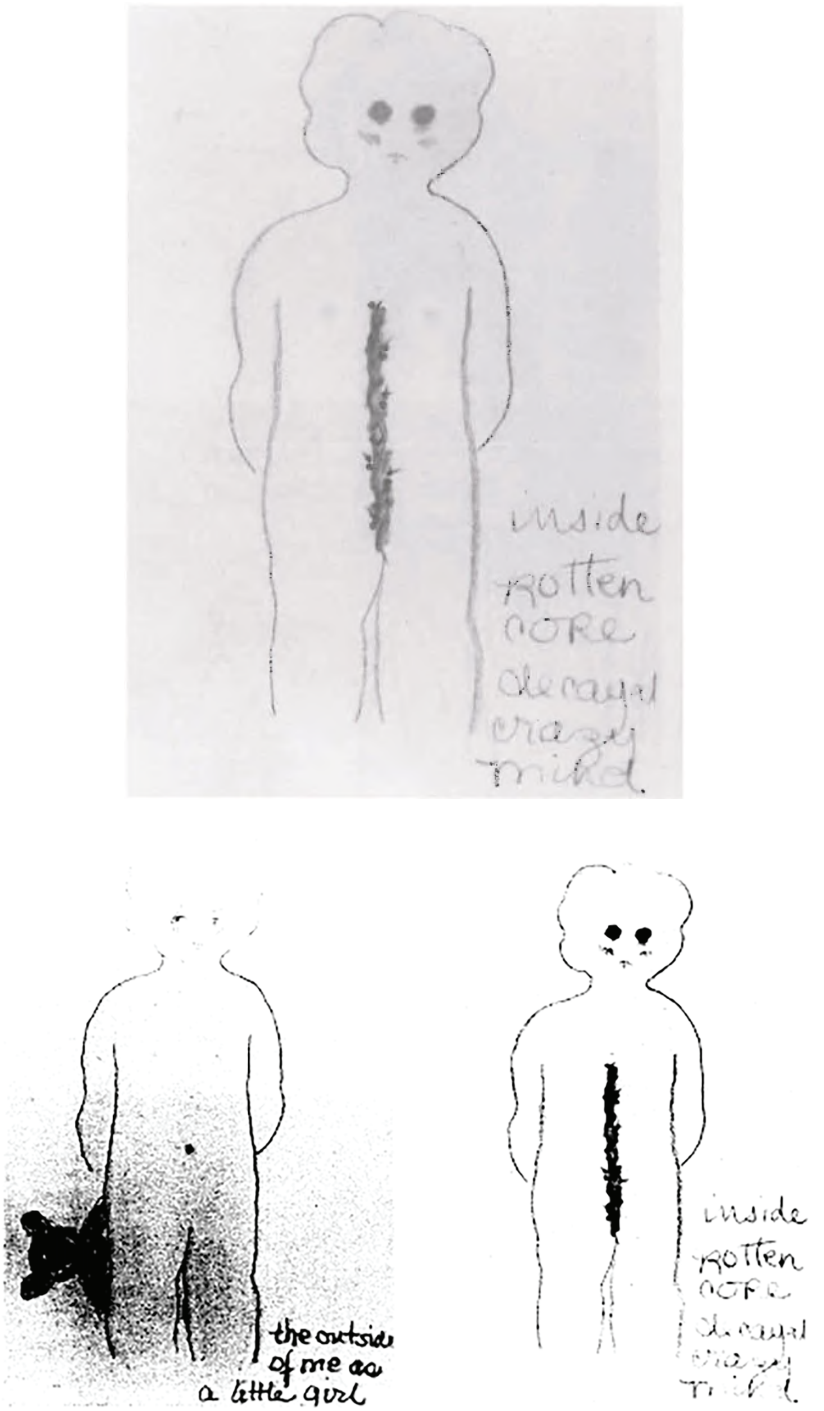

Figure 1.2 Images from Harriet Wadeson's (1975) art therapy session with a client struggling with sexuality.

Figure 1.3 Images from Harriet Wadeson's (1975) art therapy session with a client struggling with sexuality.

the hospital staff in any manner, but her interest was piqued by the art materials in a group art therapy session. Quietly, she went on to create a painting of a sealed mason jar filled with iridescent colors and a tiny dark figure at the bottom. When asked to express her thoughts on it, she didn't utter a word in the group session. However, she was soon interacting with some group members in a way she had not done during her entire hospital term. This eventful engagement marked the beginning of her ability to form relationships in her recovery; art empowered her to investigate feelings in a way that was previously inaccessible to her. As a result, she used this medium to form relationships, which, in turn, helped her to heal.

3. Positive Psychology

The branch of positive psychology grew out of the humanistic perspective in a way that has placed greater emphasis on the research process with a view to substantiating claims about the role of personal growth on behavioral choices. According to the Positive Psychology Center at the University of Pennsylvania, "Positive Psychology is the scientific study of the strength (to) lead meaningful and fulfilling lives, to cultivate what is best within themselves, and to enhance their experiences of love, work, and play" (Positive Psychology Center, n.d.).

Positive psychology was founded by Martin Seligmen, who noted that historically, the goals of psychology have been to research and implement ways of preventing/correcting individuals' negative qualities and mental states. Positive psychology deviates from this approach by focusing on what makes a person function well; put differently, it examines what makes "the good life." Positive psychology is often known as the psychology of well-being; research topics include individual strengths, optimism, grit, flow experiences, positive communication techniques, and much more.

Some Questions and Goals for Therapy From the Perspective of Positive Psychology

- Can participation in the arts promote meaning in life?
- Can art be used to promote post-traumatic growth?
- Can art making or viewing help reduce stress?

For example, Abbott et al. (2013) found that artistic tasks helped reduce stress significantly more than nonartistic tasks. According to the authors, art making would be better than art viewing due to the kinesthetic manipulation of materials and the participants' ability to express themselves creatively. Participants in the study were randomly assigned to 1) draw; 2) view nature posters; 3) view maps; and 4) complete puzzles. Stress was induced by having participants quickly complete complicated math and other cognitive tasks. Stress levels were measured before then after the stressful math incident and again after the assigned activity: Although all activities were found to lower stress to some extent, drawing reduced the maximum amount of stress.

Experimental (Research) Orientation

4. Physiological Psychology and Neuroscience

This branch of psychology explores the relationship between the body's physiological structures/processes and behavior. Specifically, poignant questions in this regard include "How do

genes, hormones, neurotransmitters, anatomy, and physiology influence behavior?" For example, in order to answer the previous question, a neuroscientist would most likely order blood work or a brain scan instead of conducting a survey or administering an achievement test.

Physiological psychologists answer questions like the following:

- Are certain genes related to creativity?
- Is the appreciation of beauty something humans have adopted as an evolutionary advantage?
- Is there a difference between left- and right-brain activity during artistic engagement?
- Are certain areas of the brain related to an "artistic temperament"? Are these areas related to mental illness?

For instance, studies of the *default mode network (DMN)* have advanced our knowledge of the linkage between brain activity and creative behavior. The DMN is a set of distinct, interconnected brain areas that get deactivated when the individual is engaged in goal-oriented behaviors. Conversely, these areas are highly activated when a person is engaged in non-goal-oriented behaviors like daydreaming or meditation. During such activities, our brains are not found to "power down"; instead, a different network, namely the DMN, is highly activated and has a strong relationship with creative activity (Raichle, 2019).

5. Cognitive Psychology

This branch of psychology investigates the process of gaining and representing knowledge. Cognitive psychologists may study every part of the thought process, including information entering the senses, the mechanism through which information is perceived, what information we pay attention to, how our memory impacts what we perceive and attend, the language used to elucidate our perceptions, and the way in which we make judgements and decisions based on the information available to us. A cognitive psychologist would therefore examine how one's knowledge, memories, and perception of a situation influence their behavior.

Cognitive psychologists answer questions like the following:

- How does familiarity influence how much you like a piece of art?
- Do you need a lot of background knowledge to appreciate good art?
- How does context alter the way you understand a piece of art?
- Do you need a high intellectual capacity to be creative, or is creativity separate from intelligence?

The title of the painting is a pertinent example of context. Do you feel your understanding and appreciation of a painting might be influenced by its title? In order to answer this question, Leder et al. (2004) conducted an experiment where they altered the titles of 48 paintings, such as the one by Mark Rothko (as follows), which was originally entitled *Number* 7. They then went on to examine the emotional and cognitive impact of these changes. Two kinds of title alterations were compared: 1) Descriptive titles that merely summarized key aspects of the painting, like *Color Fields* for the Rothko, as follows. Contrastingly, 2) elaborative titles offered a possible interpretation, such as *Inner Balance* for the

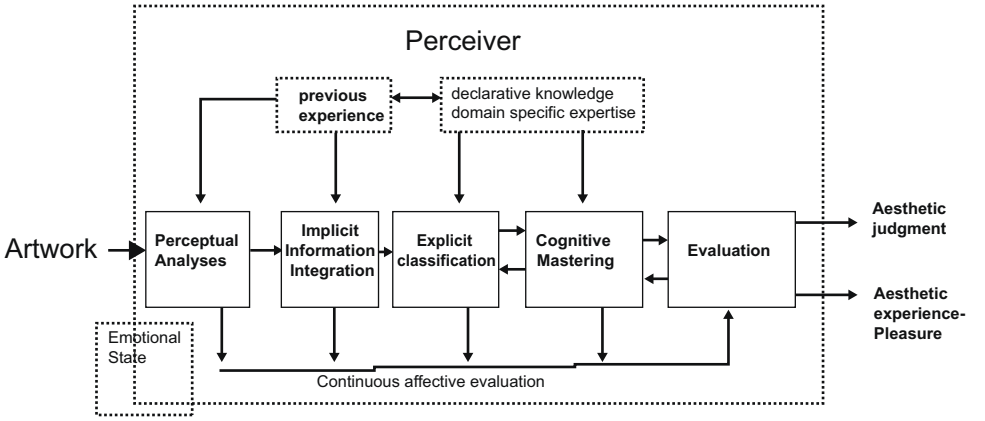

Figure 1.4 Model of the stages in forming an aesthetic response from Leder et al. (2004).

same painting. Do you think these title changes affected the extent to which participants felt they understood and/or liked these paintings? For abstract paintings, elaborative titles were found to increase perceived understanding but not liking of the paintings. The authors inferred that descriptive titles may have actually diminished further processing of the paintings, thereby decreasing cognitive evaluations.

In a second experiment, the authors endeavored to reveal the steps involved in processing abstract paintings. In Experiment 1, participants had 60–90 seconds. In Experiment 2, however, some participants had only 1 second to process the painting, whereas another group had 10 seconds. It was found that descriptive titles improved perceived understanding at 1 second, but the reverse was true at 10 seconds: Elaborative titles facilitated perceived understanding. Additionally, they measured how long it took participants to make each judgment, finding that judgments of enjoying paintings were made more rapidly than those of whether they comprehended the paintings or not. Taken together, the results led the authors to conclude support for an information-processing model of aesthetic appreciation, which surmises that unlike cognitive information, which is only available at later stages, emotional reaction is accessible at all stages of processing the piece (see model in Figure 1.4).

6. Perceptual Psychology

This *branch* may actually be regarded as a subdomain of cognitive psychology concerned with the manner in which the human mind makes sense of the patterns detected by the senses.

Psychologists studying perception answer questions like the following:

- What is the minimum amount of light that is necessary to be detected by humans?
- How can a two-dimensional drawing be made to look three-dimensional?
- What effect do basic compositional principles like balance have on whether a painting is liked or not?

You may have often wondered what it is that makes a work masterful. An example of the study of perceptual psychology is one that set out to answer this question. Vartanian et al. (2005) gathered paintings from renowned artists in addition to those considered "bad" by the Museum of Bad Art (MOBA, n.d.). Each painting was altered in a way to diminish the composition; for instance, the balance of each piece was changed in a manner that breached the rules of composition. The researchers explored whether the original or altered paintings would be preferred.

First, masterworks were not found to be higher in balance than paintings from MOBA. Also, both categories were considered higher in quality when properly balanced than when balanced. This demonstrated that perception of a work as masterful is not solely distinguished by composition.

7. Social Psychology

This branch of psychology examines how one is influenced by their social context. Therefore, a social psychologist would study the influence of other extraneous elements, such as society, media, family, gender roles, etc. on individual behavior.

Social psychologists answer questions like the following:

- How does prejudice and discrimination affect individuals?
- What kinds of images in advertisements make persuasive messages?
- Can art serve as an effective tool to promote social change?

A study by Sommer and Klöckner (2019) is an example of the manner in which a social psychologist approaches the role of art in society. The authors investigated whether or not visual art presented at an environmental art festival had the capacity to raise awareness of environmental issues. Examining 37 different visual art pieces, they gathered data from 874 different people viewing the pieces. Given that the festival was located in a park (not a museum), most participants were unaware they were specifically at an environmental art festival. The participants were asked questions about the perceived quality of the artwork as well as their emotional and cognitive reactions. The greatest positive effect was found for artworks that exemplified the beauty of nature and implied solutions. For example, *Mur Vegetal* by Cicia Hartmann was a piece at the exhibit. This piece, displayed in Figure 1.5, is a beautiful bed of flowers made from upcycled materials. In order for art to affect positive change on environmental issues, the authors suggested departing from depictions of a dystopian future to art that proffers solutions while highlighting the wonder of nature.

8. Personality Psychology

Personality refers to an individual's unique patterns of behavior, thoughts, and emotions that remain consistent through time and across situations. Thus, personality psychology studies how such patterns impart uniqueness to an individual.

Personality Psychologists answer questions like the following:

- Is personality a stable trait or something that is susceptible to change with the social context?
- Are specific personality types drawn to certain types of art?
- Is there really such thing as a "creative personality"?

Figure 1.5 People looking at Cicia Hartmann's (faitparcicia.com) colorful work of art, *Mur Vegetal*
Source: Reprinted from Sommer and Klöckner (2019).

In a typical study, the researchers will administer a personality test before presenting participants with various works of art and then ask them to indicate the extent to which they like each one using a scale (from 1 to 10, for example). Chamorro-Premuzic et al. (2010) conducted one such study. They collected 3,254 participants online through the British Broadcasting Corporation (BBC, 2005) website.

The authors had too many hypotheses to summarize here, so for the sake of simplicity, let's stick to one. Those scoring higher in extraversion were theorized to like emotionally uplifting art, like Rothko's *Orange and Yellow*, ca. 1956. Expectedly, extraversion positively correlated with liking of colorful, complex, and happy paintings. This study is explained in greater detail in Chapter 6.

NOTE-TAKING PROMPT: What are the eight branches of psychology most relevant to this subject? Take a moment to review each and define in your own words. Are there any that attract your attention as particularly interesting? Take some time to look up some articles on that subject. From your perspective, what would be interesting questions to ask within these branches?

How Do Themes of Observation and Reflection Apply to Personal Experiences of Art and Creativity?

So far, I have highlighted the significance of adopting a scientific mindset when exploring the psychology of art and creativity. In science, the tools of observation (evidence/

empiricism) and reflection (systematic, logical approaches) have been honed over several years of application and discussion at institutional levels. By contrast, art is a viscerally personal experience. You may be asking how your personal experience of art will fit into the overarching themes of observation and reflection.

It is helpful to grow as an artist, student, or even as a person to distinguish between an immediate reaction and leaving yourself vulnerable to observation and reflection. While the experience of a work of art often connects to an immediate gut feeling, it is helpful to develop a practice of cycling through careful observation and reflection using this gut feeling as just a single element in the experience of the piece. For example, after looking at Andy Warhol's soup can, you could immediately say to yourself, "This isn't art" or "I hate this." However, don't stop there! Take a closer look and ask questions. Use your initial reaction as a prompt – why don't you like it? This process of observation and reflection using your initial reactions will help you understand the world of art, yourself, and perhaps humanity on a deeper level.

Throughout this book, you will be exposed to prompts that will help you observe and reflect on artworks and the artistic process. For now, I leave you with one question: Why? This is a sort of all-purpose magic question that is always sure to facilitate the observation and reflection process. Why do I feel that way? Why did the artist choose these colors? Why did the poet break the rhyme scheme here? Why do these harsh lines work so well in this piece? Why? Why? Why?

NOTE-TAKING PROMPT: What is the relationship between your immediate reaction to a work and the process of observing and reflecting? Find a work that you have found challenging in the past (this can be a painting, song, poem – anything) and start asking why questions. Start with your immediate reaction, and move to questions about the artist's choices and meaning of the piece.

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2 What Is Art?

What You Will Learn

While this chapter is essentially about art, it is also very much about definitions: how they are often helpful but sometimes not. When investigating something as constantly evolving and as close to the mystery of humanity as art, it is natural to ruminate on what the nature of a definition involves. What is art? Can it be defined in a useful way? Are categories appropriate, or will they always have fuzzy boundaries in the field of art and aesthetics? The purpose of this chapter is to offer the vocabulary and conditions to think critically about art.

Chapter Outline

What Is Art?
What Are Some Traditional Definitions of Art?
Can We Distinguish Art From Nonart? Or Among Better or Less Types of Art?
What Are Some Philosophical Views on Definitions?

Terms to Identify as You Read

Distinguish
Art vs. Design
Art vs. Entertainment
Art vs. Skill
Form vs. Content
Personal vs. Collective
Process vs. Product
Elements of Art
Color
Form
Line
Shape
Space
Texture
Value
Principles of Design
Balance
Emphasis
Harmony
Movement

DOI: 10.4324/9781003014362-2

Terms to Identify as You Read

Proportion
Rhythm
Unity
Variety
Considerations in the Definition of Art
Aesthetics
Expressive Properties
Formal Properties
Functionalism
Historicism
Necessary and Sufficient Conditions
Proceduralism
Representational Properties
Psychological and Philosophical Considerations
Category
Concept
Family Resemblances
Fuzzy Boundaries

What Is Art?

As you can probably guess, this question has no simple answer, though many feel that the boundaries of what constitutes art are somehow intuitive. For example, I love good stand-up comedy, and I was recently intrigued by the following quotation by comedian Hannah Gadsby during her Netflix special called *Nanette* (produced by Frank Bruzzese, 2018): "High art, you know, that's what elevates and civilizes people. You know, galleries, the ballet, the the-a-ter. All these things, you go there, you get better. Comedy? Low-brow. Well, I'm sorry to inform you, but nobody here is leaving this room a better person. We're just rolling around in our own shit here, people."

I find this quote funny and intuitive and . . . wrong! It was made by Hannah Gatsby, who went on to become my favorite comedian after I saw her award-winning show on Netflix. One of the reasons I love Hannah is that, in spite of her bold claims, I feel that I *did* become a better person after watching this hour or so of comedy, and much like exemplary canonical works at their inception, *Nanette* has been vilified and glorified. It has both angered and elevated those who have seen the show, and she has been both reviled and appreciated but rarely ignored after being seen. Whether the influence of this work is to be engraved in the annals of history and the name Hannah Gatsby echoes through freshman literary anthologies for all eternity is yet to be seen. However, the question before us now is, can this be considered art? If yes, can it be considered good (a.k.a. "high" art?) Why or why not? I promise you, this chapter will test your *tolerance for ambiguity*. I've also got some news for you; I was teasing you by saying definitively that the quote is wrong. As always, my endeavor is to place evidence-based scientifically verifiable facts on the ground and let you make the decision rather than proclaiming judgment on my own. Against this backdrop, the present chapter aims to empower you with the vocabulary and critical thinking skills so that you can think about this issue for yourself, hopefully with some newly developed "highbrow" skills.

Imagine walking into a glass room of white smoke. You hold out your hand in front of you but can't see it. You bring it closer until it is just before your nose; finally, you can

make it out. You know people around you are like you, tourists in a London art exhibit, harmless and inquisitive people. But you still don't want to touch them, so you walk through this unusual exhibit very cautiously, trying to sense others, occasionally hearing the shuffling of feet, a nervous laughter, or someone whispering to their spouse, both a bit giddy with questions and nervous. So you make your way out – an exhilarating experience, no doubt! But, is it art? This was an exhibit by Antony Gormley at the Haywood Museum in London – Gormly, *Blind Light* (www.theguardian.com/arts/gallery/2007/may/15/1).

NOTE-TAKING PROMPT: Before reading on, consider all the previous examples and answer this question: Are there any of these you wouldn't consider art? Why or why not?

I am convinced that the popular media has been an influence in the way I and others have defined art. I recall an episode of the '90s TV show *Murphy Brown* where the protagonist tried to trick snobbish art critics by submitting an image her child made as a significant work of art. Since we had some abstract art in our home, I remember wondering if those images somehow counted less than other images.

Additionally, I recall a line from a movie that ostensibly captured how I felt about art at the time: "Art opens your mind to a new idea" (from film *Mona Lisa Smile*, Directed by Mike Newell, 2003). Of course, Hannah gives her considered view in the aforementioned quote. The popular media brings us face-to-face with several ideas about the limitations of art and could well be one credible source that influences our perception of what we consider art and what it means to us.

One reason why it is difficult to define concepts such as art is because they are ever evolving. It goes without saying that the manner in which we discuss them changes with media exposure.

NOTE-TAKING PROMPT: How does mainstream media affect how we determine what is considered art?

Definitions – a Word by Any Other Name?

Definitions are frequently used at the beginning of lectures and books to facilitate an informed starting point for discussion. Further, in order for it to be informative, a good definition provides *necessary and sufficient conditions* for something to be included; in this case, the concept is art. In this context, a *necessary* condition is a state that must be present for something to be included within that concept. Water is a necessary condition to make my morning coffee, but it doesn't guarantee coffee. Similarly, a *sufficient* condition is a state that guarantees inclusion within the concept. Water is necessary for coffee, but it isn't enough – it isn't sufficient. In contrast, a shape with three connected sides is sufficient for a triangle. In other words, necessary and sufficient conditions allow one to clearly

establish what is included and what is excluded: Only those things that meet the criteria are included by that definition (Davies, 2005). As you will see, it is harder than you think to find such definitions. Nonetheless, I would like to offer you such a definition for art, but I am at a loss when it comes to defining art in such a way, even after investing decades of research and reflection.

Starting With the Obvious: How Do Dictionaries Define Art?

Looking for more concrete answers, let's turn to that typical yet most credible source of definitions: the dictionary. Looking "art" up in the American Heritage Dictionary (2022), I found the following:

> **Art**: *n.* 1. a. The conscious use of the imagination in the production of objects intended to be contemplated or appreciated as beautiful, as in the arrangement of forms, sounds, or words. b. Such activity in the visual or plastic arts: *takes classes in art at the college*. c. Products of this activity; imaginative works considered as a group: *art on display in the lobby*. 2. A field or category of art, such as music, ballet, or literature. 3. A nonscientific branch of learning; one of the liberal arts. 4. A skill that is attained by study, practice, or observation: the art of negotiation. See Synonyms at skill. 5. a. arts Artful devices, stratagems, and tricks. b. Artful contrivance; cunning. 6. Printing Illustrative material, especially in contrast to text.

Does it get any better? To be honest, I'm not sure – even after compiling all those words to define art, I have more questions than answers. Have we found the set of necessary and sufficient conditions we seek? Despite being a comprehensive definition, it does seems to include almost everything to the point of not being very useful. Under this lengthy definition, I can literally include everything from a hasty arrangement of flowers and an apologetic text to my friend to the level of skill my friend has acquired at a particular video game. Long ago, I learned in my intro to philosophy class that *a word that means everything means nothing*. This seems to apply here.

What Are Some Traditional Definitions of Art?

Traditional definitions are those that have been applied by scholars through the history of art and aesthetics. Studies of the arts are embedded within a broader field of *aesthetics* – the study of the condition of being moved in some way by an experience such as feelings of awe, delight, and beauty. Although many stimuli may inspire an aesthetic response, such as a landscape, art is an enormous category within the study of aesthetics. According to Adajian (2012, 2016), traditional definitions of art postulate that artworks are united by one set of properties. In general, these properties are suggested to fall into any one of these three categories: representational properties, expressive properties, and formal properties. *Representational properties* are *mimetic* or imitative properties, as discussed by Plato (see complete works, 1997). Succinctly put, something is art if it is a recognizable imitation of something else. Correspondingly, Carroll (1999a) put forward a more precise definition: An artwork may be called representational if a) the artist intends it to be so and b) viewers/listeners generally recognize it as such. According to this definition, Van Gogh's *Café* would be more likely than Pollock's *Autumn Rhythm* to

qualify as art because it is emblematic of something even if it isn't photorealistic. The predicament with this definition is that although various works are easily recognized as what they represent, other works, like Jackson Pollock's oeuvre, are not and are still widely considered art.

Another collection of properties is referred to as *expressive properties*. According to definitions of art based on expressive properties, art conveys emotion; thus, something can be considered art only if it was created to express an emotional state (Tolstoy, 1995). Of course, this definition is also not impervious to problems. First, we have no way to know what the artist/author/composer intended to convey in the first place even with evidence like letters and diaries; we really don't have more than a possible approximation of the artist's thoughts. Also, many "works" we create are intended to arouse emotion but don't seem to qualify as art, like an angry text to your significant other or giving someone you love a flower to engender feelings of warmth and joy. Also, many pieces convey ideas or truths but not necessarily emotion in the way we are discussing: Consider Duchamp's *Fountain*. The primary purpose appears to inspire intellectual thought, rather than evincing a particular emotion. However, this continues to be ubiquitously considered art.

Finally, *formal properties* include the skillful arrangement of *elements* such as line, form, shape, etc. and use of *principles* like rhythm, unity, and proportion (see list that follows). Meanwhile, the theory of art known as *formalism* examines how these elements and principles work in tandem to create what is referred to as *significant form*. According to Carroll's definition of formalist theory, "X is a work of art if and only if x is designed primarily in order to possess and to exhibit significant form" (p. 115). Generally, *significant form* is thought to be a complex arrangement of each element into a whole. These are the elements and principles of art that may combine to create significant form:

Formal Elements of Art

Color: This element of art consists of three properties:
Form: Contrary to shape, this element of art refers to three dimensions of height, width, and depth.
Hue: The discernable name of the color – for example, red, green, maroon, or brick.
Intensity: The quality of brightness and purity. High-intensity colors are strong and bright, whereas low-intensity colors are faint and dull.
Line: This element of art refers to a point moving in space; it can be two- or three-dimensional.
Shape: This element is two-dimensional, limited to height and width.
Space: This element of art includes positive and negative areas of a plane.
Texture: This element of art refers to the manner in which things feel – or how they look like they might feel when touched.
Value: This element of art refers to the lightness or darkness of colors.

Principles of Art

Balance: This principle combines different elements to create a sense of stability in the piece.
Emphasis or Contrast: This principle combines elements in such a way as to emphasize the differences among those elements.
Gradation: This principle combines different elements through gradual changes.

Harmony: This principle is how the elements of the piece combine to create a coherent and pleasing unit.
Movement: This principle is used to create a feeling of activity.
Proportion: This principle concerns the placement of elements in relation to the whole as well as to other elements within the piece.
Rhythm: This principle indicates movement.
Variety: This principle embraces the usage of disparate elements.

(See www.oberlin.edu/amam/asia/sculpture/documents/vocabulary.pdf.)

What is nebulous here, of course, is to determine what is meant by significant form. Significant form is in fact a theory proposed by Clive Bell in 1914. Bell (1982) elucidated what he believed coalesces all art forms:

> In each [work of art] lines and colors combined in a particular way, certain forms and relations of forms, stir our aesthetic emotions. These relations and combination of lines and colors, these aesthetically moving forms, I call "Significant Form," and "Significant Form" is the one quality common to all visual art.
>
> (p. 3)

It seems that all works possess some form; at what point may we call this form "significant"?

Intuitively, each of these traditional definitions captures some forms of art and omits others. Conversely, it is possible to easily interpret to encompass works or actions that are not intuitively considered works of art. The goal of capturing the necessary and sufficient conditions for art is yet to be met. Moving from these traditional definitions, I have investigated some of the broader theories of art inspiring them for answers.

NOTE-TAKING PROMPT: Summarize the differences among representational, expressive, and formal properties of art. How do these distinctions inform how we define art in broad terms? See if you can think of examples and counterexamples of each for yourself.

Theories of Art

There are three major theories of art: functionalism, proceduralism, and historicism. According to Dickie (1997), most theories of art are subsumed under *functionalism*. It is noteworthy that functionalism assumes that *art fulfills a basic human need or needs* and the definition of art must be centered on those needs. Beardsley (1979) came up with a well-known functional definition: "An artwork can be usefully defined as an intentional arrangement or conditions for affording experiences with marked aesthetic character" (p. 729). Put differently, for something to be called "art," it is necessary for it to produce or at least intend to produce an *aesthetic experience*. Beardsley defined the aesthetic experience as "pleasurable" (1969, p. 5), "refreshing and free from inner disturbance or unbalance" (Beardsley, 1981, p. 560), an experience that "relieves tensions and quiets destructive impulses . . . resolves lesser conflicts within the self, and helps to create an integration or harmony . . . refines perception and discrimination . . . develops the imagination" (p. 574). Nevertheless, challenges with the functionalist approach center on defining aesthetic experience and generally what the function(s) of art is or should be.

In contrast, *proceduralism* is a theory of art that *requires the status of art be conferred by an authority figure in the art world* (Davies, 1990). Danto (1964), who advanced the earliest procedural theory, used a thought experiment called "The Perceptually Indistinguishable Objects Argument." In this thought experiment, consider two exactly same-looking objects: Duchamp's *Fountain* versus an actual urinal in your local gas station restroom. Generally, one is given prominence by authority figures in the art world as art, whereas the other is not. Why? In Danto's words, "it is the role of artistic theories, these days as always, to make the artworld, and art, possible" (p. 581**)**.

But there are examples, such as cave paintings, that are also generally considered art (and it seems intuitive to do so). Furthermore, it seems unlikely that these paintings were produced with any theory of art in mind that we know of and, until recently, never had an authority figure confer any special status. Thus, while procedural theories are more generally useful for including avant-garde and modern and post-modern works, they exclude many works and certainly any works produced before rhetoric (sorry, Venus of Willendorf; I guess you just aren't art!)

Another theory has been advanced by Davies is that of *historicism*. According to Davies (2005), art is itself is always in a constant state of evolution, and so "something is an art work only if it stands in appropriate relation to it forbears" (p. 173). This implies that art at one time will not be art at another time (Davies, 2005). In this regard, one famous definition in the area is Levinson's (1990) intentional-historical definition: "An artwork is a thing been seriously intended for regard in any way preexisting or prior artworks are or were correctly regarded" (in Adajian, 2016, para. 22).

The purposes of these theories are to establish clear boundaries between what is included in the term "art" and what *is not*. Evidently, it is easy to think of exceptions to each of these ways of thinking about art. Thus, let's now turn our attention to more specific ways in which art has been distinguished from other similar kinds of work.

NOTE-TAKING PROMPT: Can you think of exceptions to each of the previous theories? Do counterexamples negate the theory as a whole or support a blended theory?

Can We Distinguish Art From Nonart? Or Among Better or Less Types of Art?

One way of capturing the essence of something is to contrast it with something similar but clearly not a part of that concept. The idea is that there are things that go around masquerading as art but, in reality, are merely a costume of shared features. Sure enough, that might be a canvas with paint on it – but does that qualify as *art*? The following are some of the ways defining art has been approached through the mechanism of contrast – i.e., defining what art *is* by presenting clear examples of what it *isn't*. Although there are many ways of distinguishing art than can be included in this particular chapter, some of the major contrasts include high art versus low art, canonical versus noncanonical art, and art versus entertainment.

High Art Versus Low Art

Like Hannah Gatsby said, high art elevates, and low art doesn't. When we make this distinction, we can turn our attention to distinguishing among *types* of art, specifically

between "high" art and "low" art, instead of trying to distinguish art from nonart. Low art is often described as "popular" art. Though defining high versus low art may be just as difficult as defining art itself, most of us can intuitively distinguish among examples within this contrast more easily than completely dismissing works as nonart. For example, it may be easier to make the judgement that a comic book is a more appropriate example of popular art than to say it isn't art at all. Likewise, in music, Beethoven is a better example of "high art," whereas Taylor Swift is an example of "low art," and so on. I bet that, regardless of your personal experience with art or how you have chosen to define art for yourself, you can categorize the following into high versus low art. This is because the distinction is contingent on our perceptions of what others would say and had been encoded in us (at least in the West) through our educational system. Though this distinction does not posit which works are not considered art, there is an implicit line of thought that high art is more "real" art and low art approaches the concept of nonart more closely (Fisher, 2005).

NOTE-TAKING PROMPT: Where are the aforementioned pieces along this scale? Duchamp, Gormley, VanGogh, Gadsby?

Although it is often an intuitive exercise to categorize what is broadly considered by others as high art versus low art, it is more difficult to state what principles were used to make that distinction. One perspective is that the only consideration is really between traditional, established art versus newer, modern art. In other words, if something has been labelled as art for x number of years, it is high art; whereas anything newer is labeled as popular art. Also, the older the piece, the higher we place it on the scale of what is construed as *true art*. This view may resonate with a lot of us for several reasons; for example, newer works have a higher likelihood to be mass-produced for commercial gains. Therefore, some critics have opined that newer forms of art are created from an intolerance of ambiguity: in order to be more familiar these works tend to be simpler rather than embracing complexity. In addition, they are said to be created for emotional indulgence rather than tangible growth (see Fisher, 2005 and Kaplan, 1972). Are all modern mass-produced works disposed to this kind of superficiality (even banality) and paucity of emotional enrichment?

Consider these positions outlined by Fisher (2005):

Intolerant hierarchical view: This view posits that there are two classes of works: high art versus popular art, although the latter form of art is "essentially flawed" or, according to some, not really art in the first place. Thus, Beethoven will always be superior to Taylor Swift.

Tolerant hierarchical view: According to this view, there are again two classes of works: high art and popular art. Art is superior to popular art, but popular art does have its place. For example, you probably don't play Beethoven at your pool party to liven things up. You play Taylor Swift. This view holds that the emotional and psychological impact of popular art is real and important without disregarding the fact that the impact of high art is more personal and is redolent with cultural significance.

Pluralistic hierarchical view: This viewpoint postulates that there are two classes of works, but one is not superior to the other. Each group meets important yet different aesthetic needs (see Cohen, 1999). For example, Beethoven is clearly high

art, whereas Taylor is clearly popular art, but both art forms are put on the same pedestal, and one is not deemed more superior than the other. So, you play Taylor at your pool party and she may have the personal/emotional/cultural significance of Beethoven, but we are still going to call her "popular" art and not "high" art.

Conventionalist view: According to this view, there are no "substantive aesthetic differences" (Fisher, 2005, p. 531) between high and popular art. The distinction is merely a matter of social convention (see Novitz, 1992). Taylor = Beethoven, and haters are just gonna hate, hate, hate, hate!

Canonical Versus Noncanonical Art

A related distinction is between *canonical* versus noncanonical art. According to Diepeveen and van Laar (2001), *the canon* is the commonly agreed-upon artworks and/or artists established as central to understanding of art and humanities (p. 22). This is pretty much the required viewing/reading list that follows us from our earliest educational endeavors: You simply aren't educated if you have not attended a Shakespearean tragedy or ruminated over Picasso. Canonical works are certainly viewed as art, particularly high art. But how does a work get included in the sacred canon? Who decides what is culturally important versus what is not? Diepeveen and van Laar (2001) are of the view that several factors and institutions converge to establish works as important: museums, academics, art critics, art dealers, and artists themselves. The process of inclusion, however, is not a democratic and quality-based process. Like other areas of life (and industry), biases make inclusion easier for some compared to others. The authors point out that art history is not only riddled with racism and sexism that prevents artists from becoming established merely on the basis of demographics, but several types of artworks are also excluded from consideration. For example, mass-produced collective works such as animations; works that have functions other than the aesthetics, such as quilts; and ephemeral works that cannot easily be collected, such as performances, have been excluded. Although the notion of a canon may be unavoidable, the authors conclude that "it is more than just a neutral container for art" (p. 31). This implies that the canon can change, and it certainly seems that this is not the best place to seek an inclusive definition of art.

Art Versus Entertainment

In today's world of mass production and instantaneous mass dissemination, the distinction between art and entertainment has been highlighted. Similar to the discussion of high art versus low art, this distinction avows that art created for the purpose of entertaining panders to the most unsophisticated among us in to order to be successful. The idea is that creative endeavors for entertainment purposes are usually motivated by commercial gains, a motivation that is said to strip away the high standards and innovation that are thought to motivate 'true art.' So, this begs the questions: Does art as entertainment always simply appeal to the baser aspects of human nature? Is it possible that something created for commercial gain be art? Can art ever be commercially successful? Comedy, for example, seems to be generally constructed for pleasure versus contemplation (though there are exceptions like political satire and Hannah Gadsby's *Nanette*) and has been classified as low art since the era of Plato (Fisher, 2005). Indeed, I return to my personal favorite comedian and the previous quote. It also seems unlikely that art only encompasses works solely created for deep contemplation as opposed to enjoyment. Further, it seems unlikely that all true art has never been motivated by commercial considerations.

NOTE-TAKING PROMPT: Give examples of canonical versus noncanonical art. Also, give examples of art versus entertainment. Do you find these distinctions useful? Why or why not?

Focus on Effect: Distinguishing Art by Response Expectations

The previous distinctions have essentially focused on the art piece itself. Other distinctions focus on the effect, or the intended effect, on the audience. According to some general principles, true art is sublime and/or challenging. Was this piece created to, as Gatsby says, "make you a better person"? Was the viewer, in effect, made better by the experience of the piece? Many of these considerations are along the same lines as the distinctions made between high and low art. For example, since the time of Plato, it has been suggested that "real" art appeals to higher notions of beauty, morality, and cognition, whereas low art appeals to more banal aspects of human nature. Thus, it is argued that the effects of art should be challenging. Art, according to this view, by its very definition and concomitant nuances, shouldn't be safe and easy; it should encourage you to think more deeply about something meaningful. It should work on multiple levels and inspire insights. Also, art should be socially challenging – it should provide insights into and frequently challenges the existing social and economic systems as opposed to reinforcing them (Carroll, 1999b; Fisher, 2005; Kaplan, 1972).

Focus on Process: How Did We Get This Piece of Work?

Process Versus Product

Another way to decipher art quality is to distinguish the *doing* from the *done* and critique each in different ways. When we talk about *process*, we are talking about the act of creating. In contrast, the finished work is the *product*. Many psychological theories and research have focused on the process of creating art rather than the final product itself.

Psychological Versus Visionary

Let's focus our attention on the process of creating art. Carl Jung divided creating art into two modes: psychological and visionary. The first is the *psychological (a.k.a. personal) mode*, whereas the other is the *visionary (a.k.a. collective) mode*. The *psychological (a.k.a. personal)* is directed by the *conscious mind*; in this mode, the process of creation comes "wholly from the author's *intention* to produce a particular result" (Jung, 1978, pp. 309–10). Art generated in the psychological mode is frequently more realistic and accessible in form and content. The artist intends to create a picture of a tree or signify anger, consciously engaging in that process, a process engaged to generate a specific product.

The *visionary mode (or collective mode)*, in contrast, is directed by the *unconscious* mind, whereas art created in this mode tends to be more abstract and allegoric. In this mode, the artist creates without consciously directing the process. As an example, Jung would often have his clients create mandalas circles containing geometric and symbolic forms, in therapy. The goal was not to create specific product but to let the unconscious take over in the creation of the mandala.

Thus, the process of creating art itself may be focused on the end product, as in Jung's psychological mode, or the unfolding process of creation, as in Jung's visionary mode. In Chapter 3, we will learn about some neuroscientific evidence for brain networks that

may be associated with these modes. Typically speaking, the psychological mode may be produced with high activity in the executive network of the lateral frontal lobes, whereas the visionary mode maybe more likely to activate the imagination network in the medial frontal and temporal lobes. Though we are getting a bit ahead of ourselves, in particular, Carson's (2010) descriptions of the brain's *reason* and *evaluate* networks are likely to correspond with psychological mode. Her vision, association, connection, transcendence, and stream networks are likely to correspond with visionary mode.

The question before us is whether or not art created in one mode is a more authentic form of art. Is art created in visionary mode a truer expression of art or vice versa? In my opinion, not really. I feel it is important to think of these as ends of continuum, with each informing the other.

NOTE-TAKING PROMPT: What is meant by looking at the product versus the process? How does Jung's distinction between visionary and visionary modes of creation relate to this distinction?

What Are Some Philosophical Views on Definitions?

Challenging the Necessity of Definitions Themselves

Does art have any defining features in the first place? Another way of attempting to define art is to question whether or not the concept of art has any specific, defining features. In cognitive psychology parlance, it is often important to distinguish between *concepts* and *categories*.

> **Concept:** A mental representation (e.g., "cup"). This does not refer to any actual cup but the idea in your head of a cup.
>
> **Category:** All the actual things in the world that represent that concept (all the things in the world called "cup").

Using these distinctions, we can think about how definitions fit in. How do we know whether an item fits into a particular concept or category?

One theory of definition – a.k.a. category membership to cognitive psychologists – is the *classical view*: Concepts have defining features, which act as absolute criteria to determine category membership (something is either "in" or "out," period). In other words, there is a finite set of rules that includes only the relevant category members. How does the classical view match the real world?

Some concepts conform to classical view. For example, a triangle has three sides, and the sum of the interior angles is equal to 180 degrees.

> Other concepts are more difficult: Take "lamp," for example:
> A lamp gives us light.
> So does the sun, which is rarely considered a lamp.
>
> A lamp gives us light in our homes.
> So does a flashlight, which is rarely considered a lamp.

A lamp needs to give light and must be plugged in.
So does my alarm clock, which is rarely considered a lamp.

A lamp gives light, needs to be plugged in, and uses a light bulb.
So does my refrigerator light, which is rarely considered a lamp.
And so on.

The concept of art is far fuzzier than a lamp and certainly more than a mathematical construct like a triangle! As another illustration of how difficult it is to apply the classical view to capture a concept, think of your favorite style of music (rock, jazz, rap, country, classical, pre-9/11 industrial funk, whatever you like). Now, try to find a set of rules that will include *all and only* the relevant bands. If there is one exception, you lose! It seems that even when you feel certain of category boundaries, they are more slippery than you think they are. Thus, a concept like art must be "in" or "out" of the category.

So far, I have been applying the classical view to try to define art. But I don't need to limit to just one option, and there is an alternative: The *probabilistic view*. An alternative to the classical view, the probabilistic view posits that concepts are organized around *typical features* and that category boundaries are often fuzzy. More specifically, concepts are organized around properties or features that are considered more or less characteristic – i.e., some members of a category will serve as better examples of that category. In other words, there is variation in how well each member of a category represents that particular category.

Ludwig Wittgenstein's Take on Concepts and Categories: Language Games and the Word "Game"

Wittgenstein (1954) presented readers with a task of generating a definition of the word "game." Try doing it yourself. Like defining art or your favorite genre of music, it may seem simple at first, but frustration almost always sets in soon enough when we try to generate all and only the items and activities we call "game." For example, games may be defined as follows:

1. Fun – but chess isn't necessarily fun; it is challenging.
2. Competitive – but isn't solitaire a game? And what about playing catch with my three-year-old niece?
3. Recreational – what about professional-level sports? My student athletes are unlikely to call what they do recreational!

And so on. Yet, Wittgenstein (1953) points out that we don't need a thorough definition to easily and quickly identify any inaccurate uses of the word game. Even my three-year-old niece is an expert! Wittgenstein contends that definitions are simply *emergent forms* from what he termed "forms of life," which are products of the culture and society from which they emerged. According to his logic, any definition of *art* is nothing more than a convenient account of a natural form.

How exactly does this work? Why is it that we are sure a certain activity – say, solitaire – is a game, whereas a similar activity, like using a deck of cards to demonstrate a statistical principle in my statistics class, is not? To imbue further clarity on this matter, Wittgenstein uses an analogy that has gained prominence: Category membership is like *family resemblances*. How do we recognize that two people we know are related to one another? There may

be many physical similarities: large nose, light-blue eyes, red hair, idiosyncratic behaviors, tongue-curling capabilities, and so on. Any two family members may share a few or many of these individual characteristics, but the family membership is clear across the group.

Following Wittgenstein's view, the term "art" could be considered the surname of a huge and ancient family!

Definitions of *art* have been defined by category membership, exclusion, effort, effect, technique, talent, novelty, etc., but no one definition seems to encapsulate the necessary conditions of what art is as a whole because of the constantly evolving nature of both art *and* people. The nature of art is creativity, which, as we will see next, sufficient seeks to discard fixed boundaries and conditions. The unique thing about art and humans is that they constantly find novel ways of redefining themselves, which is the continued interest in this integral aspect of life!

NOTE-TAKING PROMPT: What is meant by the distinction between the classical and probabilistic views? Which of these two views do Wittgenstein's theory represent?

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3 Creativity

What You Will Learn

Consider these examples of creativity:

- The story my niece wrote when she was three
- Charlotte Bronte's *Jane Eyre*
- A comic book based on Charlotte Bronte's *Jane Eyre*
- A romance novel based on Charlotte Bronte's *Jane Eyre*

Are these actually creative? How can we know for sure? If they are indeed deemed creative, can only certain kinds of people accomplish such feats of creativity? These are the kinds of questions that will be answered in this chapter.

Chapter Outline

Terms to Identify as You Read

Big-C Creativity
Convergent Thinking
CREATES Model
Creative Assessment Technique (CAT)
Creative Personality Scale (CPS)
Cryptomensia
Divergent Thinking

DOI: 10.4324/9781003014362-3

Terms to Identify as You Read

Everyday Creativity
Inventory of Creative Activities and Achievements (ICAA)
Lateralization of Function
Little-C Creativity
Mini-C Creativity
Monolithic fallacy
Person Perspective
Press Perspective
Pro-C Creativity
Process Perspective
Product Perspective
Remote Associates Test (RAT)
Standard Definition of Creativity
Structure of Intellect Theory
Sublimation
Symbolic Representation
The Default Mode Network (DMN)
The Executive Attention Network
Torrance Tests of Creativity
Unconscious

Why Study Creativity?

This is a brilliant and possibly life-changing question! Trust me – there is a lot of misconception and flagrantly misleading information floating around creativity, and the only way to circumvent that labyrinth of misinformation is accurate, evidence-based information. Exploring and, in particular, teaching the psychology of creativity can often be an onerous process. In addition to being an inherently complex topic, the disagreement between scientists and the general population with respect to the definition exacerbates the predicament for teachers. After initiating discussions on the science of creativity in the classroom, I am often met with some pushback and sometimes even unfeigned horror, as if my attempt to commence a conversation is tantamount to explicating the effects of ghosts on behavior. Many students tell me that creativity is too subjective, diverse, and mysterious to be studied systematically. The very notion that creativity can be quantified seems like assigning a number to capture nothing less than the very spirit of a person; in all fairness, it seems impossible and even violative from a personal standpoint.

I get it. As a social scientist, let me offer some practical insights.

Imagine knowing nothing but the square feet of a house. Now, it would be fair to say that it does provide some information, but does it actually capture the essence of a home? Let me decode that for you. Although square feet can be considered useful information when describing a home, it is not *the home*.

Allow me to present a more personal analogy if you will. Your weight conveys one bit of information on your health journey that is useful and important – although this is far from being a description of you or your worth. The same holds true for GPA, account balance, IQ, level of extraversion, and myriad other quantitative measures that serve as effective data points not intended to capture the entire concept of your wellness or life – or *you*-ness.

Therefore, the same concept can be extended to the realm of creativity as well. We will elaborate upon creativity from using quantitative perspectives here, thus enriching our discussion without capturing the entire spirit – like square feet to the home.

Based on my experiences, any attempt to quantify creativity leads to more questions than answers. On the other hand, as a human-behavior scientist, I reckon it is important to encapsulate the most salient features of humanity as opposed to merely focusing on the quantifiable parts of our experiences. Yes, creativity is a difficult concept to fathom; the term encompasses such a broad array of human behaviors that any attempt to "pin it down" may seem like an exercise in futility. But that's exactly where the book steps in, because it recognizes that the importance of creativity to humans is incontrovertible. It would be erroneous (even egregious!) to look away from an important subject merely because it is difficult to understand.

In 2017, the United States reported 5.2 million arts/cultural jobs (United States Department of Commerce, 2020; www.bea.gov/data/special-topics/arts-and-culture). Also, according to the World Economic Forum (WEF, 2018), creativity, initiative, and originality were the third most sought-after skills (WEF, 2018). These skills include creating, viewing, and criticizing creative works. Furthermore, according to *Americans for the Arts*, over 700,000 businesses were directly involved in creating or distributing art as of January 1, 2015. These businesses employed 2.9 million people, representing almost 4% of US businesses and just under 2% of US workers, which is equivalent to about five million workers according to the NEA (2019) report. Daniel Pink (2006) suggests the economy of a society will depend on people who can imagine, design, empathize, and tell engaging stories. In other words, the future belongs to those proficient in creative thinking. If the past is any indication of the future, this assessment is not without merit because the creative sector has witnessed significant growth since the report was published. In the United States, in 2018, employment in creative industries grew 3.7% in 2019 after increasing 2.3% in 2018. This trend is also seen in the UK, where in 2018 employment, creative industries grew by 1.6%, which is double the growth of other industries for that year (Creative Industries Council, 2018).

But I have a different take on this matter, because to my mind, creative thinking is much more important than economic upliftment. I believe that creative thinking can potentially add lasting meaning to our lives and make us happy in ways that transcend the pleasure we derive from passive entertainment. This implies that creativity assumes cultural, economic, and personal significance. Furthermore, I believe that anything this important to our collective psychology deserves scholarly attention.

What Are Some Misconceptions About Creativity?

As with all things, creativity is not impervious to misconceptions and misinformation as well, so here they are! These misconceptions come in three categories: 1) monolithic fallacies; 2) the mystery of creativity; and 3) incorrect interpretations of data.

First, it is believed that creativity represents only one overarching concept, rather than a multitude of behaviors and ideas, called the monolithic view of creativity. More broadly, the *monolithic fallacy* in social psychology refers to a bias of thinking that everyone in a certain group (for example, ethnic group) is the same. As a case in point, it is often believed that all college freshmen are the same though rationality suggests otherwise. Likewise, this monolithic fallacy suggests that creativity only denotes one particular thing without identifying variations in the concept. As you will see, what is considered creative is predicated upon perspective and scope. Even identifying types and subtypes can pave the way

for fallacies of oversimplification. Just pause for a moment and think of all the contexts in which you use the word "creative." The responses conjured up by your thoughts will help imbue clarity on this topic.

Second, creativity isn't the mystery everyone believes it to be! One of the most ubiquitous misconceptions about creativity is that it is rooted in the mysterious and romantic, thus rendering it unattainable and intractable. Indeed, the notion that creativity germinates from a rare spark of eccentricity or a stroke of genius comes from the misplaced idea that it has mysterious origins (Chapter 5). The unfortunate consequence of thinking about creativity in this manner leaves you "off the hook." If you "aren't creative," you probably think it is because you aren't touched by madness or you just don't have that gifted gene. I've got some news for you. That is not the truth! In reality, it is probably attributed to lack of trying rather than being in possession of a brain that is incapable of creativity. Unless you are severely neuro-atypical, you are creative, so breathe easy! This approach to creativity has done more harm than good because it causes people to feel excluded from an elite list of intellectual superstars. We need to get rid of this facade and realize creativity is just a function of everyday, normal brains – we use it to come up with an excuse to avoid nagging mothers-in-law (not that we're always successful with it, but that's a discussion for another day!) and hide the coffee stain on our shirts – or challenge everything we ever thought was true about cathartic poetry or sublime art that represents the zeitgeist of time.

Finally, saying that a score on a creativity test *is* creativity is like saying the number of square feet *is* the house itself. Likewise, saying creativity is *in* the right-hemisphere angular gyrus is like saying your photos of your cat are "in" the screen. Sure, that is the part that "lights up" (literally) in the most obvious manner when scrolling through photos. And if you damage it, you can't see the cat on that particular screen. However, if you damage many other parts of your device, the outcome will be the same. The screen is just the most obvious area of convergence for many parts and functions.

Where Do These Misconceptions Originate?

Early Ideas About Creativity

The study of creativity has a long history in humanities, with its roots in the mystical and spiritual. Early elucidations of creative power focused on gods and demons whispering to, possessing, or entering the dreams of a creative person (see Sternberg & Lubart, 1999, for discussion).

We are still often influenced by the ancient view of creativity, according to which a creative person is not the source of the creative product per se. Instead, it is a vessel for divine inspiration; Plato himself observed that the poet only writes "what the Muse dictates" (Sternberg & Lubart, 1999, p. 5). These muses, the nine daughters of Zeus, presided over nine different areas of human achievement – love poetry, epic poetry, divine poetry, dance, music, tragedy, comedy, history, and astronomy. As a creator, your particular muse would approach you and inspire your creation to flow through you. For this reason, the creative individual was viewed as a mere instrument for divine attributes (Simonton, 2014). Similarly, the Greeks also attributed creative insight to the possession of benevolent demons (Becker, 2014).

With the advances made in the field of psychology, psychoanalytic thinkers such as Sigmund Freud and Carl Jung offered lucid explanations of creativity emphasizing the role of subliminal wish fulfillment and symbolism in the context of the unconscious. For

example, Freud analyzed several artists and innovators such as da Vinci, Dostoevsky, and Michelangelo, attributing *unconscious* motivations to their extraordinary creativity (Irvine, 2011). Freud's analysis suggests that da Vinci's creativity could be explicated as an "instinct to investigate," a *sublimated* response from childhood "sexual researches." In addition to these, da Vinci's proclivity to creativity stems from an absent father figure in early childhood and overidentification with his mother. Freud believed that these tendencies are amply evidenced in his many representations of the Madonna (Gay, 1989; Irvine, 2011). In a separate analysis, Freud noted that Dostoevsky wrote subconsciously about his abusive family and his death wish for his father (Freud, 1928; Irvine, 2011). Michelangelo created a sculpture of Moses to curtail his rage (Gay, 1989; Irvine, 2011). Though these claims were important when it came to shaping the field of psychology, the current scientific community rarely accepts Freud's analyses due to insufficient evidence. In Kaufman's words, "We're not talking heavy-duty psychological science" (2009, p. 3).

Another towering personality in the domain of psychoanalysis, Carl Jung, was introduced in Chapter 2. The section included a discussion of the difference between creating from the psychological mode and the visionary mode. As a psychoanalyst, Jung believed in the potential of the unconscious, more specifically the *collective* unconscious. In his view, when an artist allowed his or her unconscious to "take over" the process of creation, the result was a *symbolic* representation. For example, according to Jung, circles generally represent the psyche or self, whereas squares represent the body, earth, and material world (Jung et al., 1964). Jung was also intrigued by *cryptomnesia*, a scenario when forgotten memory emerges without the subject's awareness. He wrote about a section of Nietzsche's *Thus Spoke Zarathustra*, which includes a reproduction from a book Nietzsche read at the tender age of 11 (Jung et al., 1964). For Jung, cryptomnesia cases not only provide credible evidence of the unconscious but also lend credence to the fact that artists experienced optimum cryptomnesia. Jung stated,

> A creative person . . . does not at first see the wealth of possibilities within him, although they are all lying there already. So, it may easily happen that one of these still unconscious aptitudes is called awake by a "chance" remark or by some other incident, without the conscious mind knowing exactly what has awakened.
>
> (Jung, 2014, p. 110)

Thus, Jung believed cryptomnesia was a mechanism of creativity. Again, it is difficult to scientifically prove his assertions, which is why these conclusions are often dismissed or, at best, are relegated to a subject of debate among scholars.

NOTE-TAKING PROMPT: Compare and contrast the Greek ideas about creativity to the Romantic and then psychoanalytic theories (Freud and Jung). How are the early ideas about creativity similar? How are they different?

How Do Modern Psychological Approaches Understand Creativity?

Beginning in 1950, research on creativity took a more scientific turn following Guilford's address at the American Psychological Association (APA) conference. Since 1950, the scientific study of creativity has gained prominence in the fields of psychology and education.

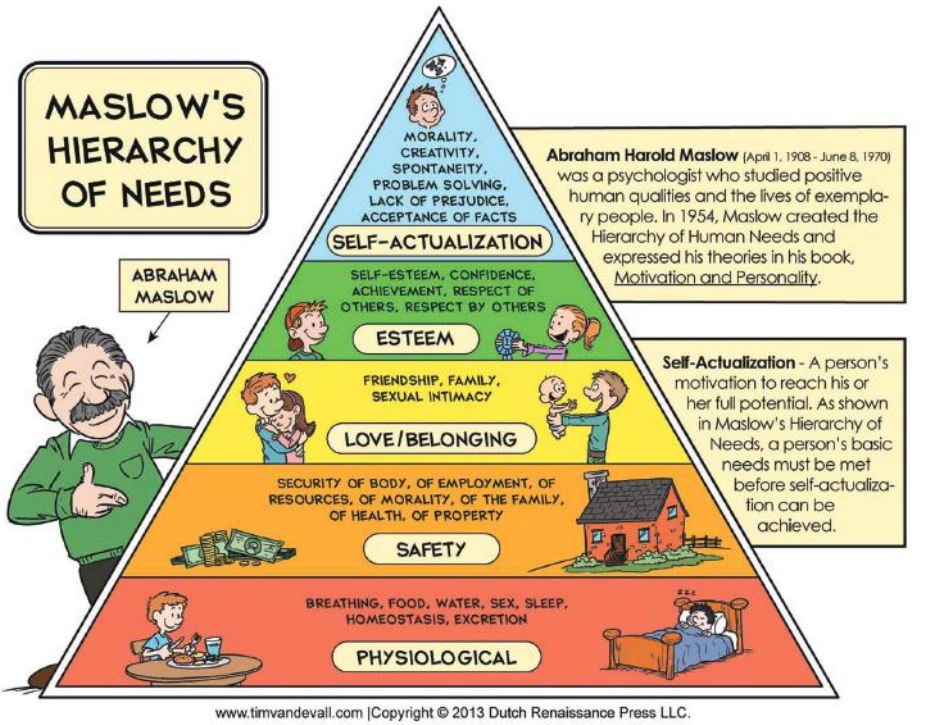

Figure 3.1 Maslow's hierarchy of basic human needs. The bottom of the pyramid represents the most basic needs.

In this regard, Guilford advanced the *Structure of Intellect model* (1967). The most essential concept to our discussion of creativity is the identification of *divergent thinking*, which means the ability to generate several possible solutions to a problem or to form multiple ideas from a single starting point. For example, brainstorming entails you exploring several possible solutions or ideas to arrive at the most optimal one. Divergent thinking is usually contrasted with *convergent thinking*, which commences from multiple points and seeks the right or best possible solution (Guilford, 1967). Answering any multiple-choice question is an example of convergent thinking. This is the traditional mode of learning and education.

Another potential turning point in the study of creativity was the publication of Abraham Maslow's *Toward a Psychology of Being* in 1962, which paved the way for the acknowledgement of "everyday creativity." He writes, "the kind of creativeness I have been trying to sketch out is best exemplified by the improvisation, as in jazz or in childlike paintings, rather than by the work of art designated as 'great'" (p. 145). Maslow, a leader in the humanistic school of psychology discussed in Chapter 1, is renowned for outlining the hierarchy of needs (see Figure 3.1). At the top of this hierarchy is self-actualization, or

> the desire for self-fulfillment, namely, to the tendency for (a person) to become actualized in what he is potentially. This tendency might be phrased as the desire to become more and more what one is, to become everything that one is capable of becoming. (1943, p. 382)

More specifically, he opined that "creativeness" is a fundamental property of the self-actualization process and of self-actualized people in particular.

The impact of both Maslow and Guilford should not be underestimated in contemporary psychology. Maslow reframed the connection between creativity and well-being, which eventually cleared the pathway for the emergence of *positive psychology*. Similarly, Guilford put the spotlight on the importance of creativity research as an integral aspect of *cognitive psychology*. The remainder of this chapter is devoted to condensing research that occurred after the contributions of these two pioneers. Though much progress has been made, extensive debates persist in this area of scholarship, commencing with the very definition of creativity itself. Is creativity one skill or many? Is there a difference in the cognitive processes underlying everyday creativity compared to the creativity engendered by genius? Is creativity a personality trait or intellectual capacity? In the next section, we will begin by asking how creativity may be defined.

NOTE-TAKING PROMPT: How was Guilford important to the modern study of creativity? How was Maslow important to the modern study of creativity?

How Can We Define Creativity?

The Standard Definition of Creativity

Since the 1950s, social scientists and educators have intensified their efforts to study creativity. The first part of that effort entails generating an acceptable conceptual definition. Not surprisingly, just agreeing on a definition can be contentious. However, a generally accepted standard definition has emerged over the past few decades: *Creativity* is the ability to produce work that is both *novel* (original and unexpected) and *valuable* (which, depending on the context, may mean high quality, appropriate, useful, functional, and/or and meets the constraints of the task at hand). This has come to be known as the *standard definition of creativity* (Runco & Jaegar, 2012). It is noteworthy that this definition is twofold:

1. A creative response is first and foremost *novel* – something must be unique in order to be deemed creative. This seems rather uncontroversial in most discussions about what being creative really means. A creative entity must possess an aspect of "newness" in some respect, such as from the viewpoint of the artist (new to him) or the culture (something never seen before within a group).
2. A creative response is also *valuable* as defined within a particular context. The value may be to a culture or group, like Andy Warhol's *Campbell's Soup Cans* (1962), or it could be in relation to an individual, such as a child coloring and experiencing insight into the manner in which colors balance each other; in this case, the personal insight is valuable to the child's growth. Throughout the history of creativity research, many synonyms for value have been offered, such as relevance, usefulness, significance and, appropriateness. Importantly, though specific ideas about value may change across time, people, and situations, some aspects remain important to the definition of creativity.

This definition is intuitive to many. Originality without value may be a flippant approach. Then, there are several valuable contributions that are not original, such as following a formula to generate the right answer. Many concur that this sort of value, though important, is not considered creative (Kaufman, 2009).

According to most of the literature on creativity, regardless of whether we are talking about fine art or design or complex aeronautical engineering or deciding what to wear for the next work event, a creative expression or solution includes both novelty and value.

NOTE-TAKING PROMPT: What are the two widely agreed-upon aspects of the study of creativity? How might these aspects be applied differently to disparate fields like visual art and engineering? Mention a concrete example and explain.

What Are Some Different Approaches to Understanding Creativity?

Though the standard definition is widely accepted, many nebulous issues linger. Novel to whom? Value in accordance with which standard? The standard definition is broad enough to encompass creativity from many *perspectives*, but this openness leads to questions about how to apply the definition of creativity across these differing perspectives. For instance, how do the definitional features of creativity apply when we are talking about a creative person versus a creative product? Or when are we talking about a mental state, such as the process an individual experiences during a creative task? Does our definition retain the same sense when we apply to the initial attempts of a child singing to herself versus the professional attempts of a seasoned composer?

Glück et al. (2002) demonstrated that creativity is defined differently based on professional responsibilities. The authors compared three groups: 1) a group of "free" artists, i.e., artists who could create anything they wanted, such as painters, sculptors, and metal-object designers; 2) a group of "constrained" artists, i.e., artists who create for a specific goal, such as architects and graphic designers; and 3) a group of psychology students who are not engaged professionally in any creative activity. The only aspect of creativity that all three groups reached a consensus on was that a creative person should have many ideas. The free artists did not generally agree on any criteria for evaluating a creative work, whereas more constrained artists strongly agreed on the importance of function in evaluating a creative product. Also, students only generally agreed that originality is important to creative products. Thus, personal perspective and interaction with the art world confines what comes under the purview of creativity.

This demonstrated that perspective influences our intuitive notions about what I deem creative. Many researchers have spent time delineating different perspectives on creativity. One useful delineation is the 4 Ps: person, product, process, and press ("press," in this case just, means "environment"; see Kaufman, 2009).

Person perspective – From this perspective, creativity refers to a certain type of person. For example, one may ask if a certain person (like Picasso or your niece) is a creative individual and what it is that makes someone a creative individual.

Product perspective – From this perspective, creativity refers to a tangible item, for example, a painting, joke, film, or idea. As a case in point, a researcher may evaluate

Picasso's *The Old Guitarist* as a creative product, asking whether or not the painting is creative in itself.

Process perspective – From this perspective, creativity refers to engaging in the task of bringing something new into the world. A researcher might ask what cognitive steps are involved in generating a creative product.

Press perspective – This perspective focuses on the environment in which creativity emerges and flourishes. Are certain environments more conducive to creativity? For example, researchers may look at school or work environments to determine the factors that enable creative problem-solving.

NOTE-TAKING PROMPT: Examine something you believe is creative, like a flower arrangement, a favorite meal, or a show, and describe its creativity from the perspective of each of the 4 Ps. In what ways is this a creative product? How is the person who generated it creative? How creative was the process? What about the environment surrounding its creation (ie a good example of each P)?

Another distinction found in the creativity literature concerns the *scope* of creativity. This distinction is called *Big-C vs. little-c* creativity, though recent models include Pro-c and mini-c, creating 4 categories designating the scope of creativity.

Defined as an eminent creativity, *Big-C* creativity includes the kind of creativity that significantly altered the field and continues to be known through the annals of history (Kaufman, 2009; Kaufman & Beghetto, 2009). Big-C creativity includes Nobel Prize winning authors, Kahlo-level artists, as well as Darwin-category scientists. Big-C may describe people (like Mark Twain), ideas (like the evolutionary theory), or products (like Kahlo's *The Two Fridas)*. Generally, if there isn't an encyclopedia entry with over 100 words on the person or work, it probably doesn't fall into this category. Big-C creativity is *legendary, eminent* creativity, which means it has a massive impact on many people over a significant span of time. It is hard to distinguish a person, idea, or object as qualifying for Big-C creativity when it is new.

The category of *Pro-C* includes people who are creative in their professional lives but are yet to reach the status of eminence. For example, there are over 30 animators listed on the credits for *Zootopia* (IMDB). It is likely that most of them would be creative, regularly generating novel ideas appropriate to the movie. This is beyond the level of creativity required to qualify for mundane creativity on a daily basis, but is unlikely to be acknowledged or qualified as eminent. Thus, Kaufman and Beghetto (2013) define the Pro-C category as "expert-level creativity that has not yet attained legendary status" (p. 230).

In contrast, *little-c* creativity represents the everyday kind of creativity. Practical examples include adding a delicious new twist to a family recipe, interspersing amusing jokes in a conversation, or knitting a beautiful yet practical sweater (Kaufman, 2009; Kaufman & Beghetto, 2009). We may not be Frida Kahlo, but we may well be inspired to draw a unicorn superhero to make our youngest daughter smile, something that most likely meets the two qualifications of creativity. As we adapt our colors and shadows and revise our image on the basis of feedback (smiles and giggles, perhaps), we are being creative

because this is novel and valuable for us in this context, even if these shading and coloring techniques have been discovered before and will do nothing to revolutionize our cultural notions of art. Little-c creativity includes everyday problem solving and adaptation (Simonton, 2013) as well as attempts to develop a creative skill (Richardson, 1990; Silvia et al., 2014).

Mini-C is defined as the creative insights involved in learning (Kaufman & Begetto, 2009). More specifically, it is the "novel and personally meaningful interpretation of actions and events" (Kaufman, 2009). For example, it can be stated that a fourth grader learning basic scientific concepts and recognizing they could be applicable for answering questions about the mysterious noise in the closet after dark is creatively applying new concepts. Another poignant example used by the authors is that of Helen Keller (1880–1968), a girl who lost her sight and hearing as a baby, who famously discovered that objects can be represented by symbols through the assiduous teaching by Anne Sullivan. Her discovery that symbols (words) can be used to represent objects is not at all new – but it was new, appropriate, and valuable for her; in fact, it was her discovery of this that was a personal revolution! Kaufman (2009) goes on to say,

> In mini-c, the initial spark of creativity doesn't have to be held up to the same standards that we use for typical everyday creativity. To qualify as mini-C level creativity, an idea or product doesn't need to be new and original, necessarily, just new and original to the creator at the time.
>
> (p. 46)

In their research, Kaufman and Beghetto (2013) address the psychological reality of the 4-C system (that is, do people actually think about creativity in this manner?). In the study, college students were asked to rate 20 behaviors on how creative they thought they were. Behaviors included "a creative action that changes an entire field," "a personally meaningful new insight," and some noncreative behaviors such as "following directions carefully." The authors found that participants tended to rate noncreative items the lowest, followed by mini-c, rating items conveying little-c and Pro-C creativity about the same, followed by Big-C. In a follow-up study conducted by them, it was found that people made clear, intuitive distinctions among all five categories (the four Cs plus noncreative behaviors; Kaufman & Beghetto, 2013). Thus, it seems that people instinctively make these distinctions.

Recall the examples of creativity in the introduction to this chapter. Let's start with my niece's story: Is it novel and valuable from a Big-C person perspective? The straightforward answer is no. In her single-digit life span, she hasn't reached the eminence of Big-C personhood (yet!). But is it novel and valuable from a mini-c process perspective? Absolutely! I would venture to affirm that *Jane Eyre* and Charlotte Bronte have attained Big-C creativity, whereas the artist of the illustrated version and the romance novel have perhaps reached Pro-C creativity.

So, while we may agree that creativity involves both originality and value, we must ask if it is original and valuable, from what perspective, and on what scale.

NOTE-TAKING PROMPT: Think about the life of an imminent creator you know well; at what point do they demonstrate each of the 4 Cs?

What Are Some Skills That Underlie Creativity?

Three dimensions of creativity include *associations*, *divergence*, and *flexibility*.

These skills can be easily measured and have been associated with creativity from all scales and perspectives.

Associations – the ability to make associations among seemingly disparate concepts.
Divergent thinking – the ability to generate multiple solutions for a problem.
Cognitive flexibility – the ability to consider an object or situation from multiple perspectives.

In the past, researchers have focused on these three cognitive skills with regard to promulgating creativity. Credible evidence suggests that highly creative people possess these skills to greater degrees than their less-creative peers. However, recent focus has been placed not only on these skills but also on a balance between these skills. Greater emphasis has been placed on goal-oriented skills that are needed to bring a creative project to fruition. Highly creative people can easily switch between the broad-focus, daydream, flexible state required to brainstorm ideas and facilitate remote associations/insights and the razor-sharp focus required to actualize a vision.

Can Creativity Be Measured?

Remember the discussion of operational definitions in Chapter 1? Well, its importance becomes evident when we begin to investigate creativity in a systematic manner. Creativity is so important to life that we want to capture it – for psychologists, that means operationally defining it in some way to study it. If you find yourself cringing a bit, you have good reason to do so. Many attempts have been made to measure creativity, and they have all been flawed (remember the analogy of square feet to home). Yet, as I speculated earlier, there is a bigger downside to not even *trying* to explore the mechanisms, motivations, and perspectives of creativity. We will never know anything about this fascinating aspect of humanity if we don't try. As a matter of fact, our understanding of this important human experience has grown exponentially in recent years. Likewise, if we don't acknowledge the gaps in our ability to grasp and gauge this concept, we are unlikely to improve on our understanding. Keeping in mind that researchers generally acknowledge the huge gaps in our measurement tools, let's explore how science has approached the investigation of creativity.

NOTE-TAKING PROMPT: What are some positive aspects of attempting to measure creativity? What are some drawbacks?

Some Measures of Creativity

Currently, there are several available tests of creativity (Thys et al., 2014), but we will narrow our discussion to a few of those that are most well-known. These five tests were selected for their popularity among researchers and for their diversity to give you a sampling of the different approaches to the study of creativity.

Measure	*Type*	*Perspective*	*Scale/Process*
Remote Associates Test (RAT)	Aptitude Test – Semantic Associations	Person	Cognitive Process underlying creativity
Torrance Tests	Aptitude Test – Divergent Thinking	Person	Cognitive Process underlying creativity
Consensual Assessment Technique, (CAT)	Judged Product	Product	Can be adapted for any scale: little-c to Big-C
Creative Personality Scale Creative (CPS)	Self-Report of Traits	Person	Personality traits underlying creativity
Inventory of Creative Activities and Achievements (ICAA)	Self-Report of Behaviors	Person	Distinguishes little-c from Big-C behaviors

Creativity Assessment 1: Remote Associates Test (RAT)

The Remote Associates Test (RAT) was developed by Mednick and Mednick (1967). They theorized that chains of semantic associations were the basis of all thinking. Put succinctly, anyone with a brain could associate kitchen with chair. The associative chain in the brain may go something like kitchen-table-chair. But who comes up with the association kitchen-car? The authors further postulated that creative individuals possessed the ability to make more distant associations along these semantic chains, such as kitchen-table-chair-electric-car. The RAT was designed to test this specific ability.

Read the following word triads and come up with one word that fits into all three:

Railroad . . . . . . Girl . . . . Class
Surprise . . . . . . Line . . . . Birthday
Wheel . . . . Electric . . . . . . High
Out . . . . Dog . . . . . . Cat

The standard answers to the previous items are working, party, chair or wire, and house.

Expectedly, there are pros and cons to the RAT as a test of creativity. On the plus side, the RAT is very easy to administer and score. It yields a nonsubjective, numeric result. However, the one major shortcoming is that it really measures convergent thinking and probably reveals more of a propensity for verbal fluency than creativity, thereby lacking construct validity to some degree (Kaufman, 2009). How would this translate to the visuospatial ability of an artist or choreographer? However, it is frequently used as a measure of creative insight. It is notable that Carson (2010) describes associative thinking as one kind of skill underlying amongst many others.

Creativity Assessment 2: Torrance Tests

Torrance Tests were developed by E.P. Torrance and heavily rely upon Guilford's structure of Intellect theory and divergent thinking (see the section entitled "Can Creativity Be Measured?"). Torrance Tests continue to be frequently used across educational settings to screen for giftedness. In a Torrance Test, you are typically asked to generate many responses to a situation within a fixed period of time. Here are some examples of questions on a Torrance Test (Torrance, 1966):

Unusual (or alternative) uses: The examinee must list all the interesting and unusual uses for a common object, such as a cardboard box or a brick.

Asking questions: The examinee must write all the questions he or she can think of based on a drawing of a scene.
Product improvement: The examinee must list ways of changing a product to fulfill a purpose so that (for example) children would have more fun playing with it.
Circles: The examinee expands empty circles into different drawings and titles them.

You may wonder how the scoring of such tests may be done. Let's imagine that we gave a person the "unusual uses" version of the Torrance Test, asking what other uses might there be for a brick. Let's say this person came up with the following five responses in the allotted three minutes:

Use as a paperweight
Use it as a weapon against possible intruders.
Use it to threaten your big brother when he is being a jerk.
Paint a face on it and it can be your "Wilson" if you ever get stuck on a desert island; only name it "Brock the Brick."
Use it to improve your cooking.

Scoring Torrance Tests

The four aspects included in a score on the Torrance Test are the following:

1. **Fluency**, the ability to generate multiple different responses. This is scored by simply counting the number of relevant responses. I would give the previous person a 4 since the last response doesn't seem particularly relevant.
2. **Originality**, the ability to unusual or uncommon responses. This is scored by giving the prompt to a large group of people and establishing a list of the most common responses. Responses not on that list are counted as original. I believe that only the fourth response would be counted as original – so this person would receive a score of 1.
3. **Elaboration**, the ability to complete ideas with vivid, elaborate details. In order to score elaboration, you count the number or details per response. For example, the fourth response would get an elaboration score of 4:1 for painting a face on the brick, 1 for using it as a friend, 1 for using it when stuck on a desert island, and 1 for naming it Brock.
4. **Flexibility**, the ability to respond to the same object in different ways. To score flexibility, you would count the number of different categories within the response. Here, responses 2 and 3 would likely only count as one category because they belong to the same category of "weapon." Therefore, the score would be 3 (you only count the relevant responses, and so, the "cooking" response wouldn't count).

Torrance Tests are widely used because they provide a quantification of creativity that has a strong basis in theory. In addition, these tests have been found to be reliable and valid over a number of decades. However, they are not devoid of limitations. Firstly, results may be predicated on an individual's verbal or drawing ability. For example, if the verbal ability of the test taker is not high, they may have trouble articulating many ideas, which forms the basis of a Torrance Test score. Likewise, if a person is self-conscious about their drawing ability, they may struggle with the "circles" task. Additionally, one of the main criticisms of Torrance Tests is that they rely heavily on the capacity for divergent thinking. Therefore, Torrance Tests may simply reflect one dimension of

the numerous potential cognitive capacities that support creative thought. While this is indeed useful information, it would be a mistake to equate a high score on the Torrance Test with creativity.

Creativity Assessment 3: Consensual Assessment Technique (CAT)

Amabile (1982) hypothesized that "a product or response is creative to the extent that appropriate observers independently agree it is creative" (p. 1001). She constructed a two-phase process to assess a creative product:

1. Ask a sample of people to create something. It could be a drawing, a short story, or a soliloquy. Importantly, the CAT can be used on a wide range of creative products so long as a tangible product has been created.
2. Ask the experts to independently rate these products. After assembling a panel of experts, ask them to rate the products created in step 1 according to some criterion. For example, the experts can compare the creative products in the sample to each other or may be directed to compare the products to an established "ideal"; thus, the standard for comparison is flexible.

Previous research has shown that experts almost always show high agreement with each other (e.g., Amabile, 1983, 1996; Hennessey & Amabile, 1999). Of course, this technique is best suited for evaluating a particular creative product, as opposed to the person or process. Reliability (i.e., agreement) about what is creative tends to be high among expert raters; however, there is less agreement among novices, and the lowest amount of agreement between experts and novice judges, which suggests that the experts may truly be the best source for ascertaining a creative product (Kaufman, 2009; Kaufman & Baer, 2012). The main problem with the CAT, of course, is identifying who qualifies as an expert. However, this question has been addressed in many publications since the test has been in use and is generally found to have good reliability and validity (Kaufman, 2009).

Creativity Assessment 4: Creative Personality Scale (CPS)

There are many self-report scales of creativity. While self-report techniques have obvious drawbacks, they are widespread and easy to administer. One self-report technique is the Creative Personality Scale (CPS, Gough, 1979). Under the CPS, the participants simply rate themselves on 30 adjectives: 18 of which are indicative of creativity, whereas 12 are counter-indicative of creativity. Some adjectives indicating creativity are "clever," "individualistic," and "unconventional." Adjectives suggestive of low creativity include "cautious," "conservative," and "mannerly." Though the CPS has good to moderate reliability and validity (Gough, 1979), self-report techniques should generally be approached with caution. In particular, CPS may be subject to biases (Luescher et al., 2016). Generally, rating your own traits "I am individualistic" may be more biased than assessing your own behavior "I have spoken out against a racist joke even though it was uncomfortable." The next self-report test asks participants to rate themselves on specific behaviors.

Creativity Assessment 5: Inventory of Creative Activities and Achievements (ICAA)

The Inventory of Creative Activities and Achievements (ICAA, Diedrich et al., 2018) is another example of a self-report assessment. In contrast to the CPS, however, this

inventory seeks specific behaviors and achievements as opposed to personality characteristics. This is a strength of the inventory because behaviors and achievements are less likely to be exaggerated or diminished.

The ICAA asks participants to report on creative activities and achievements across eight different domains:

- Literature
- Music
- Arts and crafts
- Cooking
- Sports
- Visual arts
- Performing arts
- Science/engineering

For each domain, participants are asked about six specific behaviors through three levels of questions: 1) frequency of engagement with the domain; 2) achievements within the domain; and 3) quantum of time the participant has been engaged with that activity. Here is a sample question from the ICAA to give you an idea of the manner in which this survey is conducted:

Question 1:

Specify how many times you have carried out a certain activity over the last 10 years.

Example: If you already invented your own magic trick four times, but never invented your own circus program, mark the boxes as follows:

Made up a circus program. Invented a magic trick

Never

1–2 times
3–5 times
6–10 times
More than 10 times

Question 2:

Please specify the level of achievement you have attained in the particular field. You are given the same eleven choices in every domain. Please check all statements describing your level of achievement in the entire field.

Example: If you already invented magic tricks, then you have already tried this domain and produced your own original work. If you already showed these tricks to friends but not strangers as yet, please mark the boxes as follows:

1. I have never been engaged in this domain
2. I have tried this domain once.

3. I have already created at least one original work in this domain. I have shown my original work in this domain to some friends.
4. I have shown my original work in this domain to strangers . . .

Question 3:

Please state for how many years of your life have you already been engaged in this domain. Consider only voluntary activities of the particular domain, and ignore any activities that you were required to do, e.g. for school.

In addition to asking about behaviors rather than traits, the ICAA asks about both frequency of engagement in activities and specific achievements, which is its other strength. This distinction is important because little-c is best captured by frequency whereas Big-C/Pro-C is best encapsulated by achievements. One drawback may be the limited number of domains. Nevertheless, the ICAA has shown to have good reliability and validity and is flexible enough to be administered in a variety of settings (Diedrich et al., 2018).

What Does It Mean to Have a High Score on a Creativity Assessment?

The impersonal objectivity of scientifically validated measures can make it feel like the test-taker has a permanent number attached to their creative potential for all times. But hang on; this is *not* how these tests should be interpreted! When dealing with measurements, always remember the analogy of square feet to home. Although these measures have been established with more theoretical knowledge and empirical data than, say, one of those Facebook quizzes (which character from 19th century literature are you?) – the fact remains that *none* of these measures can capture the creative potential of a person across all domains at all points in time. What is established is a particular reference point, a jumping-off point for scientists to begin to understand how creativity works and takes us to the next topic of discussion – improving creativity!

NOTE-TAKING PROMPT: Describe each of the previous measures of creativity. What are the pros and cons of each?

Is Creativity an Innate Talent or Can Creativity Be Improved Through Practice?

One way to answer the question of innateness is to rely on findings from physiological psychology: Are there genes specific to creativity? Are there areas of the brain that enable creativity? Further, do individual differences among these areas underlie differences in creativity? If we know that certain brain areas correspond to creativity, then is it possible to fortify these areas so as to enable greater creativity?

Are There Genes Specific to Creativity?

Many studies have investigated this question. There are two approaches to investigating the heritability of creativity. The first one is to assess the behavioral propensities within

families. For example, many studies have investigated identical versus fraternal twins or examined the extended families of eminent creatives (Andreasen, 2014). According to such studies, creativity is a heritable trait. However, do note that this doesn't rule out environmental factors. For example, eminent authors may be more likely to encourage creativity in their children compared to other populations.

The second way is to study this on the molecular level. There are some studies that point toward the influence of genes that code for the neurotransmitter dopamine (Reuter et al., 2006). Again, this information is no "magic bullet" when it comes to understanding creativity. Creativity, after all, is a polygenetic trait: coded by a variety of genes. Still, much remains unknown, and there are interactions among genes and other genes as well as gene/environment interactions. Then, interactions also take place between genetics and the type of creativity, and how this is measured merits consideration (Han et al., 2018; Runco et al., 2011; Zabelina et al., 2016).

How Does Creativity Work in the Brain?

As we approach this question remember the caveat of square feet to the home. Likewise, saying creativity is *in* the right-hemisphere angular gyrus is like saying your photos of your cat are "in" the screen. Sure, your screen is the part of your device that "lights up" when scrolling through photos. And sure, the RH angular gyrus is the part that "lights up" on a 3D photo of the brain during a creative task.

And yes, if you damage the screen, you can say goodbye to kitty photos! Also, if you damage many other parts, expect the same results. The screen is just one aspect of convergence for many parts and functions.

Remember "correlation is not the same as causation" (Chapter 1)? Well, in neuroscience, we can see areas that correspond with doing. But the brain is way more complex than a cell phone or laptop. In order to study areas of the brain corresponding to creativity, most studies need 1) a test of creativity and 2) a means of seeing the brain during this task. Both of these steps suffer from some limitations.

Cognitive Neuroscience and Creativity

It may help to refer to the Figures 3.3 and 3.4, depicting functional areas in the brain as seen from the side (sagittal view, Figure 3.3) and from the top (transverse view, Figure 3.4).

Left to Right

The first thing that tends to come to mind when the brain is mentioned in the context of creativity is the outdated and inaccurate notion that the right hemisphere of the brain is creative and "artsy" whereas the left is linear and "mathy." Granted, there is a degree of what we refer to as *lateralization of function* – i.e., the division of labor between the hemispheres, with the language centers residing on the left and the areas for spatial orientation situated on the right (though even this is oversimplified). However, relegating something as complex as art or creativity to a hemisphere is reductionism at its worst. There are structures, as you will find, that relate to creativity in the right hemisphere versus the left and vice versa – but creativity indeed involves both the combined functionality of both hemispheres (Sawyer, 2011).

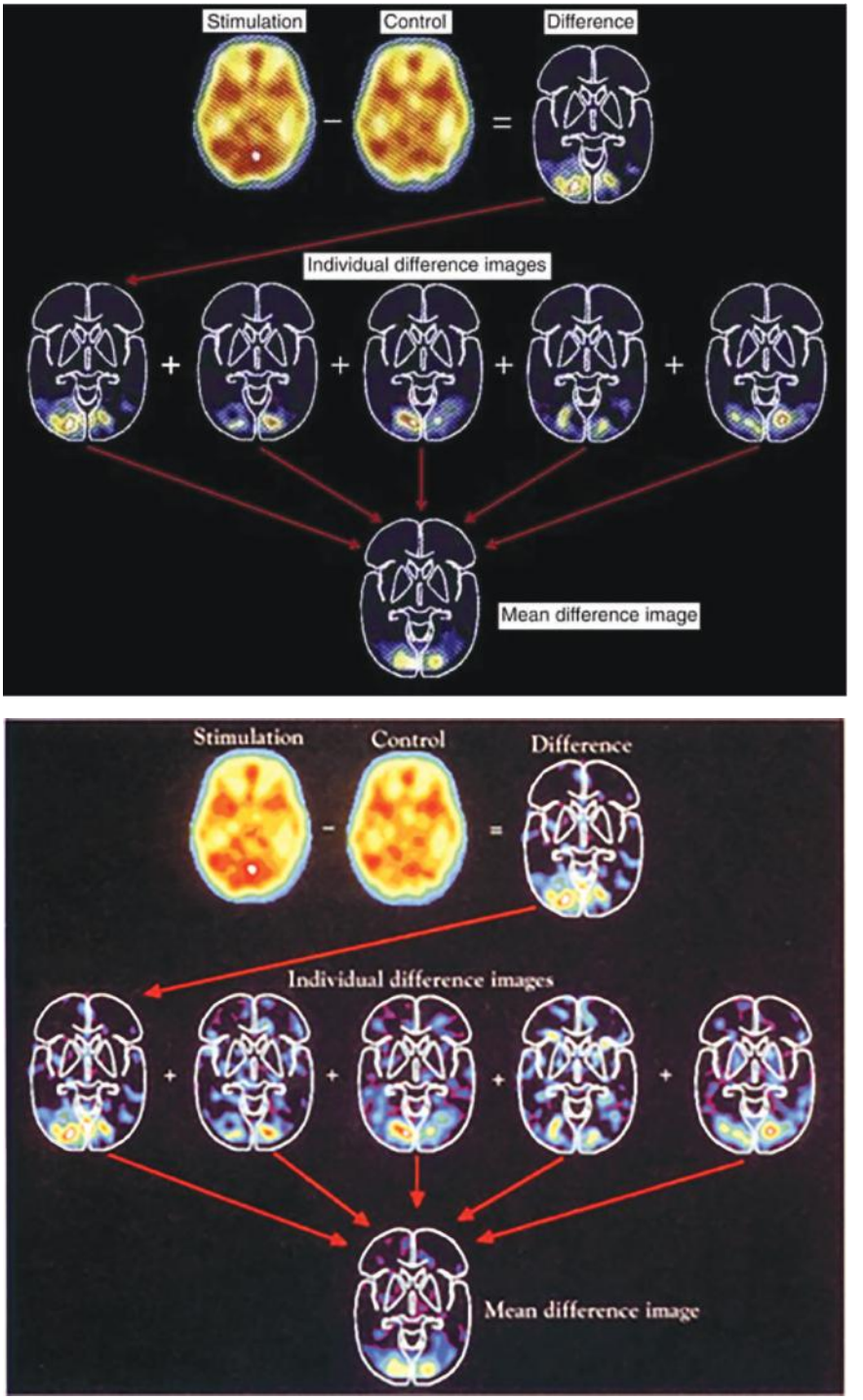

Figure 3.2 Image of the subtraction method common to brain-imaging studies.

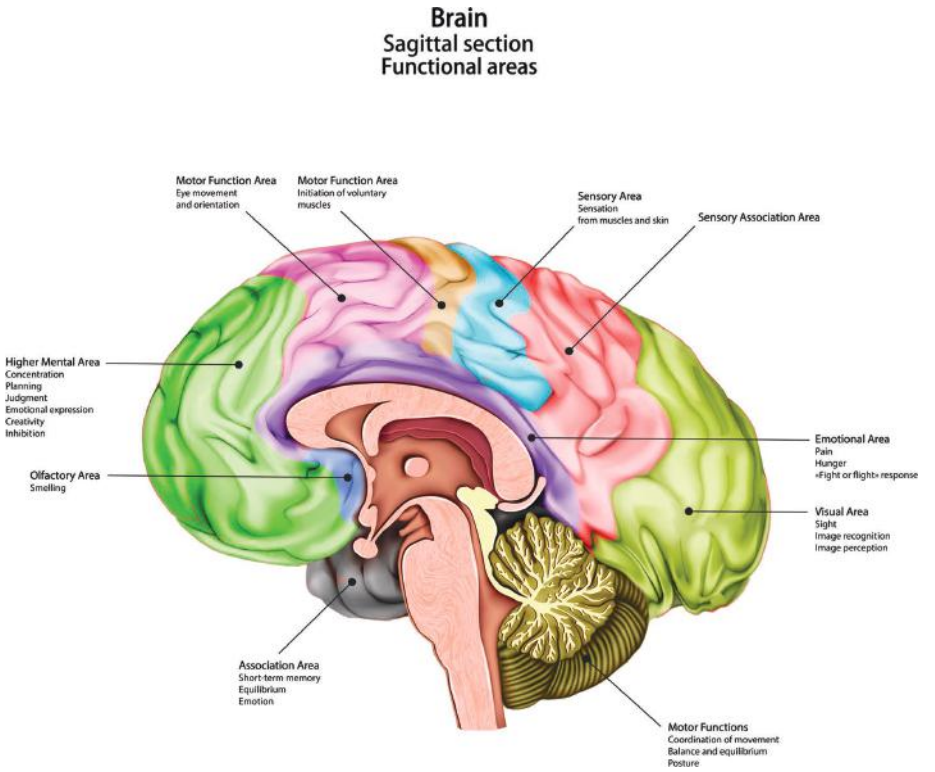

Figure 3.3 Image of the major functional areas of the brain as seen from a sagittal section (looking at the brain from a side view).

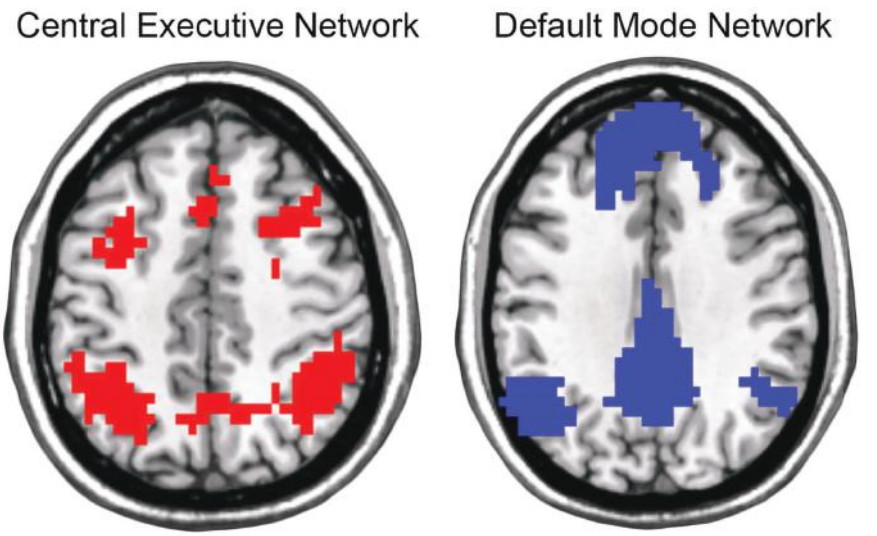

Figure 3.4 Image of the DMN and ECN as seen from the transverse plane (looking at the brain from the top view)

Front to Back

Another potential means of dividing the neurological basis of creativity is along the cerebral cortex, which is situated along the outside surface of the brain. On the other hand, the middle brain areas, especially the limbic system, are responsible for emotional responses and memory. Along the cerebral cortex, there are four lobes that must be explained. The frontal lobe – the lobe in the front (anterior) part of the brain is responsible for conscious decision-making, planning, and goal-oriented behaviors. These behaviors are more specfically generated in an area called the prefron- tal cortex (PFC), the most anterior part of the brain include the temporal lobe, occipital lobe, and parietal lobe (abbreviated TOP, Dietrich, 2004). In contrast to the PFC, the back (posterior) parts of the brain are dedicated to sensory and emotional processing.

Inside to Outside

We can also divide the brain into the inner (medial) core and the outer sides (lateral) parts. The medial parts of the PFC form *the default mode network (DMN)*, or what Scott Barry Kaufman calls the *imagination network* (mentioned in Chapter 1), which assume signi - cance. This network is generally thought to work in opposition to the lateral parts of the PFC, known as the *executive attention network*, the network that directs attention toward the attainment of external goals. Though this network has traditionally been emphasized in education and psychology, a key n ding in modern cognitive neuroscience is that we spend about half of our life in a mind-wandering or daydreaming state where the imagination network is active (Killingsworth & Gilbert, 2010)! That may seem like a lot of time to power down, except that when we are daydreaming, we are in *no way* "powered down"; our brains are incredibly active. The imagination network is involved in self-generated cognition, which comprises planning, self-referential thinking, wishing, and so on. The DMN is important to creativity because of three salient components (Kaufman & Gregoire, 2016): personal meaning making, mental simulation, and perspective taking.

When we begin "thinking about thinking," the responsibilities of the executive attention network generally spring to mind. This is where we plan our day and reason about the best decisions ranging from what house to buy to where to eat lunch that day. These are the areas for focused, goal-oriented behavior. Networks here include the prefrontal cortex (PFC), specifically the dorsolateral prefrontal cortex (DLPFC).

However, much of our day is spent in the imagination network, where we think about how social events and perceptions affect us personally. These areas center on the *medial* portion of the prefrontal cortex (MPFC) as well as the parietal cortex and hippocampus.

A better way to think about brain functionality is to stop thinking of the brain in terms of *areas* and orient ourselves to brain *networks*: webs of interconnected neurons spread throughout the brain and the nervous system. When the brain does its work, it does so through extremely intricate networks of cells. Carson (2010) outlines seven important networks in her CREATES model of creativity, which is discussed as follows.

How Do We Know About Brain Areas Involved?

Again, it is never really accurate to say that a certain behavior occurs "in" a brain area or "from" an area. The fact of the matter is that the brain is vastly interconnected, and studies of brain scans suggest that the majority of the human brain is very active during both a creative task *and* a baseline, noncreative task. We see the areas mentioned previously "light up" when the noncreative

task areas are erased. Of course, each individual completes a number of trials during a typical study. This means, when we are looking at one individual's results from the analysis, we are seeing the *average* for that individual across many trials. In addition, we are averaging across many individuals' averages (see Figure 3.2 from Sawyer, 2011). And what exactly are we seeing? For most scans, an "active" area does not represent more than a 3% difference in activation during a creative task in comparison to a noncreative one averaged across trials and individuals. Thus, it would be erroneous to infer that a brain area is active every time a creative task is engaged.

Besides this averaging and subtracting, it is also a daunting task to draw causal conclusions from neuroimaging studies because the activated parts of the brain may form part of a chain networked through the entirety of the brain. Thus, the orbitofrontal cortex in this example may simply be the part that ignites awareness of the process or perhaps coordinates/relays information to other important areas.

Finally, let's not forget that in order for a neuroimaging study to be successful, the nature of the tasks themselves must be small and controlled compared to the complexity underlying real-world creativity. We are usually talking about performance on the RAT or divergent thinking task such as a Torrance Test (see previous section). While these tests have achieved notable scientific reliability, it is generally agreed upon that they are a departure from the creativity engaged during real-world tasks.

CREATES Brainsets:

Dimensions of differences among brainsets:

Table 3.1 Description of Carson's 7 brainsets according to four criteria: degree of inhibition, degree of right hemisphere activation, mood, and type of cognitive effort

	Degree of Inhibition	*Degree of Right Hemisphere Activation*	*Mood*	*Type of Cognitive Effort*
Connect	Moderate	Increased	Positive	Active Processing
Reason	Decreased	Decreased	More Negative	Active Processing
Envision	Moderate	Increased	More Positive	Both
Association	Increased	Moderate	Either	Passive Processing
Transform	Increased	Moderate	Negative	Passive Processing
Evaluate	Decreased	Decreased	More Negative	Active Processing
Stream	Moderate	Moderate	Positive	Passive Processing

Also

Table 3.2 Relative activation of areas in the prefrontal cortex in accordance with Shelly Carson's 2010 CREATES model. A denotes increased activation of the corresponding area during brain state, whereas D represents relative deactivation of the corresponding area during brain state.

	Default Mode Network		*Executive Network*	
	Right	*Left*	*Right*	*Left*
Connect			A	D
Reason			D	A
Envision			A	
Absorb			D	D
Transform	A	A	D	D
Evaluate	D	D	D	A
Stream			A	D

The Brainsets

The following is a summary of the brain areas (called "brainsets") described by Shelly Carson (2010). I believe this model captures the complexity of the many brain networks needed for creative accomplishment. The 7 areas spell the word CREATES and include: Connect, Reason, Envision, Association, Transform, Evaluate, and Stream. Tables 3.1 and 3.2 present a summary of the networks that more are active versus less active. The following describes the brainset, specific brain areas involved, and exercises to strengthen that network.

Connect

The connect brainset involves divergent thinking and generates many solutions without limits or censorship. It sees many possibilities and makes distant connections among different or disparate ideas.

Brain Areas Involved

Right executive center (PFC) is active whereas left executive center (PFC) is inhibited; left parietal association center is active.

One Exercise to Strengthen

Spend 15 minutes a day and generate as many uncensored solutions to practical – even minor –problems. Weird and "dumb" answers are allowed!

For example:

You have to work but want to study for a big test instead.

- Have someone who looks like me come in for me – maybe Sally.
- Fake pneumonia or other horrible disease.
- Write notes on my hands and arms and study those while working.
- Record myself going over notes and listen to this while working.
- Ask Tom to cover for me.
- Rent the audiobook of the text and listen to while working.
- Grow wings and fly away.
- Quit.
- Go in and immediately puke on someone so they send me home.

Reason

The reason brainset involves focusing on problem-solving in a logical way, planning and decision-making, linear and conscious control of thought processes.

Brain Areas Involved

Left executive center (PFC) active whereas right executive center (PFC) is inhibited.

One Exercise to Strengthen

Thought stopping:

Tell yourself to stop particular thoughts as soon as they arise.
For example, "I want cake" can be responded to with a verbal "Stop" or a verbal replacement thought like "I want to be healthy" or a visual image such as a stop sign.

Envision

The connect brainset involves thinking without words, deliberate use of imagination to solve problems, and thinking with your senses (versus words).

Brain Areas Involved

Deciding to use imagery involves the executive center, and spontaneous activation of images/senses relies less on the executive center.

One Exercise to strengthen

Imagine a room you frequently experience – bedroom or kitchen. For five minutes, close your eyes and examine every detail of the room in your mind.

Absorb

The absorb brainset involves open-mindedness. View the world and ideas without judgments and with opportunistic associations, unconscious associations, curiosity, attraction to novelty, and cognitive disinhibition.

Brain Areas Involved

- NTs that control cognitive inhibition are reduced.
- TOP is more active.
- RH is more active.

One Exercise to Strengthen

For five minutes, notice new aspects of a familiar scenario as you are engaged in it – like eating a sandwich. Pay close attention to your five senses:

See
Hear
Taste
Touch

Transform

The transform brainset involves using negative feelings, experiences, and/or energy to create beauty and express oneself, introspection, and creating to alleviate dissatisfaction.

Brain Areas Involved

DMN is active, medial PFC is inhibited, lateral PFC is the executive center; the amygdala is active.

One Exercise to Strengthen

To better understand yourself, think of a fictional character you identify with. Write about your similarities to this character, followed by the differences.

Evaluate

The evaluate brainset involves discerning what is good and bad about your ideas and progress, taking criticism, and deciding whether or not to pursue an idea.

Brain Areas Involved

DMN is deactivated, medial PFC is not active, and lateral PFC or executive center is active.

One Exercise to Strengthen

Forced choice:
Think of the top ten books in your collection.
Now decide which five to keep and which five to toss overboard.

Stream

The stream brainset involves a state of flow, the merging of action and awareness, loss of time, and distractions; focus on the task, not on self.

Brain Areas Involved

The right executive center is active, and the left executive center is inhibited.

One Exercise to Strengthen

Practice improvisation by narrating TV shows out loud with the sound turned down like you are narrating the action for radio.

Carson claims that with extensive support, when you activate different brain centers, you change the way in which you access information from your environment as well as from your internal thoughts and memories. For example, if your reward center is activated and you see a cat, you might think of snuggling with her. If your fear center is activated, you might remember the time you were bitten by an animal, as a result of which you see her as a threat.

It is important to note that not only one brain area is active at a time. There is a lot of parallel processing. Your brain's activity is shifting, literally, millisecond by millisecond. Also, though some areas are significantly active (should read "... some areas are more signficantly active ..." during the processing of particular events – like paying attention to external stimuli or fear – these mental states are not located "in" those brain areas.

Can One Learn to Be More Creative?

The general verdict is that yes, practice can elevate creativity in two ways:

Improve Ability to Generate Novelty

One way is by training areas directly known to be associated with creativity. This may include associative thinking, divergent thinking, or cognitive flexibility, among others. Next are some of the best ways of directly improving creativity have been demonstrated by researchers over time (summarized from Carson, 2010 and Kaufman & Gregoire, 2016):

Take an Incubation period – take a shower, for example.
Do something different – *anything* different, even a different route to work or time for lunch.
Intrinsic motivation – create without thinking about the reward!
Lose track of time – get into the flow experience.
Mind wandering – let go! Let your mind think up anything it wants to.

Importantly, however, modern research reveals this is not enough. The second item has been revealed to be just as important to contributing to high levels of creative achievement.

Train Your Ability to Shift Focus to and From Generating Ideas and Executing Them

The key is to strengthen the ability to switch from the imagination network to the executive network.

The imagination network is necessary to generate ideas without censorship or other limitations.

The executive network is required to execute them effectively: Focus on completing the task, monitor what is working and what isn't, and solve the myriad of problems one may encounter during the practical execution of the task.

NOTE-TAKING PROMPT: List the brain areas or "hotspots" for creativity and add what role they play in the creative process.

Creativity Is Important

Indeed, it is. But it is also true that the most eminent creators are often associated with madness or eccentricities. Is this association an established truth or merely an urban legend? On the other end of the spectrum, the process of creativity is connected with healing and growth. The next two chapters will discuss the connection of creativity to madness and healing, respectively.

The study of creativity is still in its nascent stages. As such, we have more questions than answers. I believe one thing is indubitable: Creativity adds meaning to life at both individual and collective levels. This implies it is definitely worth pursuing in both terms of research and personal exploration.

Nevertheless, creativity is important for attaining success in many areas of life as well as for obtaining personal happiness (Fisher & Specht, 1999). *Positive* psychologists have explored the relationship between creativity and happiness, positive emotions, and life meaning. Some findings have revealed that engaging in creative activities (what would be

considered little-c activities – not trying to revolutionize a field!) can bring in the following benefits:

- Stress relief
- Elevate mood
- Help you make mental connections
- Promote self-efficacy
- Among many other benefits (see Chapter 4). It just feels good to create!

Whether it is making a meal, knitting a sweater for your cat, solving a puzzle, putting a great outfit together, or simply narrating an entertaining story to your kid, creative engagement is paramount for leading a healthy life.

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4 Art and Healing

What You Will Learn

How can art be used to heal? In this chapter, let us investigate the role of art in healing. Though all art forms have the potential to be therapeutic, I will focus on the visual arts. First, we explore self-expression – a pivotal concept in healing and art. Next, we will explore how art making facilitates the process of healing for those recovering from a clinical disorder. Then, we move on to exploring how art can elevate the well-being of anyone regardless of any official diagnosis. Throughout the chapter, the two ways in which art may facilitate well-being are presented and discussed. First, art may allow for individual expression of painful experiences in a unique way that subverts the usual defenses. Second, art created just for the sake of it, without the purpose of navigating the path of difficult psychological issues, can actually provide a meditative distraction for our difficult psychological issues! Scientific evidence for these processes is examined in this chapter.

Chapter Outline

Terms to Identify as You Read

Active Control Group
Art as Therapy
Art Therapy
Broaden and Build Framework
Cognitive Distraction
Cognitive Processing
Emotion/Mood Regulation

DOI: 10.4324/9781003014362-4

Terms to Identify as You Read

Healing$_1$
Healing$_2$
Meta-analysis
Mindfulness
Passive Control Group
PERMA Model
Positivity Ratio
Post-Traumatic Growth
Randomized Controlled Trial (RCT)
Self-Expression
Suppression
Systematic Review
Written Emotional Disclosure (WED) Paradigm

What Is Healing?

In a best-selling book by author John Green (2014), we meet Hazel, a 17-year-old girl whose cancer has "never been anything but terminal" (p. 91). From the very onset, we know that there is no healing in a permanent sense available for this very young girl. But is there any sense in which Hazel can experience healing? In addition to the raw, gut-wrenching depictions of suffering, the book takes us through Hazel's myriad of experiences, including laughter with her friends, details of her absorption in her favorite book, and details of the manner in which her connections with her parents, boyfriend, and friends become richer as the book progresses. She undergoes a transformation of her purpose in life and what her life means to her. She experiences moments of great accomplishment along with moments of disappointment.

So, yes, it appears that Hazel, despite her inability to heal from cancer, experiences deep levels of healing in other ways. In modern psychology, there are two senses of the word healing: *healing$_1$* refers to the alleviation of illness and negative emotions and experiences. Healing happens when you have a problem and "fix" it or lessen it. Over the centuries, medical science has become adept at diagnosing and alleviating a gamut of ailments. Over the last 150 years, psychological science has adopted this medical model of identifying and treating illness. But here is an interesting question for you: If you were to identify and alleviate all of your illnesses – would that be enough to make you happy? And, like Hazel, if you did not have that possibility, would you be powerless to heal?

These questions have been posed by positive psychologists over the last 60 years. The conclusion is rather encouraging: A good life not only includes the relative absence of negative experiences, situations, and emotions but must also include positive emotions and engagement with life and with people as well as a sense of purpose/meaning and accomplishment. Thus, another dimension of healing is proposed:

Healing$_2$ encompasses the promotion of well-being, positive emotions, and experiences. Whereas psychological science has generated the DSM-5, the *Diagnostic and Statistical Manual* that clinicians in the United States use to diagnose a variety of mental disorders, as well as endless training manuals to alleviate symptoms of mental illnesses, Seligman (2012) has advanced the PERMA model of well-being. PERMA is an acronym for five components of well-being: positive emotions, engagement, relationships, meaning, and accomplishment. Departure from illness is one good and necessary way of achieving health; the PERMA model demonstrates what to move toward. The following is a brief

description of the model and the intersection of the model with art (see Wilkinson & Chilton, 2018, for more information).

NOTE-TAKING PROMPT: Describe the two senses of the word "healing" as described here. Apply the distinction to events in your own life or someone else's (could be real or fictional).

The PERMA Model (Seligman, 2012)

Positive emotions can range from contented relaxation to ecstatic joy. Contrary to criticisms of positive psychology, no serious practitioner advocates for being "happy all the time" in terms of always suppressing negative thoughts and mindlessly repeating positive affirmations. In fact, there is evidence this is a terrible idea and that one needs to acknowledge and process the negativity while actively looking for what is genuinely positive in order to maximize well-being. Barbara Fredrickson has even identified a balance between 2/3 positive emotions and 1/3 negative emotions (Fredrickson, 2009a, b). You can even undergo a test to find out your own ratio: www.positivityratio.com/single.php.

In other words, negative emotions have a place in our lives. It is through these difficult emotions, like anger and sadness, that we can become aware of what is wrong, take a decision for course correction, and focus on rectifying problematic issues. Positive emotions, however, yield open-mindedness and attention toward creating new structures, what Fredrickson calls the "broaden and build" theory of positive emotions (2001, 2009a). Alternating between these states – critical and focused versus open and creative – is crucial to creativity (see Chapter 3). Engaging in art may help facilitate the shift of focus from negative emotions to positive openness and therefore may be a good "warm-up" to a therapeutic dialogue that will allow the client to move past rumination (Wilkinson & Chilton, 2018). Below are specific ways art can be integrated with the PERMA model, beyond positive emotions

Engagement: There are many levels of engagement; one important level is the state of effortless attention and loss of self-consciousness that are trademarks of the *flow* experience, which is a high-level state of engagement. Flow has been shown to increase a sense of autonomy, promote self-confidence, provide a healthy distraction from difficult emotions, and generate positive "emotional capital" – that is, experiencing flow can help you build skills that can insulate you from future disappointments (Csikszentmihalyi, 1990). Art making is amenable to this experience of flow, which can range from the all-encompassing attention of meeting creative challenges at just the right level to coloring in a timeless and meditative state.

Relationships: All your relationships significantly influence your well-being – from how you perceive and respond to others, including your relationship with yourself, strangers, coworkers, bosses, family, friends, pets, people you like, people you don't like, and people who don't like you. For those suffering from mental illness, the relationship with their therapist is crucial. Our ability to build compassion and empathy for ourselves and others is another vital component of well-being. Engaging with the arts – especially literature – has been shown to have a positive effect on empathy (Kidd & Castano, 2013, 2018). Moreover, I concur with the statement made by Wilkinson and Chilton (2018): "Humans connect with each other through art" (p. 133).

Meaning: This is the sense that your life *matters*; a sense of your purpose in this world certainly contributes to happiness and well-being, as does reflecting on the positive impact you have on the world. Serving a larger cause than oneself – something that is larger or more important than your own self, can go a long way in helping you live a well-lived life. Of course, humans have been expressing meaning through art since they began chiseling on cave walls. In her beautiful book *Art Is a Way of Knowing*, Pat Allen (1995) expounded how she went through a period where she felt that her "existence was marginal and uncompelling" and that "making images is a way of breaking boundaries, loosening out-worn ideas, and making way for the new" (p. 16–7). Put simply, art has the power to open your mind to new ideas about life. Wilkinson and Chilton (2018) describe how art making contributes to *post-traumatic growth*, or the positive psychological and behavioral changes in the aftermath of a trauma.

Accomplishment: Having goals and ambitions help us to look forward and grow. A sense of accomplishment is not just about achieving something external, like an award or promotion; it can also include a seemingly insignificant (even banal) accomplishment, like learning how to draw cartoon characters in your notebook that you will never show to anyone ever! The sheer sense of pride and mastery in creating something is valuable in itself. Furthermore, art allows for accomplishment both on its own and as a record of therapeutic progress in a therapeutic setting (Wilkinson & Chilton, 2018).

NOTE-TAKING PROMPT: Describe the PERMA model. Do you agree that these are elements of "the good life"? Should any of these not be included? Would you add anything?

How Does Art Facilitate Healing?

Art is in a unique position to heal in both senses of the word: Art can help us work through our darkest moments and engage us in positive and meaningful experiences. But how does this magic happen? Basically, it comes down to two main ways: art therapy and art as therapy. In the first sense, *art therapy* allows us to express ourselves in meaningful ways, helps us achieve insight into our behavioral patterns, and make sense of our experiences. We use art in this sense when we draw or paint to express our grief or create a collage to better understand our familial relationships (Wadeson, 2010). In short, we are cognizant of a therapeutic goal and consciously use art as a means of achieving this goal. Importantly, there is a second sense of healing: *art as therapy* in itself. In this case, we are not trying to achieve a therapeutic goal but are just creating for the sake of it. And in this process of focusing on, say, drawing a still life, we are able to access a meditative, challenging experience that creates the pathway for transformative growth and profound healing (Kramer, 1979). We will first explore the healing element that is common to both art and therapy: self-expression.

NOTE-TAKING PROMPT: Describe the distinction between art therapy and art as therapy. What is your personal experience with either? If you have had such an experience, did you feel it helped? Why or why not?

What Is Self-Expression?

Self-expression can be defined as the free communication of one's thoughts and feelings without any inhibition (or with minimal inhibition). In our everyday behaviors, we may be inhibited by forces outside ourselves – for example, the social taboo against outwardly expressing our anger. Such inhibition can also come from within, such as not expressing your thoughts because you think they are "stupid." This self-expressive communication can be accomplished through words, behaviors, or actions (Kim & Ko, 2007).

Self-expression is the basis of talk therapy in psychology. In a typical therapeutic session, you would directly talk to the therapist about your problems. While there are diverging perspectives on the origins of your pathology or how to approach working through it, the crux of the matter is to find ways of expressing one's perspective and, through that expression, healing (in one way or another). The opposite of self-expression is suppression, a.k.a. inhibition. *Suppression* is defined as the "failure to acknowledge, understand, emotionally grasp stressful events and has negative effects on health" (Acar & Dirik, 2019, pp. 71–2; see also Soper & Bergen, 2001). Why? Thought suppression has been suggested to place demands on the autonomic nervous system, which is responsible for our response to stress and the increased physiological labor literally makes us sick (Pennebaker & Beall, 1986; Pennebaker, 1997). There is some evidence of this (Pennebaker & Smyth, 2016). However, simply acknowledging and working through emotional conflicts by facing them and thinking about them from different perspectives does seem to improve health outcomes.

Self-Expression and the Written Self-Disclosure Paradigm

The myriad benefits of direct self-expression of emotions surrounding a traumatic event have been well documented; decades of research on the written emotional disclosure (WED) paradigm have revealed robust physiological and psychological benefits from journaling about a traumatic experience. This paradigm was discovered in the 1980s by James Pennebaker (WED is also referred to as the Pennebaker paradigm) and his colleagues.

In 1986, Pennebaker and Beall randomly assigned 46 undergraduate students to 1 of 4 conditions: 1) *trauma-emotion*: write about the *emotions* surrounding a traumatic event in their life; 2) *trauma-fact*: write about the *facts* surrounding a traumatic event in their life; 3) *trauma-combination*: write about both the emotions *and* facts surrounding a traumatic event in their life; and 4) *no trauma-control*: write about a trivial topic (control condition). On four consecutive nights, the participants wrote on their assigned topic for 15 minutes. Dependent measures included both short and long-term effects. Short-term effects included heart rate and blood pressure, and the self-report questionnaire was for physiological symptoms (abbreviated as PILL, Pennebaker, 1982/2012). Long-term effects included the same self-report questionnaires and the number of health-center visits for the next six months after the experiment ended.

The findings were intriguing: Though participants initially experienced a rise in blood pressure and an increase in negative affect, which is expected after writing about a deeply traumatic event, the likelihood of experiencing physical health problems was significantly lower in the conditions where writing about the emotion of the trauma was included (the trauma-emotion and the trauma-combination conditions). So, although the participants initially felt bad about expressing their emotions about a traumatic experience, their overall health seemed to be bolstered significantly over the next six months.

Was this some kind of fluke? *No!* This is a well-replicated finding: Expressing your feelings about some of the most tumultuous experiences through writing leads to better overall health. For example, Smyth (1998) conducted a *systematic review* (see definition as follows) of writing studies and found that those who engaged in expressive writing had a 23% health advantage over control groups (61% illness rate for expressive writing versus 38% illness rate in control groups). In another study, Frattaroli (2006) conducted a *meta-analysis* (see definition as follows) on 146 studies using the WED paradigm. As per the findings, the impact of emotional disclosure was highly significant. There is ample evidence to support the effectiveness of the WED paradigm.

How Does WED Work?

So, we know that writing about a traumatic event improves health and well-being – but *how*? Several theories have been proposed after analyzing the content of the journals produced by participants. The following are attributed to Pennebaker's 2011 analysis:

1. Journal writing affords cognitive processing of the event. In fact, the healing effects of expressive writing are more pronounced when people use a proportionally larger number of words indicating cognitive processes related to insight (such as "think," "realize," "believe") or causation (such as "because," "effect," "rationale"). This seemingly indicates that the writer is constructing a coherent narrative of the traumatic event.
2. Journaling provides people with a safe space to explore different perspectives – whereas our thoughts may be stuck on thinking about "me, me, me" or what "they, they, they" did to us. Campbell and Pennebaker (2003) found that, when people made changes in their use of pronouns across journal entries, say, from first-person pronouns (such as "I," "me," "my") to other categories of pronouns (such as "we," "you," "she," "they"), their health outcomes improved.
3. Journaling may help you explore both positive and negative aspects of your situation. Disclosure tends to work best when a combination of positive *and* negative emotions is expressed in appropriate measure. Another finding of Pennebaker's analyses of journals was that healing occurred at higher rates when those journals included a high percentage of positive emotion words (such as "happy," "love") and a moderate amount of negative emotion words (such as "angry," "hurt"). Progress seems more significant and lasting when processing the negative *and* recognizing the positive.

The question is: Does this apply to creating visual art such as drawing and painting?

NOTE-TAKING PROMPT: Describe the written emotional disclosure paradigm. Why does disclosing your worst experiences help you stay healthy?

How Does Art Heal in a Clinical Setting?

Remember the two ways of healing: 1) art therapy and 2) art as therapy. Art therapy has its origins in the psychodynamic approach advanced by Sigmund Freud (introduced in Chapter 1). This includes psychoanalytic (Freudian), Jungian, and all other insight-oriented approaches.

The focus is on self-expression, self-awareness, and working through long-standing psychological conflicts and issues. In traditional psychodynamic approaches, these conflicts are thought to be caused by subconscious motivations. Thus, a practitioner of this approach might analyze the artwork of a patient to look for symbolic clues that engendered insight into the subconscious conflict. However, this kind of analysis is never one-sided; the therapist uses the art as an entry point to a conversation about what the image means to the client.

The second approach to healing in art is art as therapy – the practice of just doing art without any therapeutic goal contributes to well-being. This idea is derived from the humanistic school. The underlying ideas behind these approaches became popular during the human-potential movement of the 1960s. The focus is on the present rather than the past. These approaches emphasize choice, intentionality, and finding meaning as well as discovering and expressing one's unique identity.

What Is Art Therapy?

Art therapy refers to the use of artistic expression and imagery for the purpose of understanding (assessment) and helping (therapy) an individual, family, or group. Art therapy is not confined to the visual arts; for example, a simple internet search will reveal dozens of articles in music therapy, dance therapy, drama therapy, and poetry therapy. To simplify the scope of this chapter, I will emphasize the visual arts. No matter the medium, most practitioners emphasize the art therapy approach – that is, most art therapists will emphasize art as a tool for discovering, expressing, and working through psychological conflicts and issues. In a nutshell, the most central focus part of the therapy is the psychological insights gained through the process of creating and through discussing the piece after it has been created – not on how good or bad the work is or on improving an artistic skill. On the contrary, there are some practitioners who emphasize art as therapy as a stand-alone approach. In such approaches, the process of creativity, gaining mastery, and effective self-expression is believed to bring about healing in itself. Although discussion of the work may take place, this type of therapy focuses on generating a creative piece. Notably, it is not an all-or-none situation; many practitioners are flexible and choose their approaches on an individual basis.

It is also pertinent to note that not everything that is labeled as therapy is actual therapy. An art therapist has extensive training in both the arts and psychology (see American Art Therapy Association, 2017).

In Figure 4.1, you see an image of a popular coloring book (Wilde, 2015), one that I own myself. I don't have any issue with coloring to relax; my only grouse with it is that it is called art *therapy*. That is, it is "therapy" only in the loosest sense – something healing. This is not to suggest that it's not great! In fact, I describe later in this very chapter how scientists have observed the many mental health benefits of coloring. But while it can qualify as healing, it is not *therapy*. Coloring, drawing, etc. can help manage emotions, but significant growth is best cultivated through a relationship with a knowledgeable therapist. In this regard, a study from Kaimal et al. (2017) directly compared the two and found that, while coloring was effective for reducing stress and decreasing negative affect, unlike therapy, it was unable to help participants reach any significant personal development, such as increases in self-efficacy and agency.

The APA website suggests asking yourself the following questions to determine whether or not you need therapy:

- Do you or someone close to you spend some amount of time every week thinking about the problem?

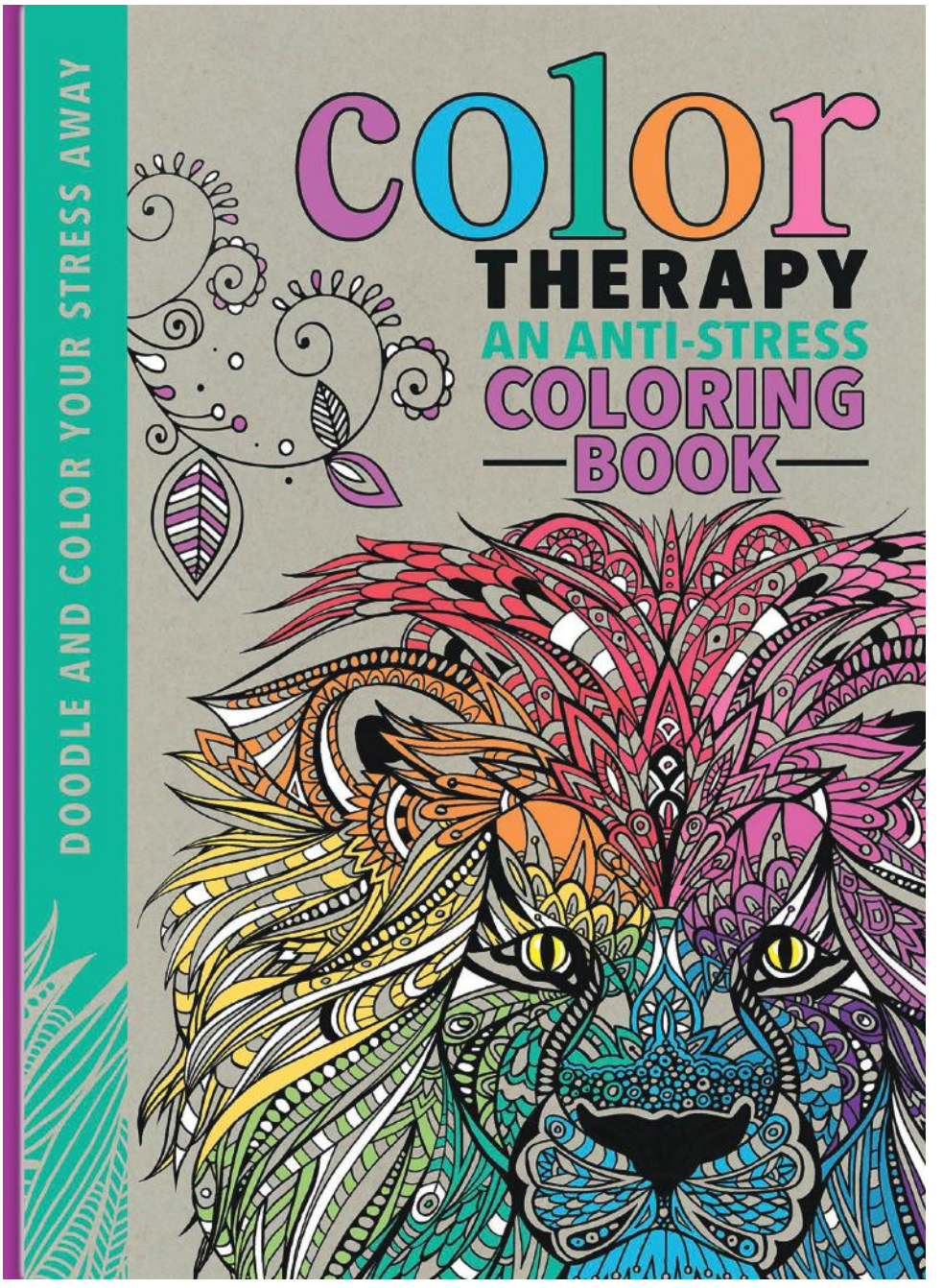

Figure 4.1 Photo of a coloring book labeled as art therapy. Is this really therapy?

Source: From *Color Therapy* by Cindy Wilde, copyright © 2015. Reprinted by permission of Running Press Adult, an imprint of Hachette Book Group, Inc.

- Is the problem embarrassing, to the point that you want to hide it from others?
- Over the past few months, has the problem diminished your quality of life?
- Does the problem take up considerable time (e.g., more than an hour per day)?
- Have you curtailed your work or educational ambitions because of this problem?
- Are you rearranging your lifestyle in order to accommodate the problem?

A "yes" response to any of these questions suggests that you may want to consider seeking professional help (American Psychological Association, 2017).

Art therapy almost always involves two process: 1) *doing*: image making, working with materials, creating something; and 2) *reflecting*: thinking about the work that has been created, understanding it, and discussing its meaning. Importantly, emphasis is almost always placed on reflecting and doing, as opposed to only on the final art product. Even people with little or no art experience are known to benefit from art therapy. The therapist almost never focuses on the quality of the work produced. The point is not to create a masterpiece or to improve artistic skill but to increase self-awareness and confidence. Further, art therapy is often used as a supplement to traditional talk therapy.

Who Can Benefit From Art Therapy?

Art therapy can be used with almost any population. Here are some examples:

- Adolescents in juvenile detention centers (Persons, 2008)
- Adolescents and adults with substance abuse disorders (Aletraris et al., 2014)
- Families in crisis (Steiner, 1994)
- Prison inmates (Gussak, 1997)
- Adults with psychiatric conditions (depression, bipolar disorder, anxiety disorders, schizophrenia, etc.) (Backos et al., 2014)
- Adults receiving medical care for cancer and other serious illnesses (Backos et al., 2014)

Are There *Unique* Advantages to Art Therapy?

Art therapy is advantageous primarily because it is a form of nonverbal expression. As such, it is often easier for clients to lower their defenses because people are not generally accustomed to communicating with images. Additionally, art therapy has specific benefits for people for whom verbal ability signifies an impediment. This can include people with limited verbal skills, such as children who would otherwise be unable to express complex thoughts and emotional nuance. Likewise, this can also apply to people with well-developed verbal skills who can easily use verbal expression as a form of defense mechanism. Expression through imagery may be a way of circumventing well-established defensive patterns of thought. Additionally, difficult issues can be initially explored through the art at a safe psychological distance. Over time, a tangible record of progress emerges in the form of images created from the start of the therapeutic process to the end (Wadeson, 2010; Wilkinson & Chilton, 2018).

NOTE-TAKING PROMPT: List the unique advantages to art therapy.

What Are Some Considerations for Creating an Art Therapy Session?

The structure of each art therapy session is unique and determined by treatment goals. Goals should be set based on the group or individual seeking help. For example, not every client will respond to an unstructured task, but some will get the most out of being unconstrained; others may need more warm-up time to feel confident, whereas some will be ready to jump right in. Then there are those who may need to talk a lot about what they created, whereas others may not be ready to talk just yet. Here are some of the variables to consider:

- Duration of sessions
- Media used
- Amount of time devoted to creating vs. discussing
- Whether or not creative activity is timed
- Duration of warm-up time
- Open task or structured task
- Whether or not socialization is permitted (if in a group)

Art Media and Processes

The media should be selected purposefully. Here are some questions to consider:

- Should the participant(s) choose materials themselves?
- Should one use clay or colored pencils or acrylics?
- Is fast media needed? For example, pens require no drying time whereas oils take a long time to dry.
- Is there preparation required?
- Is the cleanup easy or difficult?
- Do materials need to be easily manipulated (for example, children or differently abled participants may need materials they can handle easily)?
- Should a variety of techniques and materials be provided? Variety is often a good choice, but it can be overwhelming in some populations.

According to Wadeson (2010), it is a good idea to avoid frustrating materials. Participants should not be fixated on learning how to use the materials. A related idea is whether or not the materials are easy to control. For example, colored pencils or markers are easy to control, whereas watercolors are not.

What Is an Art Therapy Session Like?

Typically, a session will start with warm-up exercises such as scribbles as a starting point. Then the clinician may invite the client to express something using the materials available. Here are some examples of directives that can be initiated by an art therapist:

- Make a picture that shows why you think you are in therapy.
- Create a sculpture that shows something you feel strongly about.
- Make something that shows what you wish you could change.

- Make something the shows your thoughts and feelings about retirement.
- Make something that shows how you feel about your parents' divorce.
- Make a free drawing about anything you want to express today.

Both the process and the ultimate product are of importance. During this process, the therapist may pay close attention to how the client approaches the process; for example, did she/he start enthusiastically or reluctantly? If this is a group setting, did everyone work together, or did they separate?

Edith Kramer (1971), one of the founders of art therapy, stated that "the aim of art is the making of a symbolic object that contains and communicates an idea" (p. 28). Once the work is completed, the therapist will discuss the finished product with the client. The therapist examines a number of elements: placement, style, emotional tone, color choice, symbols, themes, patterns, etc. The patient and art therapist work together to determine what the piece represents to the client. Thus, an art therapist doesn't "diagnose" the artwork in that sense but uses the piece as a starting point to further the exploration process with the client. Both sides discuss what the artwork is "saying" and what it means to the client. The therapist may highlight features or components of the work that the client was not previously aware of. These components are discussed within the context of the client's life and experiences. Over time, a number of pieces are made, and it is possible to use the series to examine the client's growth over time.

For example, recurrent feelings and ideas are highlighted and discussed, along with changes in content, emotional tone, and expressive style. Over time, a story may emerge that can help the clients better understand the nature of their distress.

Though symbolic speech is the bedrock of art therapy (Wilkinson & Chilton, 2018), art therapists do not analyze the artwork produced by a client for standardized symbols and make diagnoses on the basis of artworks. Instead, the therapist works in conjunction with the client to clearly decipher what is being expressed. For example, a therapist would not look at a picture of a storm and say, "This clearly represents your awful childhood" but would ask "What does this storm mean to you?" In this way, the client begins to gain helpful insight into her patterns.

NOTE-TAKING PROMPT: What is wrong with an art therapist interpreting the symbols in a client's drawing?

Examples of Art Therapy in a Clinical Setting

Case Study 1: Art Therapy with a Rape Survivor (Wadeson, 2010)

The following is a summary of a case described by Harriet Wadeson (2010) demonstrating the effect use of art therapy after a traumatic event. When Jennifer came into therapy, she presented as well-dressed and cautious. She was unable to talk about the event and had a marked startle reflex. For the first few weeks in her therapy, she only painted soothing pictures to calm her and to take her mind off of

Figure 4.2 Jennifer's first significant drawing (Wadeson, 2010).

intrusive thoughts. Then, after several weeks of therapy, Jennifer created the image depicted in Figure 4.2:

The prompt for this painting was to draw a picture of herself showing how she was feeling at that point in time. She first drew the picture without the gash. Then, when asked "How does she look like you?" she drew the gash, saying, "She's trying to keep it all inside her, cracking her open, shattering her calm appearance." As time progressed, she began to process the event and related emotions.

Figure 4.3 Further along in therapy, Jennifer was able to express her rage at the assault (Wadeson, 2010).

Figure 4.4 Jennifer's drawing further along in therapy; she drew herself dancing with tambourines (Wadeson, 2010).

Over the next weeks, she made several pictures depicting fear, rage, and depression, as depicted in Figure 4.3. As an innately timid person, art was her refuge. The pictures prompted her to talk about her feelings. At some point, she said she "wanted a life" and drew herself at work. She had always been a fearful person, and the incident served to exacerbate those responses.

Toward the end of her therapy, Jennifer stated, "Now I am a much more relaxed person." When asked why she felt that way, she said, "I think it was the way you let me go at my own pace. I never felt pushed. Getting out my own feelings in all those pictures was a totally new experience for me. I had no idea I had so much rage. I think it was eating me alive" (p. 95). Eventually, Jennifer began to heal and open herself up to enjoying herself and to trusting others. She started dating a man named Tom. Figure 4.4 is a drawing of her folk dancing on a date with him.

Jennifer and Tom eventually married. In true survivor style, she was able to "have a life."

NOTE-TAKING PROMPT: How do you think art helped Jennifer process her traumatic experience? Do you think Jennifer would have had a similar experience with talk therapy alone?

Case Study 2: Art Therapy for Family Therapy – Substance Abuse (Wadeson, 2010)

The next case study was also described by Wadeson (2010) about a family struggling to overcome the effects of alcoholism. In this example, art therapy was facilitated in a group setting to the Tipler family:

- Mr. Tipler, 60, sober for ten years in AA, was a severe drinker for 10 years before his recovery
- Mrs. Tipler, 58, nonalcoholic
- Paul, 32, history of alcohol abuse, not present at session, divorced, living on a boat
- Jerry, 29, in business with his father
- Annette, 27, married, alcoholic during college, counselor for recovering alcoholics

The family was given the following instructions:

1. Please depict your family overall in a symbolic way. In other words, don't draw people; draw images that represent your family.

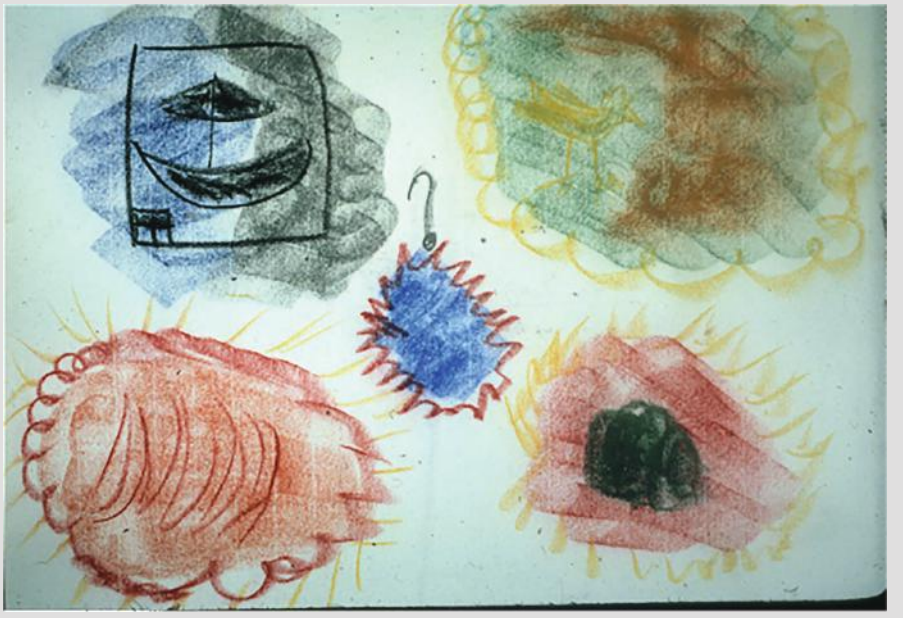

Figure 4.5 Annette's family portrait (Wadeson, 2010).

2. Please divide your paper into half; depict on one half your maternal grandparent's family in a symbolic way, and on the other side, the paternal grandparent's family in a symbolic way.
3. Then, after completing the drawing, please mark with a check which of the two most closely resembles your first picture.
4. Please depict the consumption of alcohol in your family as it has affected your lives

Figure 4.5 shows Annette's symbolic portrait:

Prevalent in this picture is Paul represented by the boat on the upper left. Paul was described by other family members as antisocial. His depiction here is the darkest. Paul was the first family member that Annette drew.

The Tiplers were participating in a study that included alcoholic fathers active in recovery. Interestingly, they drew optimistic and positive pictures. They felt that the process of recovery brought them closer to the family. This was often symbolized by the sun shining through clouds. In contrast, their wives tended to hold on to difficult times. Figure 4.6 shows Mrs. Tippler's drawing.

The flower on the right shows her husband sober, beautiful, whereas the flower on the left represents her husband wilted by alcohol. The visual imagery here is powerful and may have helped both Mr. and Mrs. Tippler understand how alcoholism was harmfully affecting the family.

Figure 4.6 Mrs. Tipler's depiction of her husband (Wadeson, 2010).

NOTE-TAKING PROMPT: How do you think art helped the Tiplers process their feelings toward each other? Do you think they would have had a similar experience with talk therapy alone?

Case Study 3: Art as Therapy with Dr. Krishan (Wadeson, 2003, 2010)

The following is another case described by Wadeson (2003, 2010) demonstrating how art therapy can be effective in healing from the mental effects of illness. Dr. Krishan was a retired mathematics professor who developed the first symptoms of Parkinson's disease at the age of 39. Parkinson's is a progressive, degenerative disorder of the central nervous system. Symptoms include problems with movement such as slowness, muscular rigidity, difficulty moving and initiating movement, resting tremor, muscle aches, and fatigue. For Dr. Krishan, his symptoms became progressively worse over the years, and he was very debilitated when he retired at age 60. He was having three or four "attacks" a day, during which he could not walk, sit, or lie down: He had to find some awkward position, such as leaning his body up against a wall to get relief from the shaking. Between episodes, medication helped control symptoms, but the relief lasted only three to four hours.

At the age of 62, he began to create art, and this changed his life. He did this during the times between episodes – and at times, the episodes themselves sparked his creativity. One of his pieces is depicted in Figure 4.7. He said, "I do

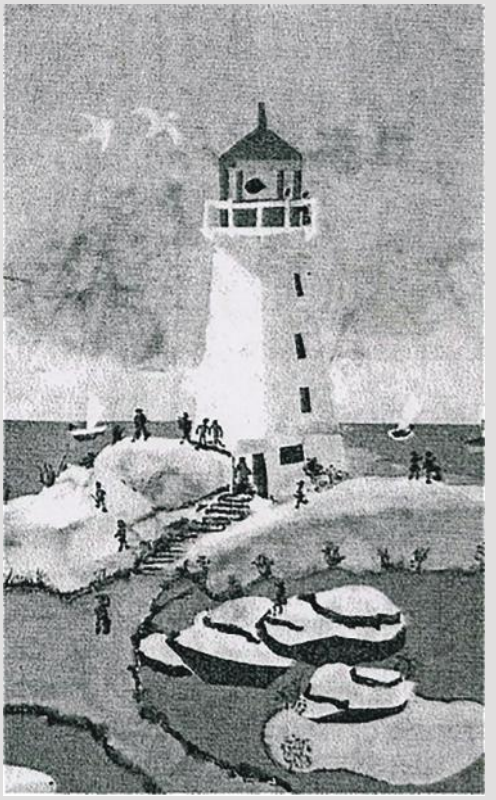

Figure 4.7 Dr. Krishan's work: a lighthouse drawn with pastels (Wadeson, 2010).

have difficulties because my hands shake and it becomes very hard to cut things or even hold a brush steady when I paint or draw a straight line. These problems challenge me. I try to develop new ways to do things. For example, I can't use the brush to paint the top of a tree so instead I use a sponge . . . I created a tool with some plastic materials to cut straight lines and curved lines. This way, I avoid the scissors, which can cut me if my tremors are fierce." (Wadeson, 2010, p. 309).

For Dr. Krishan, art gave him a means of generating positive emotions. "When I am making art, I am not focused on my disease or its symptoms such as tremors and dyskinesia. I feel relaxed and peaceful when I am so focused on creating new images" (Wadeson, 2003, p. 36).

Furthermore, art provided him with meaning and a healthy identity that helped support him through some of his periods. "Sometimes when I am having intense tremors, I might be out with my family, I am forced to wait in the car because I can't move anywhere. At these times, I feel I observe things around me the most. I take keen notice of the clouds or trees or leaves or water or a building. These very normal things inspire me to create images on paper. My artwork makes me feel happy" (Wadeson, 2003, p. 38).

NOTE-TAKING PROMPT: How do you think art helped Dr. Krishan? Do you think talk therapy would be a useful supplement in addition to art making for him? Do you think talk therapy could have replaced his experience as an artist in terms of his mental health?

Is Art Therapy Effective for Clinical Populations?

Case studies are compelling, but recently, there has been a call for more rigorous studies to investigate the effectiveness of art therapy using randomized controlled trials (RCTs). It is in an RCT where the participants are assigned to conditions randomly (meaning everyone has an equal chance of getting each of the available conditions), and at least one of these conditions is a control group. A *control group* is a group that excludes an intervention. There are two kinds of control groups:

Passive control group – those not getting the intervention do nothing
Active control group – those not getting the intervention do something comparable but without the distinguishing features of the intervention

Though there is still a dearth of evidence from RCTs, there is some evidence to suggest that art significantly improves therapeutic outcome across a number of different populations. In an RCT, Campbell et al. (2016) recruited 11 combat veterans with high levels of PTSD. These veterans were assigned to one of the two groups: 1) an active control group comprising seven sessions of cognitive processing therapy (CPT) or 2) the experimental group that included seven sessions of both CPT and art therapy. Although their symptoms of PTSD and depression significantly improved in both conditions with no significant differences between them, participants reported significantly higher ratings of satisfaction with the art therapy added to the CPT. More importantly, there was zero dropout in the art therapy condition compared to the 40% dropout in CPT alone. Moreover, in post-intervention interviews, all participants receiving art therapy stated that they either recovered previously blocked memories or gained insights and realizations crucial to their healing processes through art therapy.

Sometimes, we want to simultaneously review a great number of studies on the same topic. This can be accomplished through systematic literature reviews (a.k.a. systematic reviews) or through meta-analysis. A *systematic review* is an attempt to find all of the existing scholarly literature on a topic in order to answer a specific research question. Systematic reviews may be taken a step further by performing statistical analyses on these articles in a procedure called a meta-analysis. A *meta-analysis* is a statistical method for combining the findings from different studies that investigated the same research question.

For example, Maujean et al. (2014) conducted a systematic review, finding eight RCTs of art therapy. Only one of these studies did not report any advantage of art therapy. The authors reported benefits of art therapy for people undergoing treatment for cancer, dementia, PTSD, prison inmates, and developmental disabilities. It was only the study for schizophrenic patients that did not yield any significant benefits of art therapy.

There are such reviews for specific populations. For example, Tang et al. (2018) conducted a meta-analysis on the effectiveness of art therapy on the depression and anxiety of women undergoing treatment for breast cancer. Nine RCTs (total number = 747 participants in all nine of them) were analyzed in the study, and a variety of art therapy

techniques were included (art, dance, music etc.). The results strongly support the conclusion that art therapy is an effective intervention for women struggling with breast cancer.

NOTE-TAKING PROMPT: Why are RCTs important? (You may refer to Chapter 1 for more information.) What do you believe are the benefits of an active versus a passive control group?

Is Art Making an Effective Tool for Nonclinical Populations?

Anyone struggling with uncomfortable emotions, life changes, or just about any situation that needs to be processed can use art as an effective means of coping. In fact, several studies have shown that creating art – coloring, collage making, drawing, and painting in particular – can reduce stress, anxiety, and negative affect in general (Curry & Kasser, 2005; Drake et al., 2011; Drake & Winner, 2012; Northcott & Frein, 2017; Pizarro, 2004; Sandmire et al., 2012).

Art has proven to be a successful tool for mood regulation, and like expressive writing, it can help the creator process emotions. Additionally, art making touches upon all aspects of PERMA: It contributes to positive emotions, many find it easy to be engaged with the process of art making, art making in a social setting can contribute to positive relationships, both the process and the product are frequently attached to meaning, and even small arts and crafts can contributed to a sense of accomplishment. In the short term, negative emotions can be alleviated through *cognitive distraction*: Attention is drawn away from negative thoughts. This distraction provides a means of shifting focus from constantly analyzing an event/problem toward a state of openness. Indeed, this shift of attention can be consuming and work much like meditation or even induce a full flow experience. In this case, the creator's attention is absorbed in the moment by the choices he/she needs to make at each stage of the process rather than on the worrying thoughts – from crushing your enemies to which brush to use, how hard to press down on the page, mixing colors. What a relief! Furthermore, there is often a pervasive accomplishment at creating something – even when coloring in a simple coloring book and even if the drawing isn't close to being a masterpiece. Finally, as we have learned in the section on WED, creating a narrative of the difficult event is one of the core tenets of healing. Art making is a unique way of creating a story: visually using images in this case.

Here is a review of some of the evidence:

How Does Art Making Compare to Journal Writing?

There is evidence that drawing is better for short-term mood repair compared to writing. For example Pizarro (2004), who conducted a study with 41 undergraduate students4.

Table 4.1 The typical methodology for studying the effect of art making on mood.

STEP 1	STEP 2	STEP 3	STEP 4	STEP 5
PARTICIPANTS REPORT MOOD - BASELINE	EXPERIMENTERS INDUCE NEGATIVE MOOD	REPORT MOOD AGAIN – PRE-INTERVENTION	INTERVENTION (TYPES OF ART / EXPRESION VERSUS CONTROL)	REPORT MOOD POST-INTERENTION

These students were randomly assigned to one of the three conditions: 1) write about their stress; 2) draw about their stress; or 3) draw a still life. The participants completed two sessions of about one hour each. Unlike most of the studies in this area, this study did not involve a negative mood induction. The authors found that the writing group reported a significant decrease in social dysfunction on the Global Health Questionnaire (GHQ), a measure of psychological distress. However, participants reported more negative affect on the Profile of Mood States (POMS) questionnaire. This means that, in replicating the results from the WED paradigm, the participants still felt lousy after the intervention despite an improvement in their psychological health. In fact, the art control condition (draw a still life) had the least amount of negative affect, and participants reported they were most satisfied with this intervention, were more likely to recommend it to others, and would continue it if they had the opportunity. So, although writing was the best intervention on an objective measure of psychological distress, it was also the case that this intervention felt the worst and that the participants were least likely to continue on their own.

Art Making for Distraction Outperforms Venting for Short-Term Mood Elevation

Is distraction or expression a better strategy? To investigate this, Dalebroux et al. (2008) recruited 75 undergraduate students to watch a three-and-a-half minute clip from the movie *Band of Brothers*, which was intended to invoke negative emotions. The students were randomly assigned to one of three conditions: 1) vent (draw a picture that expressed their feelings in response to this movie); 2) positive emotion (draw a picture that depicts happiness); or 3) distraction control (find and cross out certain symbols from a chart). It was found that creating positive art increased mood valence the most whereas venting was not significantly different from control but positive.

Art Making Seems to Be Made for Distraction Whereas Writing Seems to Be Made for Venting

In order to expand on this observation of distraction versus venting, Drake et al. (2011) recruited 40 undergraduate students. This study also included a negative mood induction: participants watched five minutes of a distressing movie *The Laramie Project*, which depicts the hateful kidnapping and murder of a young man, Mathew Shepard. The participants were randomly assigned to one of the two conditions: writing or drawing. It was an open-ended task; specifically, they were told, "Use the next ten minutes to write/draw about anything you'd like." Afterward, the participants were asked about their strategy for coping with the negative emotions aroused by the film. More specifically, they were asked whether they used the task to vent their feelings (i.e., express) or if they used the task to distract them from negative emotions. The authors found that the drawing conditions repaired short-term mood to a greater degree than the writing condition. Furthermore, when they engaged in drawing to distract rather than vent, their mood witnessed more significant improvements. It seems that the act of drawing affords more possibilities to distract from a negative mood, whereas writing may be more amenable for expression.

Elaborating on these studies, Drake and Hodge (2015) conducted a similar study with 80 undergraduates. A negative mood was induced using a clip from the same movie, *The Laramie Project*. Participants were asked whether they preferred to write or draw and on the basis of their responses, some participants were assigned to the condition they preferred, whereas others were not. This created four conditions: 1) preferred drawing; 2) preferred writing; 3) non-preferred drawing; and 4) non-preferred writing. Again, participants were

given ten minutes to draw or write whatever they liked. The authors measured both positive and negative effects using the Positive and Negative Affect Scale (PANAS) for this purpose (Watson et al., 1988). Though they found no significant effects for positive emotions, negative emotions were reduced in the writing condition, regardless of preference.

Further, the authors found that writing versus drawing seemed to elicit different strategies: 77% of participants in the drawing condition reported they wrote to express their feelings (regardless of preference). However, 67% of participants in the drawing drew to distract themselves (again, regardless of preference). Furthermore, mood improvement was unrelated to how frequently participants engaged in these activities. The authors concluded that drawing and writing seem to afford different emotion-regulation strategies.

Art Making Studies in the Pennebaker Tradition Yield Conflicting Results

In a similar study, Northcott and Frein (2017) included 64 undergraduates who were randomly assigned to one of the three conditions: 1) sit quietly (passive control); 2) draw whatever you like; or 3) write whatever you like. This study was more directly like the Pennebaker paradigm in that their sessions progressed over a period of four days and there was no mood induction. The researchers found that both writing and drawing reduced negative affect, and those assigned to drawing showed the most significant decrease in terms of negative affect.

Drake et al. (2016) also conducted a study involving the previous paradigm. This study lasted over four 15-minute sessions and recruited 40 undergraduates to recall the saddest event they had personally experienced. Then, the participants were led through a three-minute visualization exercise where they were asked to immerse themselves in the sights and sounds of that horrible experience. Next they were randomly assigned to either 1) draw to express (draw about the recalled event) or 2) draw to distract (every day, they were assigned a new object to draw like shoes). These findings were consistent with previous research: Drawing for distraction yielded significantly more positive emotion and higher life satisfaction even in a longer-term study.

Distraction Is Also an Effective Mood-Regulation Strategy Using Paint

Is drawing the only medium that is effective for mood regulation or is painting just as effective? To answer this question, Diliberto-Macaluso and Stubblefield (2015) recruited 70 undergraduates to watch two movie clips from the movies *Crash* and *Enough* that were used to induce an angry mood. After viewing the clips, the participants were randomly assigned to 20 minutes one of these four conditions: 1) vent feelings: painting your current mood; 2) positive distraction: paint something that made you feel happy; 3) neutral distraction: paint a still life; or 4) control condition: complete a word-search puzzle. Though all conditions showed a reduction in the arousal of anger, both the positive distraction and the neutral distraction significantly improved mood compared to the control or venting conditions. In fact, those in the venting were found to have more anger than the nonart control (word puzzle).

Coloring Reduces Anxiety

Several studies have demonstrated a link between coloring and anxiety reduction. For example, Curry and Kasser (2005) not only wondered if coloring had an effect on reducing anxiety they also wanted to know if coloring mandalas specifically enhanced a positive

mood. In order to induce a negative mood, 84 students were asked to think about the time they felt most fearful and write about it for four minutes. Then, they were randomly assigned to 20 minutes of 1) coloring a preprinted mandala; 2) coloring a preprinted plaid design; or 3) drawing on a blank paper. The authors found that coloring mandalas decreased anxiety the most; in fact, scores in this condition were even below preinduction anxiety levels. However, no significant difference was observed in anxiety scores between coloring plaid versus coloring mandalas. Additionally, the blank page was not found to significantly reduce anxiety.

In a follow up study, Van der Vennet and Serice (2012) replicated the findings of Curry and Kassler with 50 students. They used exactly the same methodology with the exception that these authors used a different preprinted mandala but the same plaid design. Also, they used a different measure of anxiety. In this study, the authors found an advantage for the mandala design. There was no significant difference between plaid and plain paper, but this time the mandala condition was by far the most significant tool for anxiety reduction.

Using a more comprehensive array of variables, Flett et al. (2017) looked directly at the effects of coloring on increasing positive experiences. In their study, 104 female undergraduates were randomly assigned to either color or complete logic puzzles every day for a period of seven days. Dependent variables included three positive psychology variables: flourishing, mindfulness, and resilience, as well as measures of depression, stress, and anxiety. The authors found that coloring led to significant reductions in anxiety, depression, and perceived stress; therefore, negative mental states were effectively diminished, as observed in previous studies. In addition, although flourishing and resilience were not found to significantly increase, there was an increase in mindfulness, a state very much associated with positive life experiences (see Rappaport, 2013).

Across these studies, there seems to be some connection between the simple act of coloring and short-term alleviation of negative mental states; however, more research needs to be done to establish a connection between coloring and positive mental effects.

NOTE-TAKING PROMPT: Summarize the findings for benefits of different approaches to using art to heal nonclinical negative mood states. Are there any points of weakness you see in this research that you would like to see developed further?

Thoughts on Using Art for Distraction

A consistent finding in this literature is that art making helps us regulate emotion in the short term by providing us with a distraction. One might consider whether or not this is a good strategy for long-term health. Proponents of the WED procedure and various types of insight-oriented therapies have long held that it is the cognitive processing of the negative events: confronting those events and forming a narrative about the traumatic events that leads to significant growth. However, does the distraction offered by art making offer this level of healing?

Perhaps not. But the advantages of visual art making are manifold. I think there is a strong case that art making can facilitate that level of healing afforded by the WED

paradigm, talk therapy, or anytime a disturbing life event must be faced. I believe this can work in the following ways

- Art can get you started with the healing process when it is hard to start.
- Art can help you stay with the process when you are tired of it.
- Art can help you maintain a healthy balance of positive emotions during a process that can sometimes be arduous.
- Art can help you enrich the narrative you are building with symbolism and color meaning.
- Art can help you tell your story in a format that can be looked back on in a very tangible, accessible way.
- Art can provide a safer, more indirect way of regulating emotions through dark times.
- Art may be the only way of expressing yourself when words aren't possible such as when the life event is so scary that it can't be put into words.

General Conclusions

Thus, it can be safely and confidently inferred that art has the ability to heal in a number of ways. At their core, art and therapy are both rooted in the idea of expression. Art shows us that this expression need not always be direct. Using art therapy offers some concrete processing advantages, such as inviting openness and a better/broader mindset and thinking in images rather than words, which may lower our defenses.

But let's not forget the important observation that at the very least, creating art just makes you feel good, and that's no mean feat! As a cognitive distraction, art making has been found to reduce negative emotions such as anxiety and possibly increase positive emotions like mindfulness. Though it seems that, eventually, one needs to process a narrative of the events in order to truly heal, art is a gentle way that can help us get to that narrative without being overwhelmed by the anxiety and stress it takes to navigate through difficult experiences.

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5 Creativity and Mental Illness

What You Will Learn

The "mad genius" stereotype is pervasive in society. Where does this come from? And is it true? In this chapter, you will learn some specific ways of defining mental illness and explore the empirical findings that connect this concept to creativity.

Chapter Outline

What Stories Do We Tell Ourselves About Mental Illness?
Does the Stereotype of the Mad Genius Hurt Anyone?
Are Claims About Mental Illness and Creativity Causal or Correlational?
What Is Mental Illness?
What Are Some Specific Mental Illnesses That Have Been Associated With Creativity?
Why Is the Idea of a Relationship Between Creativity and Mental Illness So Prevalent?
What Scientific Studies Have Investigated the Link Between Mental Illness and Creativity?
What Are Some Criticisms of the Early Research Linking Mental Illness and Creativity?
What About More Modern Research on the Connection Between Mental Illness and Creativity?
What Are Some of the Specific Findings for Specific Disorders?
Can Creativity Help Those With Mental Illness?

Terms to Identify as You Read

Addiction
Anhedonia
Apophenia
Attenuated Latent Inhibition
Availability Heuristic
Bipolar Disorder
Blind Procedure
Catatonia
Cognitive Flexibility
Cyclothymia
Delusions

DOI: 10.4324/9781003014362-5

Terms to Identify as You Read

Depression
Directionality
Disorganized Symptoms
Domain-General
Domain-Specific
Dysthymia
Enthousiasmos
Flat Affect
Hallucinations
Hyperconnectivity
Hypomania
Latent Inhibition
Mood Disorders
Negative Symptoms
Participant Variable
Positive Symptoms
Prospection
Researcher Bias
Retrospective Reports
Schizophrenia
Schizotypy
Selection Bias
Third Variables
Upside-Down U-Shaped Curve
Working Memory

What Stories Do We Tell Ourselves About Mental Illness?

I am an easygoing person who is not easily prone to anger, but there is one thing that really makes my blood boil: Just tell me you aren't seeking treatment for a mental illness because you don't want to lose your creativity. Cue the sound of my brain exploding! You see, we have this myth embedded in our culture that great genius comes from an even greater mental anguish, an intriguing, romantic tale of artists tortured by their minds. Yet, as the story goes, it is from these hellish experiences that truths can be revealed to us by way of these beleaguered souls who are inaccessible from our safe space in the world. It is a story we love, cherish, retell, and protect, much like an evangelist touting a biblical epic. It is a powerful story of meaning within suffering. People tell the story of Van Gogh's ear, his madness, and his suicide with a conspiratorial glee. "Alas! What a mess he was!" so the story goes before we delve into the cogent moral conclusion. "Yet from that suffering came *A Starry Night*, so it is a happy ending." Is it, though?

Truthfully, I've always suspected that this line of reasoning was problematic, and now, after years of research into the nuisances of the madness of geniuses, I have been able to confirm this suspicion: It *is* quite a load of nonsense, nonsense fueled first by philosophers with tales of demonic possessions and later by researchers and media overinterpreting correlations alongside a host of biases and problematic definitions of both mental illness as well as creativity. So, I was naturally thrilled when my favorite comedian – that's right, Hannah Gadsby, again – took this subject on in her comedy special *Nanette*. In that special, she told a story about how she had finished a show in which she had disclosed her experience with antidepressants. After the show, a man approached her backstage to tell

her that she should stop taking the antidepressants because she is *an artist*. He says to her, "you shouldn't take medication" because "it's important that you *feel*" (Gadsby, quoted in *Nanette*, produced by Frank Bruzzese, 2018; Hopkins, 2020). He added that "if Vincent van Gogh had have taken medication, we wouldn't have the *Sunflowers*." But Gadsby seemingly took umbrage to this observation. Her reply summarized the research and my feeling on the matter succinctly:

Do you know why we have the sunflowers? It's not because Vincent van Gogh *suffered*. It's because Vincent van Gogh *had a brother who loved him*. Through all the pain, he had a tether, a connection to the world. And that . . . is the focus of the story we need. *Connection*.

I couldn't be happier to hear this.

The story of the connection between mental illness and creativity is nuanced. It is not a fable like "The Tortoise and the Hare": short, sweet, with a clear message. It is more like a novel by Salman Rushdie – complex, paradoxical at times, and deciphered only partially (often allegorically) by digging deep. So, let's start digging.

Does the Stereotype of the Mad Genius Hurt Anyone?

I was also happy to hear Ms. Gadsby address this because this stereotype, like all stereotypes, is viscerally harmful. First, it is harmful to artists; the scientifically baseless notion that creative work simply "springs forth from" an imbalanced mind undermines the public perception of the immense hard work artists put in while crafting their beloved creations, not to mention the potentially cataclysmic decision to link a person with mental illness on the basis of their success. This perception is not impervious to financial repercussions as well. To study how eccentricity was perceived in artists, van Tilburg and Igou (2014) found that when an artist was described in a biography as "very eccentric," their work was perceived more positively and to be worth more money. In fact, in another experiment, these researchers found that the aforementioned *Sunflowers* by van Gogh was perceived more favorably when preceded by a biographical note referencing the story about him cutting off his earlobe. Undoubtedly, this is an unhealthy and mentally scarring stereotype for artists. In fact, this stereotype may even encourage some artists to portray themselves as more eccentric as a devious marketing strategy or just to seem like "real" artists (van Tilburg & Igou, 2014).

Equally important, this stereotype inflicts considerable damage to those who live with mental illness. It has been documented that adherence to treatment goals is compromised when clients believe that treating their illness will stifle their creative faculties (Johnson et al., 2016; Murray & Johnson, 2010; Rothenberg, 2001). Research indicates that those struggling with bipolar disorder have increased creative quality and better quality of life when they are on regular medication (Michalak & Murray, 2010), though early studies with lithium showed mixed results (Schou, 1979). Even many of the famous examples of artists struggling with mental illness have demonstrated that some of their best works were achieved while undergoing successful treatment. For example, Jackson Pollock's famous breakthrough that led to his action painting was documented to be during a particularly successful treatment period (Rothenberg, 2001). Furthermore, evidence of sketches, diaries, and previous paintings left by famous artists show that there is a cognitive progression, a slow honing of skills, and gradual refinement of imagination that departs from the all-or-nothing passionate grip of possessed creativity that portrays the mad genius at work. Despite the availability of such evidence, patients often believe that

their creative process will be inhibited or destroyed by taking medication (Rothenberg, 2006).

In light of these incendiary negative stereotypes, careful consideration must be given to this research and the manner in which conclusions are presented. As an example, a study that shows a *modest* correlation in a sample of 30 college students demonstrating that a mild, *subclinical* level of *one* type of *one* mental illness is associated with *one* cognitive subcomponent of creativity (such as divergent thinking) should *not* be splattered across headlines and memes as "Suffering for Art: Creativity and Mental Illness Are Linked, Study Finds" (Leung, 2012). False information has even been documented in this area; for example in an Instagram post, underneath Edvard Munch's *The Scream*, the following tidbit of disinformation can be found: "Creativity has been linked to depression, anxiety and 'madness'. Research reveals that writers are 121% more likely to suffer from bipolar depression and 50% more likely to commit suicide than the general population."

Are Claims About Mental Illness and Creativity Causal or Correlational?

Let's first explore the kinds of claims that have been made about the relationship between mental illness and creativity. Specifically, we will look at 4 possible claims and what evidence is needed to support such claims.

The first position is that mental illness *causes* creativity to occur. This kind of claim is reflected in statements such as "the greatness of his work stemmed from his anguish" or her "depression really made her a great writer." This position is that creativity is the result of mental illness. As we have seen in Chapter 1, scientists need to demonstrate the following in order to meet the standard for causation:

- There is a correlation of cause and effect – i.e., that creativity and mental illness are related.
- The cause precedes the effect in time – i.e., that mental illness precedes creativity.
- Alternative explanations have been ruled out – that groups (mental-illness and no-mental-illness groups) are equal in everything with the exception of mental illness. In scientific experiments, this is usually accomplished through random assignment to conditions.

Causality is a difficult standard to meet for a claim about a complex *participant variable* (that is, a variable that forms part of the person and thus cannot be assigned by the experimenter) because there is no way of randomly assigning people to be creative or not nor of randomly assigning people to be mentally ill or not. Thus, correlational and quasi-experimental designs are more frequently employed; however, the conclusions from these designs too frequently imply a causal relationship that can't be justified. Thus, we look at the second and most common scientific claim about this relationship.

The second type of claim is that mental illness is correlated with creativity. Many studies have established such a relationship, and its nature can take many forms. First, let's discuss *directionality*. One interpretation is that mental illness causes creativity, but just knowing there is a relationship doesn't mean we know which came first – i.e., creativity may very well be the cause of mental illness. There is, in fact, some limited evidence that creativity is a precursor of mental illness (Kaufman & Baer, 2007). The pressure to create, the high levels of criticism and failure rates involved in creative professions, and the

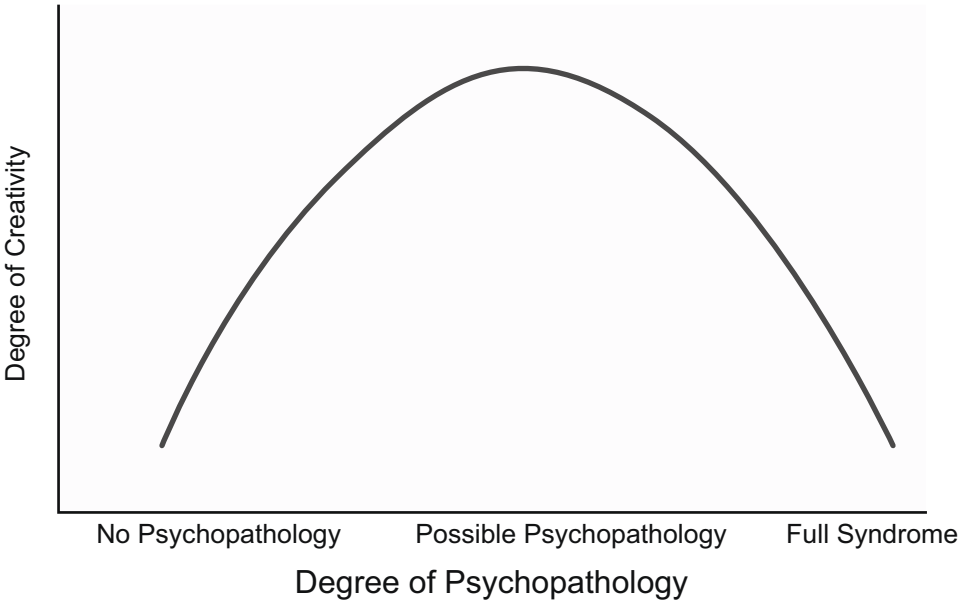

Figure 5.1 Hypothetical model of creativity and psychopathology from Weisberg (2020). The lowest levels of psychopathology correspond with the lowest degrees of creativity, and creativity increases along with psychopathology up to a point, after which psychopathology is negatively related to creativity.

personal nature of creative works all may contribute to certain kinds of mental illness. In addition, disclosure may be an issue; people in creative professions may not feel the need to hide aspects of their illness as much as people in noncreative professions.

Also, recall that establishing a relationship doesn't rule out the possibility of a third (or more) factor that causes both creativity and mental illness. Many studies have investigated aspects, or *third variables*, that are common to both creativity and mental illness. These variables may include the ability to enter a state of flow, generate distant associations between concepts, ruminate on a concept, and have the energy required to generate and work on new ideas, among others. Importantly, merely demonstrating that these variables contribute to both mental illness and creativity does not prove that mental illness causes creativity.

A third claim is that mental illness and creativity are nonlinearly related. Correlational research establishes that as one variable increases, the other increases or decreases in a linear way. However, studies on this relationship have yielded mixed findings, and one reason for this may be that mental illness is positively related to creativity up to a point, but beyond that, it has the opposite effect. This is represented on a graph as an *upside-down U-shaped curve* (Figures 5.1 and 5.2). So, small amounts of mental illness are positively related to creativity, but at some point, excessive mental illness causes the reverse relationship (Carson, 2011; Schuldberg, 2001).

A fourth claim runs completely counter to our current mythology: Mental illness is unrelated to creativity or even mental *health* (rather than an illness) is related to creativity. For example, Arne Dietrich (2014) opines that the vast majority of creative people are

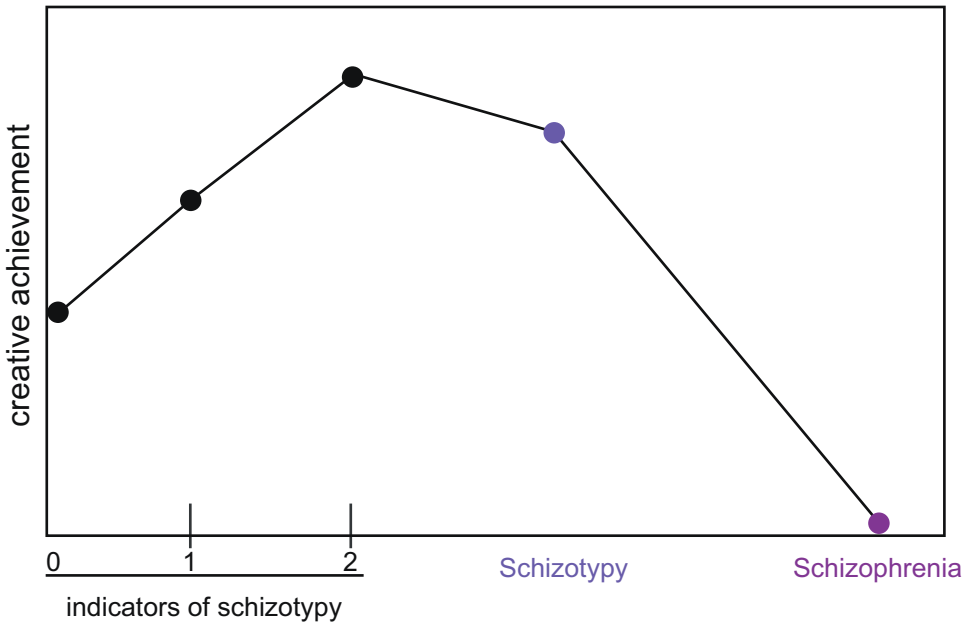

Figure 5.2 Results of a study reported by Andrea Kuszewski (2009). The highest levels of creative achievement corresponded with one or two indicators of psychopathy (schizotypy defined as follows). However, those with full-blown schizophrenia had the lowest levels of creative achievement.

not mentally ill, and conversely, the vast majority of those suffering from psychopathology are not eminent creators. Dietrich points to the array of cognitive bias that fuels belief in this link among both scientists and laypeople. A cognitive bias is a skewed way of viewing the world – from the very way we perceive information (for example, choosing what stimuli to look at in the first place) to how we make decisions (for example, choosing a more expensive item at the store because the packaging makes it seems familiar). There are many such specific biases, but the *availability heuristic* is one that Dietrich details in this context; we make estimates of frequency on the basis of how easily an example comes to mind. For example, when bringing up the mad genius debate, one might easily think of Van Gogh (or Plath, or Woolf, etc.).

Generally, speaking many researchers do think there is an association, but the exact nature of the association is up for debate. So, let's dive straight into the debate! First, I keep using the term "mental illness"; what do I even mean by that? Like creativity, mental illness comprises a gamut of types and scales even though, like creativity, many people discuss it as one unitary construct and often equate small facets with the superordinate construct itself. This is particularly dangerous here since we are dealing with two constructs containing multitudes of types and scales – researchers frequently operationally define a tiny aspect of these constructs and draw conclusions about the larger concept itself. For example, many of the conclusions drawn from research correlate one small facet of creativity (say, divergent thinking) with one small facet of mental illness (say, score on a self-report test of bipolar symptoms) and conclude that there is a relationship between these measurements and their very superordinate concepts – the monoliths

of creativity and mental illness. Thus, "simply saying that creativity is associated with mental illness is like saying . . . 'food is associated with feelings'" (Beaussart et al., 2014, p. 43).

We have discussed different varieties of creativity in Chapter 3. Now, let's look at mental illness.

What Is Mental Illness?

There are many resources for defining mental illness, but in the United States, the DSM-5 is the main resource used by clinicians for psychiatric disorders. Since I am located in the US, I will use this manual to being this discussion, but there are similar resources across cultures that may differ in some ways. That said, the DSM-5 is a colossal repository comprising 947 pages. It lists 157 disorders (McCarron, 2013; Morrison, n.d.).

According to the DSM-V:

> a mental disorder is a syndrome characterized by clinically significant disturbance in an individual's cognition, emotion regulation, or behavior that reflects a dysfunction in the psychological, biological, or developmental processes underlying mental functioning. Mental disorders are usually associated with significant distress in social, occupational, or other important activities. An expectable or culturally approved response to a common stressor or loss, such as the death of a loved one, is not a mental disorder. Socially deviant behavior (e.g., political, religious, or sexual) and conflicts that are primarily between the individual and society are not mental disorders unless the deviance or conflict results from a dysfunction in the individual, as described above.
>
> (American Psychiatric Association, 2013, p. 20)

Let's break that down a bit:

- **Clinically significant disturbance**. This is difficult because the term "clinically significant" is not operationally defined here. Generally, it means a change of status that is important to the individual experiencing it. Therefore, its meaning is necessarily subjective. The underlying idea is that some internal change disturbed the individual in an important way.
- **Individual's cognition, emotion regulation, or behavior** – this disturbance doesn't need to be overt. For example, someone may carry on and behave as if nothing has changed but is suffering from intense anxiety or having suicidal thoughts. Put differently, the disturbance may be entirely internal, experienced only by the individual in question.
- **Dysfunction in the psychological, biological, or developmental processes underlying mental functioning**. Dysfunction is an abnormality that is considered maladaptive. The dysfunction could be psychological (thoughts, feelings, self-esteem, etc. – a dysfunction would mean that the thought, feelings, internal status of an individual are different and less healthy); biological (neurotransmitters, hormones, physiological health, a dysfunction here would lead to less healthy biological states and processes); or developmental (the progression from one stage of life to another – here, a dysfunction would delay or alter that progression).

- **Usually associated with significant distress in social, occupational, or other important activities**. The disturbance usually disrupts some aspect of the individual's life, often family, friends, relationships, occupation (work, school), or other important activities (from basic life tasks such as grooming or paying bills to more fulfilling aspects of life such as hobbies and other goals).

Importantly, mental illness is not, according to the DSM-5, "socially deviant behavior" (e.g., religious, political, or sexual), and conflicts that are primarily between the individual and society are not mental disorders unless the deviance or conflict results from a dysfunction in the individual, as described earlier (American Psychiatric Association, 2013, p. 20). Thus, just because behavior is not socially acceptable, that doesn't mean it is a mental illness, unless it results from a clinically significant impairment within that individual. For example, if one has unconventional political or religious beliefs or just some unconventional habits like flossing their teeth four times a day, that person does not qualify for a mental illness. If, however, these beliefs come from delusions that keep them in a state of stress, or if the flossing comes from obsessively thinking about teeth and interferes with their quality of life, then these same ideas and behaviors may be considered part of a mental illness.

NOTE-TAKING PROMPT: What are the elements of a mental disorder defined by the DSM-5? Think of an unusual character from a sitcom or novel. What makes this person "odd" versus mentally ill?

What Are Some Specific Mental Illnesses That Have Been Associated With Creativity?

So far, we have learned what mental illness is in general, but as stated before, there are over 150 different varieties of mental illness. Which of these varieties has been associated with creativity?

Mood Disorders: Depression and Bipolar Disorder

Depression is a mental state of disheartened mood characterized by feelings of sadness, despair, and discouragement. Clinical depression is a lot more serious and entails much more than merely feeling sad. For a diagnosis of clinical depression, a person must display five or more of the following symptoms for two or more weeks: loss of interest in life, low mood, changes in appetite, feeling worthless, dwelling on guilt or shame, sleep disorders, restlessness, poor concentration, and suicidal ideation (thoughts of suicide whether or not there is a plan to act on them). A milder but longer-lasting version of depression is called *dysthymia*; though the symptoms aren't as severe, the persistent episodes are painful to live with. I ran a quick search of the PsychInfo database (a database of research articles published in psychology) for scholarly articles including the keywords "depression" and "creativity," as an informal measure of the relevance of depression to creativity in psychological research. This search yielded 519 articles, so it's evident that the study of how depression and creativity are related does strongly appeal to researchers in psychology.

Bipolar disorder was formally known as manic depression; this is a mood disorder in which the person's mood swings from euphoric, manic stages to depression (i.e., from one "pole" to the other). This is not simply being happy and then sad, but rather periods of uncontrollable, clinical mania followed by longer periods of depression. During these manic periods, the person may exhibit sleeplessness, incoherent/irrational thought and speech patterns, hyperactivity, unrealistic ideas about themselves and others, and act in sexually, socially, and physically unhealthy ways (for example, sexual encounters with strangers, going on shopping sprees that they can't afford, excessive drug and alcohol use, etc.). There are two types of bipolar disorder: Type 1 exhibits the characteristic swings between euphoria and despair, whereas type 2 has less pronounced manic episodes called *hypomania*, which often more closely resembles anxiety. A milder version of bipolar disorder is referred to as *cyclothymia*; the symptoms are pretty much the same but not as intense or long-lasting as in bipolar type 2. An informal search of the PsychInfo database for peer-reviewed articles with "bipolar" and "creativity" yielded 210 articles; it should be known that a bipolar disorder is sometimes called bipolar depression, so there may be some overlap with the previous search. A search for "mania or manic" yielded another 98 results.

Schizophrenia is a psychological disorder with a wide variety of symptoms. These symptoms can be classified into three overall types: positive symptoms, negative symptoms, and disorganized symptoms. *Positive symptoms* are thoughts and behaviors that are absent in nonschizophrenics but are present in those with schizophrenia. These symptoms include distorted perceptions such as delusions and hallucinations. *Delusions* refer to erroneous beliefs such as "I am possessed by a demon" or paranoid beliefs such as "I am being followed by the CIA." *Hallucinations* signify perceiving things that are not there, with hearing voices being the most common type of hallucination. Other positive symptoms may include psychomotor agitation such as compulsive movements, like nail-biting or pacing or, conversely, *catatonia*, a rigid, motionless state as if frozen. *Negative symptoms* include behaviors that are typically there in those without schizophrenia but are absent in individuals with schizophrenia. These may include a *flat affect*, a state of no emotional expression at all, and *anhedonia*, reduced motivation and pleasure in life activities. *Disorganized symptoms* are those that involve disruptions in thinking and include rapidly switching topics, the inability to focus, and incoherent speech.

With the publication of the DSM-5, schizophrenia was classified as a spectrum disorder – a disorder with a range of different symptoms with an accompanying wide range of severity. Milder forms of schizophrenia are often referred to as *schizotypy*. Schizotypy can be defined as the "presence of experiences and behaviors analogous, at a subclinical level, with those of schizophrenia" (Mason & Claridge, 2015, p. 359). As is the case with full-blown schizophrenia, schizotypy includes positive, negative, and disorganized symptoms, though these symptoms pose less significant distress. For example, hallucinations and delusions are rare, but those scoring on the low/middle end of the spectrum often experience *apophenia* (or the tendency to see meaningful connections among unrelated things, magical thinking such as a belief in ESP, and unusual perceptions of time (Holt, 2019). Negative symptoms include anhedonia and withdrawal from intimacy, whereas disorganized symptoms include difficulties with attention, concentration, impulsivity, and decision-making.

Also, it is noteworthy that the common association regarding the perceived schizophrenia with multiple personality disorder (i.e., dissociative identity disorder) is untrue; schizophrenia is *not* a disorder that includes two or more personalities in one person. This

is a widespread misconception. This is one of the most prevalent disorders associated with creativity, with a search of the PsychInfo database for peer-reviewed articles "schiz*" and "creativity" yielding 471 articles.

Addiction: A person is addicted to a substance or behavior if he or she continues to use it compulsively even after a strong desire to discontinue. There are many types of addictions ranging from gambling to sex and, of course, drugs and alcohol. Although there are many contradictory findings about whether the use of psychoactive substances helps or hinders creative production and whether or not the work of eminent artists who suffered from substance use disorder derived any benefit from their use (Iszaj et al., 2017), this topic remains one of the most researched and discussed in terms of the effect of creativity. The informal search of the PsychInfo database for peer-reviewed articles "addiction" and "creativity" yielded 271 articles.

Although many other disorders have been associated with creativity such as autism, attention deficit and hyperactivity (ADHD), and personality disorders, these four are the most researched and the ones I will focus on in this short chapter.

NOTE-TAKING PROMPT: Describe the four mental illnesses listed previously, distinguishing between more severe and less severe symptoms. Do you see any similarities among them? Why do you think these disorders have received the most attention concerning their relationship to creativity?

Reminder: Mental Illness Is Complex and So Is Creativity

As we pursue this connection, I urge you again to keep the complexity of both of these constructs in mind. Recall from Chapter 3 that creativity is a production that is both original and laden with value and that the application of these two dimensions varies across both contexts (the 4 Ps) and scale (the 4 Cs). Creativity involves cognitive components such as divergent thinking, cognitive flexibility, and the ability to generate remote semantic associations, all of which support creativity but are not creativity in themselves. Furthermore, creativity may be more *domain-specific* than *domain-general*. In other words, someone who excels in visual arts may not necessarily excel in literary arts or performing arts. Against this backdrop, would Van Gogh have been as successful if he had applied his mind to science or literature? (See Baer, 2010, for discussion.) It seems intuitive that different domains of creativity would afford different emotional experiences. Due to the complex relationship between these two, no individual study can embrace the totality of either of these two constructs and draw conclusions about the nature of their relationship.

Why Is the Idea of a Relationship Between Creativity and Mental Illness So Prevalent?

There is a long history of the relationship between madness and genius. George Becker (2014) has extensively researched the origins of this linkage. As mentioned in the previous chapter, the ancient Greeks had a different view of creativity and mental illness. Platonic creativity centered on divine madness or *enthousiasmos*. In contrast, Aristotelian creativity revolved around melancholia. During the renaissance, creative people were

described as "melancholic" (sad) or "pazzia" (mad). In the aftermath of the enlightenment, romantics opted for a more mystical view of the universe and believed that innate creative genius was the ultimate measure of human achievement, independent as it was from the mundane and banal. According to Becker, the romantics associated genius with madness – a mark of an individual's divine, separate uniqueness (p. 12). Many of our ideas about the linkage between creativity and mental illness come from this era (Becker, 2014). Subsequently, mental illness became more clinicalized using the current medical model.

What Scientific Studies Have Investigated the Link Between Mental Illness and Creativity?

Before 1980, many studies did *not* exhibit a relationship between eminent creativity and mental illness. For example, Terman (1925) studied 1,000 intellectually gifted people and found they had lower rates of mental illness than their non-gifted counterparts. In addition, Drevdahl and Cattell (1958) studied 153 American writers and found they did not have a higher incidence of psychopathology. However, changes in operational definitions and separating different domains of creativity resulted in varied conclusions after about 1980. Starting in the 1980s, four classic studies changed the direction of this research and established a correlation between creativity and mental illness.

1. **Nancy Andreason (1987)**. This was one of the first studies that directly observed the linkage between creativity and mood disorder. Dr. Andreason compared 30 creative writers at the University of Iowa with 30 people holding jobs that were not inherently creative. According to her findings, 80% of writers said they had experienced either manic-depressive illness or major depression, while only 30% of people in noncreative jobs said that they had such experiences.
2. **Kay Redfield Jamison (1989, 1993)** is a prominent researcher in this field. In her original study, she included 47 painters, sculptors, playwrights, and poets. Each of them had garnered accolades and honors in their respective fields. Jamison found that 38% of artists had been treated for a mood disorder compared to only about 1% of people in the general population.
3. **Arnold Ludwig (1995)** spent 10 years reading 2,200 biographies to study eminent artists, authors, musicians, scientists, and entrepreneurs. He pronounced that biographers were less biased because they were unlikely to believe that a person has a mental illness compared to psychologists who had previously conducted studies in this area. Additionally, biographers draw information about their subjects from multiple sources, including interviews, letters, newspaper articles, etc. His painstaking research concluded that "members of the artistic professions or creative arts as a whole suffer from more types of mental difficulties and do so over longer periods of their lives than members of the other professions" (1994, p.1654). To form this conclusion, Ludwig found that between 29%–34% of future artists suffered from symptoms of mental illness as children (in contrast to only 3%–9% of other professionals like scientists). As adults, 59%–77% of artists, writers, and musicians suffered from mental illness, in comparison to only 18%–22% of other professionals. Ludwig's findings seemed to confirm Andreasen and Jamison's findings regarding the link between mental illness and artistic temperament. Ludwig went on to identify the attributes of creative individuals.

Eight Properties of Creative Individuals (Ludwig)

1. Display special talents or abilities as children
2. Receive support for developing those qualities from parents
3. Harbor an ingrained contrariness and opposition to established beliefs, which frequently antagonizes other people
4. Possess a capacity and penchant for solitude/self-reliance
5. Face physical trials early in life, often a life-threatening illness or physical disability
6. Emblazon their works and achievements with a personal and distinctive style
7. Exhibit an unyielding drive for dominance and supremacy in their chosen discipline
8. Experience a restless, driven state of psychological unease that finds relief through creative problem-solving

4. **Felix Post (1994)** gathered data on 291 eminent personalities from a wide variety of disciplines, including science, politics, academics, literature, and the arts. He scored each on a psychopathology index from no psychopathology to severe on a scale of 1–4. Post found that 88% of writers had "marked" or "severe" psychopathology whereas the scientists scored the lowest in psychopathology.

NOTE-TAKING PROMPT: Summarize the four early research studies on creativity and mental illness described above and before reading on, consider some of the criticisms that researchers might have shared about this research. You can refer back to the first chapter for some inspiration on forming your critique.

What Are Some Criticisms of the Early Research Linking Mental Illness and Creativity?

It is on this foundation that ideas of the scientific link between mental illness and creative eminence have been built. This era of research generally established a connection between creativity and mental illness; however, skeptics have criticized these studies for a variety of reasons. First, sample sizes tended to be small. Jamison and Andreasen in particular studied very few people. Studies with few people are more likely than larger ones to include a group of people that does not accurately represent the population at large. Whereas those studies had few people and Ludwig and Post's biographical research investigated more individuals, many disagree with Ludwig's assumption that biographies necessarily contain less bias. For example, a biographer might be more likely to exaggerate the presence of mental illness in order to sell books or just to create a compelling story. Additionally, these studies have the potential for *selection bias* – that is, the researchers may be more likely to select biographies of individuals who would support, rather than refute underlying hypotheses about creativity and mental illness. For example, many biographers resisted writing a biography of the well-known comedian Jack Benny because, many reports suggested that he lived a contented life (Rothenberg, 2001). It is also possible that the researchers were biased when interpreting the findings. Finally, all four studies were

formed based on *retrospective reports* – that is, either the subject, biographer, and/or the experimenter had to look back at the participant's behavior at a previous point in time and report on that. Looking back on behavior in hindsight is more susceptible to biases than directly observing behavior.

Another important criticism is that the researchers themselves conducted the selected samples and collected the data, creating the opportunity for *researcher bias* – that is, for the researcher to influence the results without their awareness. To avoid researcher bias, it is a standard procedure in science for the researchers to be **blind** to conditions. In the context of these experiments, someone who didn't know which participants were writers and the ones who were not should have conducted the interviews or interpreted the biographies. In summary, research on creativity and mental illness before the year 2000 faced the following problems:

- Small sample sizes
- Selection bias
- Retrospective reports
- Researcher bias

NOTE-TAKING PROMPT: Summarize the criticisms of these four studies mentioned here.

What About Modern Research on the Connection Between Mental Illness and Creativity?

After the turn of the millennium, subtleties in the story begin to emerge, although there were very few changes in the headlines. Around this time, attention shifted from the self-reported diagnoses of eminent individuals to psychometrically validated (but still based on self-reports) inventories of mental illness and creativity administered to individuals. Also, this era of research shifted to more refined operational definitions of creativity. On the one hand, this advanced the field quite a bit. For example, Kaufman and Beghetto's (2013) work, in particular, brought various degrees of creativity to light. Simultaneously, tests of creativity were formed or refined on the basis of cognitive capacities (like divergent thinking and remote associations), both large and small achievements (CAT, CAQ), and personality (CPQ, Openness on FFI). On the other hand, we see a lot of conflation of various types of creativity with each other, equating, say, high scores on the RAT (Mednick, 1968) with eminent achievement in a domain, both dubbed with the same label of "creativity" by the time they grace the headlines. In addition, diagnosis of clinical illness replaced scales of subclinical levels of mental illness, such as the hypomania scale (HCS, Eckblad & Chapman, 1986) and the Oxford-Liverpool Inventory of Feelings and Experiences (O-LIFE, Mason et al., 1995) scale for schizotypy. Finally, steady advances in neuroscience also gave more weight to unveiling the nuisances of this association.

Psychometric Studies

Many studies in psychology use psychometric scales to investigate a psychological phenomenon, and this field is no exception. For example, Furnham et al. (2008) used a

variety of psychometric scales, including the Hypomanic Personality Scale (HPS) by Eckblad and Chapman (1986), and found a significant positive correlation with the scale and divergent-thinking fluency, self-rated creativity, and the Biographical Inventory of Creative Behaviors (BIBC, Batey, 2007), which is a self-report measure of everyday creative activities and achievement. The HPS asks participants to indicate whether or not the 48 statements are true or false about themselves. Statements include "There are times when I am so restless that it is impossible for me to sit still" and "I often have moods where I feel so energetic and optimistic that I feel I could outperform almost anyone at anything."

In another example of a study using self-report psychometric tests, Holt (2019) used the O-LIFE to measure the degree and kind of schizotypy found in a group of 41 artists. In addition, among several other measures, she gathered information on mood using a scale called the PANAS or positive and negative affect scale (Watson et al., 1988) and the Phenomenology of Consciousness Inventory (Pekala, 1991) an assessment of assess flow states. She found that these artists had high positive schizotypy (associated with unusual experiences) but not negative schizotypy (such as anhedonia). Moreover, positive schizotypy predicted art making, flow, and self-esteem. Participants with high levels of schizotypy also reported lower levels of well-being when art making occurred less frequently.

Thus, we can learn a lot from employing these psychometric scales. These scales are convenient and can be administered to many people. Also, they are less susceptible to researcher bias. However, self-report measuraes are far from perfect since one of the most ubiquitous human biases is how we see ourselves! As such, other forms of psychometrics that reflect abilities and achievements should be (and are) used in conjunction with self-report methods to draw the strongest conclusions.

Neurocognitive Research

Since the 1980s, the technology that allows us to investigate how cognitive processes unfold has taken giant strides. Brain-image studies have compared activation levels of specific brain areas of creative individuals, people amid a creative task, and those suffering from mental illness. Recall Chapter 3, where we saw that there are two major networks: the default mode network (DMN) and the executive attention network. Many studies have found more activation in the DMN areas across all three groups.

As a case in point, Takeuchi et al. (2011) found that when engaged in a cognitive task, more creative participants demonstrated less activation in a brain area known as the precuneus, an area of the DMN. This area is typically active only during rest states and is associated with the retrieval of self-referential memories. Moreover, Whitfield-Gabrieli et al. (2009) found that schizophrenic participants were less able to deactivate. Thus, researchers have found an overlapping area in patterns of brain activation between schizophrenic and creative populations (see also Fink et al., 2014).

Similarly, the results of studies of people with neurodegenerative disorders, particularly frontotemporal dementia (FTD), support these findings. FTD occurs when there is a neurological problem in the frontal and temporal cortices of the brain. Deterioration begins in the prefrontal cortex, in an area thought to inhibit impulses (Kandel, 2018). Those who suffer commit spontaneous and often antisocial acts that they may have previously been thought immoral, such as shoplifting. Executive functioning becomes severely affected as memory and language processes decline. However, visuospatial skills and motor skills are generally intact (de Souza et al., 2014, etc.). In neurological disorders, increased capacities are rare, especially complex capacities such as creativity. However,

there are many cases of FTD in which the patient demonstrates an outpouring of creativity, particularly in visual arts (de Souza et al., 2014; Kandel, 2018).

Unfortunately, these patients are not usually tested in the literature with theory-based tests such as divergent thinking and remote association tests. Patients with FTD typically have reduced working memory capacity and language facility as well as personality changes, particularly centered on obsessive-compulsive behaviors (see de Souza et al., 2014; Kandel, 2018). de Souza et al. (2014) concludes that increased artistic production may be explained by *disinhibition*; these frontal lesions that diminish appropriate social behavior may also loosen constraints that inhibit creative activity. Correspondingly, productivity increases due to the compulsions associated with the disorder. Thus, as the executive functioning diminishes, the impulse to create is strengthened and the social inhibitions that might hold others back are loosened. Also, since visuospatial and motor output are not affected, the patient is likely to improve artistically with compulsively repetitive practice, even in the presence of a dramatic decline in overall cognitive function.

Nonlinear Neurocognitive Theories

It has been hypothesized that the relationship between creativity and psychopathology resembles an upside-down "U." In other words, as you can see from the graphic (Figure 5.1), creativity initially increases as symptoms of psychopathology increase. However, this is only true up to a point, after which the pattern reverses and creativity decreases with an increase in symptoms. In cases of severe mental illness, creativity is extremely low. Shelley Carson alludes to the linkage between creativity and psychopathology as "a dose-dependent relationship" (2014, p. 261). According to Carson and her colleagues (Kinney & Richards, 2014; Takeuchi et al., 2011; Fink et al., 2014; Carson, 2014), some qualities of mental illness may enhance creativity. These qualities include attenuated latent inhibition, hyperconnectivity, and novelty seeking.

The shared vulnerability model (Carson, 2011, 2014) posits that both creativity and certain types of mental illness have some common vulnerability factors. However, protective factors may distinguish a person with these vulnerability factors as creative versus mentally ill. Thus, whereas both those with high creativity and high mental illness have attenuated latent inhibition, hyperconnectivity, and preference for novelty, highly creative people also have high intelligence, working memory, and cognitive flexibility. See Figure 5.3. Let's explore the terms and concepts of this model.

Attenuated latent inhibition is a reduced capacity to suppress irrelevant stimuli. *Latent inhibition* is a filtering mechanism; while performing a task, it is important for us to tune out irrelevant thoughts. One well-documented aspect of many forms of mental illness is a reduced (a.k.a., attenuated) ability to do this tuning out (Takeuchi et al., 2011; Carson, 2014). It has been found that creative individuals also have attenuated latent inhibition (Carson, 2014).

Hyperconnectivity refers to making unusual connections that are not strictly necessary in context. In other words, the brain is able to make unusual associations. Hyperconnectivity may relate to the unusual associations often made by those with schizophrenia or bipolar disorder (Whitfield-Gabrieli et al., 2009; McCrea, 2008). This pattern of hyperconnectivity is also found in highly creative people (Fink & Benedek, 2013; Mednick, 1962).

Preference for novelty is a term for a scenario when a person prefers to seek out new ideas, things, and situations. Research in personality theory demonstrates that highly creative

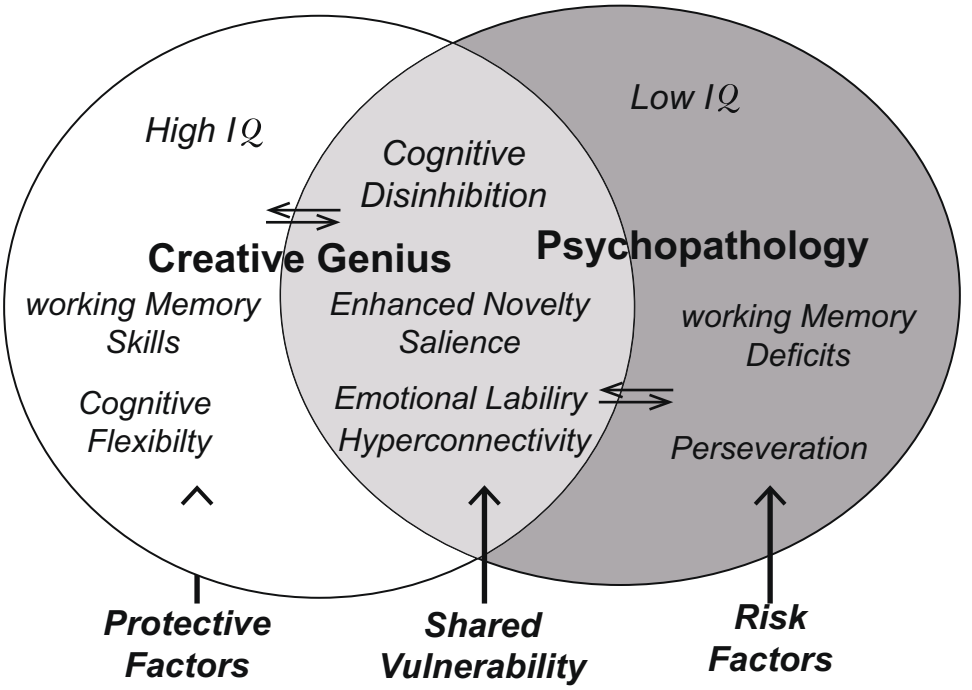

Figure 5.3 Shelley Carson's proposal that the overlap between characteristics of high intelligence and psychopathology, namely cognitive disinhibition, enhanced response to novelty, emotional volatility, and hyperconnectivity, enable high levels of creativity.

and intelligent individuals prefer novelty (McCrae, 1993). However, this is also associated with addiction, schizophrenia, and bipolar disorder (Carson, 2014).

These three factors (attenuated latent inhibition, hyperconnectivity, and preference for novelty) are present in both mentally ill and highly creative individuals. According to the *shared vulnerability model*, those who are highly creative also have protective factors. These protective factors include higher intelligence, cognitive flexibility, and working memory (Carson, 2014).

Although the relationship between intelligence and creativity is often contested, it is generally believed that a minimum degree of intelligence is necessary for creativity. For people with mental illness, higher levels of intelligence may facilitate the processing and interpretation of the larger amount of stimulation conferred by attenuated latent inhibition, hyperconnectivity, and preference for novelty. In fact, according to Carson (2011), "The combination of reduced latent inhibition and high IQ predicted 30% of the variance in creative achievement scores" (p. 148).

As discussed in Chapter 3, *cognitive flexibility* is the ability to simultaneously see the same stimulus in multiple ways. This requires some disengagement from one perspective in the service of adopting another. Cognitive flexibility may allow someone with psychosis to disengage from attachment to perception – for example, of persecution – and entertain other ideas. This is the opposite of perseveration and entails fixating on one idea, which is often a facet of schizophrenic thought as well as some other forms of mental illness.

Finally, *working memory* is the amount of information one can think about at any given point in time. An *enhanced working memory* capacity means that you can process more information in consciousness. This enhanced working memory capacity may allow creative people to process, rather than become confused by, the stimulation offered by attenuated latent inhibition and hyperconnectivity.

In sum, although people with mental illness and people with creativity may share many factors that make them vulnerable, highly creative people have protective factors that enable them to use these facets to enable creativity rather than mental illness. This is only one theoretical model of shared vulnerability; there are likely to be other vulnerability and protective influences as well. For example, Johnson et al. (2012) proposed that the symptoms of mania such as racing thoughts, high energy, and a high degree of openness may facilitate creativity in those with some degree of bipolar disorder. Also, ruminations in depression may lead to enhanced creative cognition (Verhaeghen et al., 2005).

The results of Merten and Fischer (1999) were consistent with this model. The authors compared three groups: 1) professional writers and actors; 2) people diagnosed with schizophrenia; and 3) a control group. All participants completed a word-association task, but they were assigned one of the two instructions. The first was to "generate a common association" with the word versus "be original." It was found that the professionally creative group generated responses more like the control group when the instructions were to "generate common association." However, this same group performed more like those diagnosed with schizophrenia when they were instructed to "be original," generating the most original findings of all the response groups. Put succinctly, people with schizophrenia always showed higher unusualness despite instructions, and the control group always produced more common associations despite the instructions. The creative professionals, however, moderated the unusualness of their responses to the fit with the instructions. In a follow-up question, the creative group revealed they were also better able to assess how common their responses were. Thus, creative professionals were more able to exert cognitive control and evaluate the appropriateness of their responses to fit the situation. This is consistent with the idea that creative people have a higher degree of protective cognitive functions that can moderate the looser associations they are capable of having to secure an appropriate interpretation in context.

One of the main predicaments of research has been overinterpretation – that is, drawing conclusions that are not aligned with the limited scope of the experiments conducted. For example, those scoring relatively high on schizotypy are 1) not schizophrenic, and therefore, the subclinical nature of the experiment should not conflate low levels of schizotypy with mental illness; and 2) not intended to represent all types of mental illness. Somehow, the nuances get lost under the veneer of public discussion. It is important to recognize the *type* and *degree* of mental illness matters and to remember that almost all claims supporting this relationship explore one subclinical aspect of one disorder.

What Are Some of the Specific Findings for Specific Disorders?

Mood Disorders

Some of the most consistent findings in the literature explore the association of creativity and mood disorders. In a highly regarded study, Kyaga et al. (2012) studied over one million Swedish individuals and found that those in creative professions had higher rates of bipolar disorder. Additionally, the authors found that writers specifically had higher

rates of major depression. Interestingly, the authors also observed that first-degree *relatives* of people with psychiatric illness were more likely to be in creative professions. This is interpreted to suggest that these creative individuals may have some undiagnosed aspects of the psychiatric illness.

Kaufman (2001) found that poets (female poets in particular) were more likely than any other type of writer, including fiction/nonfiction writers and playwrights, to have a history of suicide attempts or psychiatric hospitalizations. Kaufman (2013) also wrote that Big-C creativity is much more likely to be associated with symptoms of mental illness compared to little-c creativity. Simonton (2014) echoed this viewpoint by asserting that the question frame matters. If creativity is defined as creative output, the correlation with mental illness may be either positive or negative. If creativity is counted as at least one significant contribution, there is a lower risk of mental illness compared to others who have never had a creative contribution. However, those with the most creative products have a higher risk for mental illness.

Schizophrenia

Recent research on the relationship between creativity and mild schizophrenia has shown that there is a relationship between the domain of creativity and the type of schizophrenic symptoms. Specifically, those in artistic fields (such as visual artists, fiction writers, poets) tend to have significantly more positive symptoms of schizotypy, whereas those demonstrating high degrees of creativity in the sciences either tend to have no relationship with symptoms or have significantly higher negative symptoms. To illustrate, Carson (2001) found a relationship between creativity in the arts and positive symptoms of schizotypy, whereas creativity in the sciences did not show this pattern. Later, Burch et al. (2006) found that visual art students specifically had more symptoms of positive schizotypy than their nonart counterparts. Nettle (2006) included 501 participants from universities and in the general community and found that those with artistic creative interests had higher positive schizotypy compared with those in STEM-related fields (science, technology, engineering, mathematics) who also reported higher rates of negative schizotypy symptoms. Meanwhile, Rawlings and Locarnini (2008) observed that artists again scored higher in positive symptoms of schizotypy and hypomania compared with scientists who scored higher on negative symptoms of schizotypy. The most frequent explanations tend to discuss the attenuated latent inhibition and hyperconnectivity discussed previously. Other explanations have also been offered. Nelson and Rawlings (2010), as a case in point, suggested that positive schizotypy symptoms may be associated with "flow" experiences. On the other hand, Holt (2019) found that more affective explanations fit the data – that artists scoring high on positive schizotypy were motivated to express their unusual experiences and experience the well-being involved in creative activity.

Alcoholism

The relationship between substance use and creativity represents another U-shaped, dose-dependent relationship. At low doses, alcohol may help the idea-generation phase of creativity as a result of inhibiting executive control networks in the brain. However, as many artists become dependent on alcohol, creative efforts may decline.

It should be clear that there are many instances of eminently creative individuals who do not seem to suffer from any form of mental illness. There are certainly correlations, but

one must be careful before drawing causal conclusions. Biases like the availability heuristic and romantic notions render this connection very appealing. We often get sidetracked by the statistical differences; for example, in a study by Kaufman (2001), Nobel and Pulitzer Prize winners were shown to have significantly higher incidence of mental illness than non-winners. However, the incidence of mental illness itself was always low and never reached 50%. It *certainly* never reached 100%. The bottom line is that mental illness is neither necessary nor sufficient for eminent creativity.

NOTE-TAKING PROMPT: What are the three factors causing those with mental illness vulnerable that are also shared with highly creative people? What are the three protective factors? How do the vulnerability factors contribute both to creativity and to mental illness? How do the protective factors mitigate these effects?

Can Creativity Help Those With Mental Illness?

Yes, in addition to the benefits of creativity described in Chapter 4 (making meaning, post-traumatic growth, mood induction, etc.) engagement in creativity in itself may be a protective factor for those struggling with mental illness. For example, according to Forgeard & Elstein (2014), creative thinking is closely related to *prospection*, which is the mental representation of possible futures (Seligman et al., 2013). Prospection may be a protective factor for those with certain mental illnesses since maladaptive patterns of future-oriented thinking do play a role in many such illnesses. To illustrate, depression, anxiety, etc. have been linked to both overestimating the possibility of negative outcomes *and* underestimating the possibility of positive outcomes. Foregeard theorizes that creativity may enhance psychological flexibility leading to adaptive prospection. Psychological flexibility is the ability to effectively adapt one's cognitions, emotions, and behaviors to the situation.

Further, there is evidence that many of those examples of eminent creatives who experienced mental illness found peace and succor in the act of creation. Van Gogh often wrote about this to his brother, Theo. In one such letter, he wrote, "How much sadness there is in life! Nevertheless, one must not become melancholy. One must seek distraction in other things, and the right thing is to work" (Popova, 2014, para. 7).

Though creativity isn't *caused* by mental illness, there is still a relationship to be explained. Researchers in the field have identified many cognitive and social factors related to both creativity and psychopathology that influence this relationship. Importantly, this association should not discourage anyone from seeking help for a mental illness. If I were to summarize the research on mental illness and creativity, I would say that some subclinical forms of certain mental illnesses do have certain cognitive or emotional properties that tend to be associated with elevated creativity in some contexts. There is hardly a definitive causal link. Moreover, these associated cognitive and emotional factors do not necessarily have origins in mental illness or any form of suffering to be conducive to creativity. In fact, I am of the view that examples of those who overcame mental illness to generate great human achievement can definitely inspire those who have similar difficulties; remembering that these memorable people achieved great success and garnered widespread acclaim for their works in some of the most tumultuous phases of their life can serve as a beacon of hope for many people suffering from mental (or other forms of) illnesses.

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6 Personality and Art

What You Will Learn

The study of personality is central to psychology; as such, research in this area is connected to the study of individual differences in experimental aesthetics. In this chapter, you will learn about theories of personality and how these theories are empirically observed. In addition, this chapter will review the scientific literature regarding what personality traits are correlated with two characteristics: 1) feelings about art such as aesthetic preferences (tastes) or appreciation of art; and 2) competencies such as aesthetic fluency (knowledge about art) and creativity.

Chapter Outline

How Is Personality Connected to Aesthetics?
How Do Psychologists Define Personality?
Is the Myers-Briggs Type Inventory (MBTI) a Valid Measure of Personality?
Why Do Psychologist Prefer One Measurement Over Another?
What Are the Big Five Personality Types?
How Has the Relationship Between Personality and Aesthetic Preference Been Studied?
How Has the Relationship Between Personality and Creativity Been Studied?
How Is Openness Related to Aesthetic Preference?
How Is Openness Related to Creativity?
How Is Conscientiousness Related to Aesthetic Preference?
How Is Conscientiousness Related Creativity?
How Is Extraversion Related to Aesthetic Preference?
How Is Extraversion Related to Creativity?
How Is Agreeableness Related to Aesthetic Preference?
How Is Agreeableness Related to Creativity?
How Is Neuroticism Related to Aesthetic Preference?
How Is Neuroticism Related to Creativity?
What Are Other Measures of Personality Relevant to the Study of Art and Creativity?
What Factors Influence Personality and How Does Personality Influence Behavior?

Terms to Identify as You Read

Aesthetic Fluency
Agreeableness (Trait – FFI)
Big Five Personality Traits

DOI: 10.4324/9781003014362-6

Terms to Identify as You Read

Conscientiousness (Trait – FFI)
Correlation Coefficient
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Experimental Aesthetics
Extraversion (Trait – FFI)
Factor analysis
Feeling-Thinking (Trait – Myers-Briggs)
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Libido
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Neuroticism (Trait – FFI)
Openness to Experience (Trait – FFI)
Personality
Principal Components Analysis
Psychometrics
Sensation Seeking Inventory/Trait
State
Trait

How Is Personality Connected to Aesthetics?

Take a moment to think about the art on your walls, the movies in your Netflix queue, the music in your iTunes playlist, or the books on your Amazon wish list. What do you think informs those preferences? Think for a moment about the art that really moves you – has a work of art ever made your hair stand up or inspire a sense of awe? What do you think contributes to that reaction? Is there something about you that is drawn to these artifacts? Or perhaps you have felt drawn to write poetry about a significant experience in your life? Is there something about you that inspires this kind of expression more than others? These examples illustrate the subject of this chapter: how differences in personality influence aesthetic response and creativity. *Experimental aesthetics* is a branch of psychology that examines the various responses to art: What properties of art invoke a sense of liking, beauty, or wonder? One branch of experimental aesthetics concerns the properties of the *art object* itself that evokes an emotional response. Studies in experimental aesthetics go back to the earliest experiments in modern psychology (for example, Fechner, 1876); we will discuss this branch more in Chapter 7. In this chapter, we will learn about the part of experimental aesthetics that investigates *individual differences* or how individuals psychologically differ from one another and how that produces different responses to art and the creative impulse (Berlyne, 1971). Although the study of individual differences is broad and may include not only personality but also intelligence, culture, and socioeconomic status, among other topics, this chapter will focus on personality.

How Do Psychologists Define Personality?

According to the American Psychological Association (2022), "*Personality* refers to individual differences in characteristic patterns of thinking, feeling, and behaving" (Para. 1). More specifically, personality is an individual's *unique* patterns of behavioral response

that are stable across *time* and *situations* (Feist, 2017). These characteristics are called *traits*. Although traits may be influenced by both environment (such as culture, family, education) and biology (genes, brain anatomy, and chemistry), they are stable throughout many contexts and situations. In contrast, a *state* is a temporary mental or physical characteristic dependent on the current situation.

For example, let's examine anxiety. Some people seem generally disposed to anxiety whereas others seem to remain more centered but still occasionally experience anxiety if they find themselves in a highly vulnerable situation. Intuitively, if you say someone has an anxiety trait, you are saying this person is anxious in many situations and contexts and that this tendency to be anxious has endured over many years. In contrast, if you say someone is in a state of anxiety about their upcoming exam, you are saying that this person is reacting to a feature of the situation (the impending exam) but is not typically prone to this state. As such, Spielberger et al. (2015) developed the State-Trait Anxiety Inventory (STAI) to measure both state and trait anxiety. This is a self-report inventory of 20 questions rated on a scale of 1 (not at all) to 4 (very much so). On the STAI, a higher rating on a question like "I lack self-confidence" would indicate high trait anxiety whereas a high rating for "I feel upset" would indicate high state anxiety.

NOTE-TAKING PROMPT: Think of another personality characteristic, perhaps shyness or optimism, and distinguish how this would be represented as a state versus as a trait.

Is the Myers-Briggs Type Inventory (MBTI) a Valid Measure of Personality?

Many people have heard of and possibly even taken the Myers-Briggs Type Inventory (MBTI) and can immediately tell you if they are an INFP or ESTJ. This popular test, like many current theories of personality, is very much influenced by **Jung's Type Theory**. Jung viewed the self as constantly growing through the life span toward an "optimal" self, which would be achieved through a balance of opposing aspects of personality, a process called *individuation*, (Jung, 1921). Specifically, according to Jung (1921), our *libido* is our general life force or personal, psychic energy that can be directed toward anything: creating art, writing a book, pondering our existence, checking social media, etc. The direction of this libido comprises the *general* personality types: *introversion versus. extraversion (I/E)*. If one is an *introvert*, their libido is directed inward toward the self. An introvert would tend to be preoccupied with their inner life and feel drained when energy is directed to outside influences. In contrast, an *extravert* would be inclined to direct that life force outward toward objects and other people.

In addition to how an individual directs libido energy, Jung specified four *functions* of personality that describe how we gain knowledge regarding the world. Again, Jung believed the psyche was structured around opposing forces, so these four functions are divided into two dichotomies: the first is *sensation versus intuition (S/N)*. Someone who is considered high in *sensation* will gain knowledge by focusing on external stimuli and through observation of concrete facts about the world, whereas someone high in *intuition* makes use of unconscious "hunches" and is motivated to find meaningful patterns from their observations.

The next function dichotomy reflects how we respond to situations. This is the distinction between *thinking vs. feeling (T/F)*. The *thinking* personality responds to circumstances

using objectivity; they characteristically try to remain neutral and rational and to understand the situation intellectually. In contrast, those inclined toward *feeling* make decisions using internal values.

Thus, eight psychological types are possible in Jung's typology:

INT ENT
INF ENF
IST EST
ISF ESF

Within this framework, there are particular combinations that summarize the personality; for example, an INT would direct energy toward their inner world, gaining knowledge by looking for meaningful patterns in the external world and making decisions based on rational, objective thought. In contrast, an ESF would direct their energy outward, gaining knowledge through observation and making decisions based on internalized values.

Years later, Myers (1962) added another dimension, *judging versus perceiving (J/P)*, to complete what we now refer to as the 16 Myers-Briggs types. This dimension reflects whether or not a person tends to be more organized, responding to prearranged plans of action (judging), versus impulsive, responding to circumstances as they arise (perceiving). Myers and Briggs took Jung's ideas and created a test commonly known as the Myers-Briggs Type Inventory.

Although the Myers-Briggs is an extremely popular test, it has long been supplanted by more reliable and valid tests (such as the Five-Factor Inventory, which follows). It is so popular that you can use the internet and enter your favorite television show + Myers Briggs in a search engine and will likely get results like these in Figure 6.1 – but with your favorite character instead of flat icons!

However popular, the scientific validity of the Myers-Briggs Type Inventory is in question: by the general public and scientific analysis. Headlines have emerged such as "Why the Myers-Briggs Test Is Totally Meaningless" by *Vox* (Stromberg & Caswell, 2014) and "In Defense of the Myers-Briggs: A Comprehensive Counter to Anti-MBTI Hype" by Aqualus M. Gordon (2020) for *Psychology Today*. The test has problematic origins in psychoanalytic theories, which have been largely disregarded in the 21st century (Hogan, 2007); as such, many psychologists have a hard time embracing it, especially when many other personality inventories are available. Scientists also reject the idea that personality characteristics can be allotted in strictly dichotomous categories, especially the S/N and T/F dichotomies, arguing that these are not actually opposites and that all people are capable of high levels of both capacities (Stein & Swan, 2019). Further, there is little evidence of the internal consistency or predictive validity routinely established by more modern tests. Still, the Myers-Briggs remains persistent possibly because it is comprehensible, placing people in positive and easy-to-understand categories. Currently, psychologists are unlikely to use the Myers-Briggs, choosing instead an inventory that measures the *Big Five* personality types because inventories of the Big Five show higher degrees of reliability and validity (Costa & McCrae, 1992; DeYoung et al., 2007; Goldberg, 1993). We will now explore this theory of personality by first examining the methodological reasons that strengthen a psychological assessment.

NOTE-TAKING PROMPT: Google the Myers-Briggs Type Inventory and your TV show. How do you think the popularity of the MBTI contributes to perceptions of its authenticity?

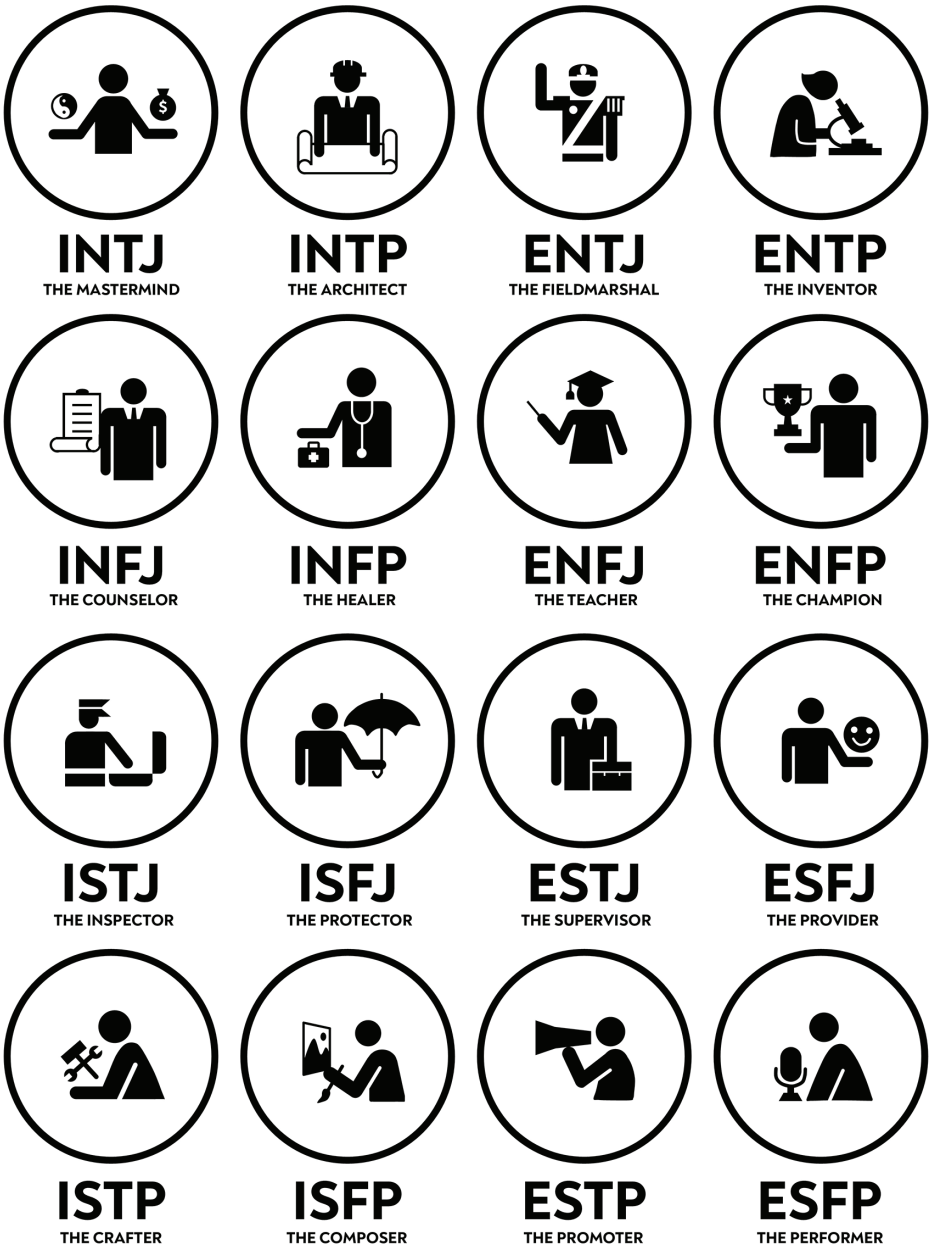

Figure 6.1 A representation of the 16 personality types from the Myers-Briggs Type Inventory. The types are given descriptive labels such as "The Mastermind" for INTJ or "The Performer" for ESFP.

Why Do Psychologists Prefer One Measurement Over Another?

Remember from Chapter 1 that *psychometrics* is the use of tests to measure psychological properties, like aptitudes, skills, preferences, and of course, personality. Well, tests of psychological constructs often require correlational statistical analysis to establish psychometric quality. That is, two measures are obtained, and a numerical coefficient is

calculated to represent the relationship between the two measures. This coefficient can range from −1 to 1. There are two components to the coefficient: the *direction*, positive or negative. If the coefficient is positive, then as one measure increases, the other does as well. In contrast, a negative coefficient means that if one increases, the other correspondingly decreases. To illustrate, let's pretend I gave my class the STAI (measure 1) and asked them to rate on a scale of 1 to 10 how much they liked *The Scream* by Edvard Munch (measure 2). If these two measures are positively correlated, those who were high in anxiety tended to also like *The Scream* and vice versa. In contrast, if the coefficient is negative, those who reported high anxiety generally indicated they didn't like the image. The second element, magnitude, refers to how large the number is; the closer the coefficient is to 1, the stronger the relationship. We use "*r*" to represent the correlation coefficient. So, if the correlation was calculated at $r = -.89$ (very close to 1), we can conclude that many people who were more anxious didn't like it. If it were $r = .09$ (not close to 1), we can't conclude that there is a notable relationship between the STAI and liking this painting.

NOTE-TAKING PROMPT: Describe a correlation coefficient. What does a coefficient of −1 represent? What does a coefficient of 0 represent? What is the difference between a positive and a negative correlation?

Also recall that *reliability* reflects whether or not the test remains consistent. This is an example of how we use correlations to examine a measure's degree of reliability. When researchers say that a personality inventory is reliable, they usually mean that 1) it has high *internal consistency*, i.e., all items on the test measure that 1 personality trait and nothing else (there is a high correlation among all the items on that scale); 2) it has a high *test-retest reliability*, i.e., if the same person took it several weeks later, they should get a similar score. Thus, if the same sample takes the same test at test two different times, scores on those two tests should be highly correlated.

Validity refers to the degree in which a psychological test that measures the construct that it was designed to measure. There are different ways to assess the validity of a test, which involve correlations as well. Specifically, *predictive validity* means that the test correlated highly with future behavior – for example, if a test designed to test creativity predicted the number of awards won for creative works. *Convergent validity* means that the test is highly correlated with measures of the same or similar personality traits. For example, one test of extraversion correlated highly with another test of extraversion. *Discriminant validity* means that the test is distinct from other personality characteristics that might be confusing. For example, if a test of introversion is correlated with a test of shyness, you would want that correlation to be low because these two characteristics are distinct.

Let's examine the STAI test again. This test is used frequently because the psychometrics are generally good, so it is reliable and valid. Accordingly, internal consistency correlation coefficients range from .86 to .95. Furthermore, test-retest reliably is also in the acceptable range, with coefficients between .65 to .75. This scale also demonstrates high validity with correlations between the STAI and Taylor Manifest Anxiety Scale between .73 and .85, demonstrating high convergent validity (Spielberger et al., 1983).

We can also use correlational data to examine how ratings across many questions correspond with personality traits. *Principal component analysis (PCA)* is a statistical way of discovering which questions on a test correlate highly with one another. This is a way of

narrowing down the best items that represent one idea. If a lot of items are highly correlated with each other, there may be some underlying factor motivating responses to these items.

The best way to illustrate how this works is by example, so imagine you took a test with 240 questions. You are asked to indicate on a 7-point *Likert scale* (from strongly disagree to strongly agree) statements like "I enjoy looking at trees," "I never forget to pay my bills on time," "I always try to make people feel comfortable," and "I get anxious thinking about all I have to do." There are 240 of these, so for some of these questions, you should have similar answers. Maybe you always rate a 1 or 2 for the following 4 questions: "I get anxious thinking about all I have to do," "I worry all the time," "The future fills me with dread," and "I always seem to be fretting over something." If you rated them similarly, they may represent a common theme. Perhaps on this test, there is another set you tend to rate pretty highly, say around 6 or 7 for "I make people feel comfortable," "People usually seem to like me," "I'm always willing to go the extra mile to help someone out," and "I smile at strangers."

Now imagine that this test is taken by 10,000 people. For this sample, we see that the first four questions are highly correlated with each other; if people rate one low, they tend to rate the other low and vice versa. Now we have some strong evidence that these four questions represent a similar idea or construct. We find the same is true for the second set, and we find 10 such patterns. The items from these groups are highly correlated with each other but *not* correlated with items from other groups. Thus, we can show by statistical analysis that a similar pattern emerges with 10 groups across this sample: When someone rates low on one question, they tend to rate low on another in the group, so questions within the group are highly correlated with each other. Inspecting the items, we call the first group "anxiety," the second "friendliness," and so on. This is fundamental to a PCA: The scores on several individual items are reduced to a smaller number of components. PCA is used when we don't know what components to expect. Once such patterns are identified, theoretical models can be generated and tested using *factor analysis*, used to evaluate whether or not data fit an expected pattern that can be generalized to the population (Matsunaga, 2010). In other words, PCA doesn't make any assumptions about the underlying components, whereas factor analysis specifically tests for such components (a.k.a. factors in a factor analysis).

NOTE-TAKING PROMPT: Review how a psychological measurement is validated. If you have time, research the reliability and validity of a psychological measure like the Myers-Briggs or Big Five.

What Are the Big Five Personality Types?

Using the methods above, one of the most psychologically validated personality theories is the Five Factor model. This model includes five personality types (also called *factors*) that are consistently verified by PCA and factor analyses:

Openness: tendency to be intellectually curious and use imagination
Conscientiousness: tendency toward organization and caution
Extraversion: tendency to be more content in social situations
Agreeableness: tendency to be friendly and trusting of others
Neuroticism: tendency to experience negative emotions such as depression and anxiety

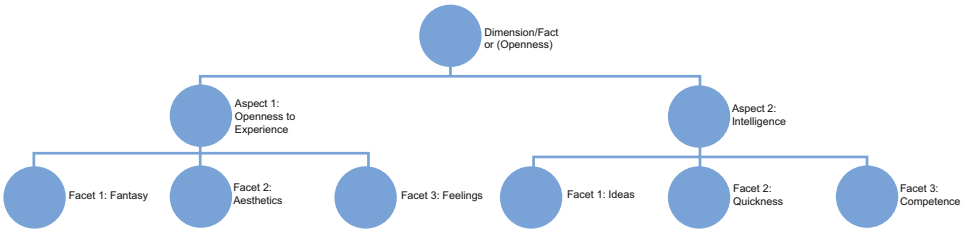

Figure 6.2 Hierarchy of factor to aspects to facets for FFI using openness to experience as an example.

The acronym "OCEAN" is a frequently used mnemonic to summarize these five traits.

Over time, these traits have emerged across many samples using scales with good psychometric properties. Several specific personality scales measure these five traits (Costa & McCrae, 1992; DeYoung et al., 2007; Goldberg, 1993). While these five seem to be agreed upon by most researchers, the facets (or subdomains) are often disputed. For example, Costa and McCrae (1992) advanced six *facets*, or subdomains, per personality dimension, whereas Goldberg (1993) advanced nine facets. DeYoung et al. (2007) provided strong evidence for intermediate levels called *aspects*; these intermediate levels are hierarchically underneath the factors and have several facets underneath them. Because this approach has been well substantiated by DeYoung and colleagues and has been a particularly useful approach to the study of creativity and art, we will use DeYoung's structure of the Big Five traits. Figure 6.2 presents an example of how DeYoung et al. (2007) breaks down the five personality dimensions using openness to experience:

NOTE-TAKING PROMPT: Distinguish between a personality dimension (factor) versus an aspect versus a facet. Which is the broadest, the second broadest, and the most specific?

What Are the Aspects and Facets of Each of the Big Five Traits?

The following breakdown of the Big Five is based on DeYoung et al.'s (2007) structure using select facets from Costa and McCrae (1992) and Goldberg (1999):

Openness to experience, represented by "O": Generally speaking, high scorers are open to new ideas, have a wide variety of interests, and take pleasure in using their imaginations, whereas low scorers are more pragmatic and conventional.

Aspect 1: Openness

- Fantasy: has a high level of receptivity to imagination
- Aesthetics: possesses an appreciation for art and beauty
- Action: is open to trying new experiences
- Feeling: is open to their inner feelings and emotions
- Values: has a readiness to reexamine own value system and authority

Aspect 2: Intellect

- Intellectual curiosity: is interested in learning and solving problems
- Mental quickness: can learn things quickly

Conscientiousness, represented by "C": High scorers tend to be well-organized and careful whereas low scorers tend to be more disorganized and careless.

Aspect 1: Industriousness

- Competence: possesses belief in own self-efficacy
- Dutifulness: emphasizes fulfilling moral obligations
- Achievement-striving: needs personal achievement and sense of direction
- Self-discipline: has the competence to take on tasks and follow through
- Deliberation: tends to think things through before acting or speaking

Aspect 2: Orderliness

- Orderliness: high level of personal organization
- Perfectionism: tendency to oversee that small details are taken care of

Extraversion, represented by "E": High scorers are sociable, friendly, and affectionate in contrast to low scorers who are more retiring and reserved.

Aspect 1: Enthusiasm

- Warmth: displays interest in others and is quick to like others
- Gregariousness: has a preference for the company of others
- Positive emotions: tendency to experience positive emotions

Aspect 2: Assertiveness

- Assertiveness: has a strong personality and forceful use of expression
- Activity: has an energetic pace of living
- Excitement-seeking: tends to seek out environmental stimulation

Agreeableness, represented by "A": High scorers tend to be trusting, good-natured, and cooperative, whereas low scorers are more suspicious and argumentative.

Aspect 1: Compassion

- Trust: possesses belief in the sincerity and good intentions of others
- Altruism: shows concern for the welfare of others
- Tender-mindedness: displays sympathy toward others

Aspect 2: Politeness

- Compliance: has respect for authority
- Modesty: displays an inclination to be humble

Neuroticism, represented by "N": High scorers are more maladjusted, worry a lot, and are more insecure and depressive in contrast to low scorers who tend to be more calm, self-assured, and well adjusted. Neuroticism is also called emotional instability (or contrasted with emotional stability).

Aspect 1: Volatility

- Impulsiveness: tendency to give in to temptation and desires
- Hostility: is easily angered and prone to frustration

Aspect 2: Withdrawal

- Self-consciousness: has a sense of shame, sensitivity to criticism, and feelings of inferiority
- Depression: feelings of sorrow, sadness, and hopelessness
- Vulnerability: lowered ability to effectively deal with stress
- Anxiety: tendency to be fearful

How Has the Relationship Between Personality and Aesthetic Preference Been Studied?

Many studies have investigated the association between personality and aesthetic preference. In a typical study, a version of the Big Five will be administered, and the researchers will present participants with various works of art and ask them to indicate how much they like it on a Likert-type scale. One such study, (Chamorro-Premuzic et al., 2010) collected data from 3,254 participants online through the British Broadcasting Corporation website.

The authors hypothesized that openness to experience would be associated with a higher liking of all art in general but especially emotionally positive and complex art. Extraversion was also hypothesized to be associated with emotionally positive and complex art. In contrast, neuroticism was hypothesized to be negatively associated with complexity.

To test these hypotheses, the authors gathered 20 paintings that exemplified 4 different styles: 1) portraits; 2) abstract paintings with bright colors; 3) geometric paintings with subdued colors; and 4) impressionist paintings. There were five paintings in each category. The following are examples of paintings from each category:

Portraits: Cezanne's portrait of *Victor Chocquet*, ca. 1876–1877
Abstract with bright colors: Rothko's *Red*, 1958
Geometric, non colorful: Rothko's *Black on White*, 1968
Impressionism: Cezanne's *Chateau Noir*, ca. 1900–1904

Participants looked at each painting and gave three indications of their reaction on a scale of 1 to 5:

1= hate it – 5 = love it
1 = very sad – 5 – very happy
1= very simple – 5 very complex

All participants also took the Big 5-Short Inventory (B5S; Chamorro-Premuzic & Furnham, 2008). The results showed that the most robust finding of openness correlating

Table 6.1 Examples of art studied by Cleridou and Furnham (2014).

	Sophisticated	*Contemporary*	*Intense*	*Mellow*	*Unpretentious*
Visual	Da Vinci's *Leda*	Pawel Kuczynski's *Gas Mask*	Picasso's *Studio with Plaster Head*	Claude Monet's *Water Lilies*	Folk Indian painter
Architecture	Classical Greek Architecture	Fish House, Singapore (Guz Architects)	Sydney Opera House	Small wood cabin on Lake Flathead	Traditional Village House, Cypress
Music	Maria Callas, "Madame Butterfly"	Eminem, "Lose Yourself"	Led Zeppelin, "Black Dog"	Eric Clapton, "Groaning the Blues"	Jim Croce, "Time in a Bottle"

positively with liking paintings perceived to be high in complexity, such as Francis Bacon's *Head VI*, ca. 1948.

Openness is also associated with liking paintings rated happy like Rothko's *Orange and Yellow*, ca. 1956. As expected, extraversion was positively correlated with the liking of geometric, colorful, complex, and happy paintings, yet neuroticism was positively correlated with liking complex and sad paintings. Furthermore, conscientiousness was unexpectedly found to have a negative relationship to complex paintings. Generally, the complexity of these paintings was found to be associated with personality to a greater degree than emotionality.

Paintings are not the only form of art that is studied. Cleridou and Furnham (2014) conducted a similar study that included visual art, architecture, and music. The authors classified examples of these three media into five styles: sophisticated, contemporary, intense, mellow, and unpretentious. There were six examples of each style within each medium for a total of 90 pieces. Table 6.1 offers is an example of each type per category.

The researchers collected data from 192 participants online. The participants viewed or listened to each piece and then indicated how much they liked each on a scale of 1 (not at all) to 9 (very much). Of course, they also took a version of the Big Five (Goldberg, 1999). In this study, the strongest correlations were found for openness to experience, which showed positive correlations with sophisticated, intense, and mellow styles across the three media types. For visual art, openness was associated with liking sophisticated, contemporary, and intense styles, and high scorers especially liked sophisticated and intense styles of music.

Three of the other four personality traits were also associated with preferences. Conscientiousness negatively correlated with intense styles, especially music, but also showed dislike for unpretentious visual art. Neuroticism negatively correlated with intense and unpretentious styles but showed especially strong negative correlations with architecture. Extraversion showed a slight preference for intense styles across all three media. Lastly, agreeableness did not show any correlations.

In addition to measuring preferences for particular pieces, studies have also investigated attitudes about art in general as well as participants' degree of involvement in arts. For example, McManus and Furnham (2006) collected a sample of over 1,000 participants and gave them a short form of the five-factor inventory. The researchers also asked questions about attitudes toward art, which included questions classified as follows:

- **Anti-art**
  - "Government funding for art should be redistributed to other services."
  - "Science is more important than art for our society."

- **Aesthetic inclusivity**
  - "Science can be art."
  - "A child's drawing is art."
- **Emotion and understanding**
  - "One has to understand the emotions of the artist in order to understand the work."
  - "The meaning behind art has to be obvious for it to have value."
- **Aesthetic relativism**
  - "My appreciation for art has been influenced by my education."
  - "My appreciation for art has been influenced by my upbringing."
- **Aesthetic quality**
  - "Art requires skill."
  - "Art loses value if it is mass-produced."

The results showed that openness to experience was negatively related to anti-art attitudes (i.e., the higher in openness, the less anti-art attitude) and positively related to aesthetic relativism attitudes (i.e., the higher in openness, the more agreement with aesthetic relativism) and was the biggest predictor of the overall aesthetic attitude.

In addition, the authors asked how frequently the participants engaged in specific activities, including listening to popular and/or classical music, playing a musical instrument, going to the movies and/or the theater, reading novels and/or poetry, going dancing, museums, and so on. Each participant rated how frequently they engaged in 17 total activities from 0 (never) to 6 (every day). The researchers found that extraverts tended to frequently listen to popular music and go dancing, whereas those high in openness to experience tended to listen to classical music, go to museums, and to read about art, novels, and poetry (McManus & Furnham, 2006).

NOTE-TAKING PROMPT: Write down the typical method for researching personality and aesthetic preference. What findings have we considered so far?

Other studies have investigated specific responses to art. For example, Silvia and Nusbaum (2011) asked 188 students how frequently they experienced certain reactions to the art they saw most in their daily lives. They were asked about responses in three categories: getting chills (feel chills down the spine, get goosebumps, feel like hair is standing on end); absorption (feel absorbed and immersed, completely lost track of time, feel like somewhere else, feel detached from surroundings); or feeling touched (feel touched, feel a sense of awe and wonder, feel like crying). Everyone in the sample was given the BFAS (DeYoung et al., 2007), which distinguishes the ten aspects as well as the five factors.

It was found that getting chills was negatively related to the orderliness aspect of conscientiousness and the intellect aspect of openness to experience. Moreover, getting chills was also positively related to the volatility aspect of neuroticism and the openness aspect of openness to experience. This demonstrates the importance and validity of the two aspects

of openness: there can be a dissociation of behavior within the factor. Further, absorption was positively related to the openness aspect of openness to experience but negatively related to the orderliness aspect of conscientiousness. Feeling touched by art was positively related to the volatility aspect of neuroticism as well as the compassion aspect of agreeableness and the industriousness aspect of conscientiousness (Silvia & Nusbaum, 2011). This study shows the importance of including aspects in personality research in the arts as well as demonstrates the role of these personality traits on aesthetic experience.

How Has the Relationship Between Personality and Creativity Been Studied?

Researchers have not only investigated aesthetic preference concerning personality, but many have also studied the relationship between personality and creativity. For example, Kaufman et al. (2016) administered the Big Five Aspect Scale (BFAS, DeYoung et al., 2007) and Creative Achievement Questionnaire (CAQ, Carson et al., 2005) to four samples of participants. The CAQ asks about specific achievements in ten domains, including visual art, music, theater/film, dance, creative writing, architecture, culinary arts, and scientific discovery. The results indicated that the aspect of openness was strongly associated with achievement in the arts whereas intellect was strongly associated with achievement in the sciences. Additionally, extraversion was positively associated with creative achievement in the arts.

Puryear et al. (2017) conducted a systematic review, finding not only relationships between personality traits and creativity but among the personality traits and *types* of creativity tested. The authors found 96 studies that met their criteria with a combined total of approximately 59,000 participants. This analysis was unique in that it compared studies that connected personality to creativity as ideation (such as the RAT) versus those that defined creativity as the production of a creative work (such as the CAT). Also, they compared self-report (such as Creative Achievement Questionnaire, (Carson et al., 2005) versus external ratings (such as the CAT). Lastly, they compared the types of divergent thinking scores (fluency, originality, flexibility, elaboration).

The authors found that the connection of personality to creativity strongly depends on how creativity is tested. Hence, even though openness to experience was positively correlated with all types of creativity, it was much more strongly correlated with the production of a creative product versus ideation. Further, openness showed a higher correlation with self-report measures versus externally rated measures of creativity. Openness also remained a constant predictor of all four types of divergent thinking. Certainly, even where there are differences in degree, it should be noted that openness to experience was by far the strongest predictor of all measures and was always in the positive direction.

After openness to experience, extraversion was the most correlated with creativity overall. Extraverts scored unevenly on divergent thinking variables, scoring much higher on fluency than any other divergent thinking variable. Surprisingly, conscientiousness showed completely different patterns depending on how creativity was measured. For example, the data showed a significant positive relation to production whereas ideation was not significantly correlated with conscientiousness at all. Also, conscientiousness had a differing effect on self-report (significant, positive) versus external ratings of creativity (significant negative), although the effect sizes were small. For the divergent thinking measures, conscientiousness was only significantly negatively related to originality. Agreeableness had positive relationships with all creativity categories, but the effects were small.

Table 6.2 Weighted mean correlations for personality factors with type of creativity measures in the Puryear et al. (2017) study. It is worth investigating each of the five personality traits since they are all important to psychology.

	Overall	*Ideation*	*Production*	*Self-Report*	*External Ratings*	*Fluency*	*Flexibility*	*Originality*	*Elaboration*	*Students*	*Other Samples*
O	**.237**	**.201**	**.292**	**.314**	**.188**	**.186**	**.125**	**.184**	**.169**	**.266**	**.226**
C	**.015**	−.007	**.057**	**.076**	**−.015**	−.007	.005	**−.058**	−.034	**−.027**	**.026**
E	**.138**	**.135**	**.138**	**.156**	**.128**	**.184**	**.080**	**.092**	.102	**.099**	**.146**
A	**.026**	**.025**	**.023**	**.046**	**.016**	**.018**	−.010	**−.052**	.027	−.004	**.032**
N	**−.040**	**−.031**	**−.057**	**−.056**	**−.031**	**−.059**	**.081**	−.016	**.083**	.007	**−.050**

Agreeableness also followed the pattern of conscientiousness with small positive relationships with fluency, flexibility, and elaboration but significantly negative for originality. Neuroticism was negatively correlated with most types of creativity but significantly more so with production and self-report. Interestingly, neuroticism was positively related with flexibility and elaboration but negatively related to fluency and originality.

Further, the authors compared samples with psychology students versus other settings and found differences. Most importantly, conscientiousness was negatively related to overall creativity in the college sample but positively related to creativity in the other settings. These findings are represented in Table 6.2.

Generally speaking, openness is the strongest predictor across all studies followed by extraversion. But even for these, the *magnitude* can be radically different depending on the measure of creativity used. For the other three, both magnitude and direction can be affected.

NOTE-TAKING PROMPT: What are some "solid" findings with respect to the association between personality and creativity? What are some less solid findings we have discussed so far?

How Is Openness Related to Aesthetic Preference?

By far, the biggest personality predictor of the aesthetic response is openness to experience. Generally, people high in openness to experience prefer complexity in art, have positive attitudes toward the arts, and engage in the arts significantly more. One of the most common findings is a tendency to like abstract art more than other personality dimensions (Feist & Brady, 2004). Overall, people who are open to experience like most varieties of art more than other personality types, but this is especially true for abstract art (Ercegovac et al., 2015; Furnham & Walker, 2001). Moreover, people high in openness tend to approach complexity rather than reject it, so they have a higher liking for complex art (Chamorro-Premuzic et al., 2010). In music, they are flexible, shown to rate both heavy metal and classical music as likeable, but tend to dislike listening to pop music and avoid impressionism (Ercegovac et al., 2015). This may be because those genres are too familiar and not challenging enough.

Some studies have identified particular formal properties of artworks such as line, symmetry, and balance, which are related to personality variables. Cotter et al. (2017) found

that curved polygons were preferred over angular ones, though the more complex angular ones were found to be more interesting. Moreover, those high in openness exacerbated this pattern. In another study, Swami and Furnham (2012) explored whether symmetry affects liking works of art and whether personality affects this relationship. The researchers altered works by Mondrian to be more symmetrical by creating a vertical mirror image of the works. Participants (n = 158) were presented with the asymmetrical images and originals one at a time and indicated their personal like/dislike of each on a 7-point scale. The authors found that openness to experience was the biggest predictor of liking Mondrian's original paintings, suggesting they were more sensitive to the overall balance and complexity of the paintings.

The quality and intensity of the aesthetic response are related to the degree of openness to experience. In fact, one of the most universally predictive factors of openness to experience is known as Question 188. This is the 188th question on Costa and McCrae's (1992) five-factor inventory: "Sometimes when I am reading poetry or looking at a work of art, I feel a chill or wave of excitement." McCrae (2007) found that this question is the most ubiquitously correlated with all other questions on the openness to experience scale.

Furthermore, the inventory has been translated into over 40 languages, and this tendency is seen across many cultures. For example, in the sample of respondents from the United States, the correlation of Question 188 to all the other questions on the openness subscale was r = .59 and this was the second most highly correlated question with all the other openness subscale responses. In England, this correlation was r = .53, and it was the second most correlated of all the questions; in Canada, the correlation of this item was r = .54, representing the first (i.e., most) correlated item. For Serbians, the correlation was r = .66, representing the most correlated; for Slovenians, the correlation was r = .64., and this was the first; for Mexicans, the correlation was r = .49, representing second. For Argentinians, the was correlation r = .55, and it was first. These are just a few; my point is that this item is very predictive of responses to all the other items in the openness scale across many cultures. In fact, it was in the top three for 35 out of 51 cultures examined.

Because of this finding, getting chills as an aesthetic response has been studied. Following the article cited previously by Silvia and Nusbaum (2011), Silvia et al. (2015) wanted to study the connection between personality traits and the experience of awe. Moreover, the authors wanted to study this without using retrospective reports of awe; in other words, they didn't want participants recollecting a time they experienced awe; they wanted to induce awe experiences in real time. They did this by presenting 14 images of the sky and space in one session and having participants listen to music in another session (the song was "Hoppípolla" by Sigur Rós, an Icelandic song that has many factors that Huron and Margulis [2010] found to be associated with inducing chills from music). Participants responded to several questions about their experience, including "Did this picture/song give you chills or goosebumps?" The authors found that although extraversion is by definition associated with positive emotions, it wasn't associated with getting chills; openness to experience was the only predictor of awe and of getting chills. This suggests that open people may respond to art in a completely different, physiological way not as accessible to those low in openness.

NOTE-TAKING PROMPT: The personality factor openness to experience is related to liking which kinds of visual art and music?

How Is Openness to Creativity?

Those high in openness, to experience know more about art, do more creative activities and are generally more creative. Atari et al. (2020) found that openness or experience predicts aesthetic fluency (AF), or knowledge of artists and aesthetic principles, but this relationship is mediated by doing art more activities. More specifically, correlations with AF were being open to experience, low in neuroticism, being a woman, older, aesthetically active and art educated. Another study by Diedrich et al. (2018) reported that the ICAA scores of openness to experience positively correlated with both creative activity (.38) and creative achievement (.32). Significant positive correlations were found between openness and all domains of creative pursuits, with the highest correlation to openness in literature and the lowest in sports. This is consistent with a study by Silvia et al. (2014), who used an experience sampling method, which involved people reporting what they were doing at random times throughout the day and found that doing everyday creative acts was predicted by high openness to experience. In addition, Feist (1998) conducted a meta-analysis finding that being an artist significantly predicted openness to experience. Finally, the Puryear et al. (2017) analysis above found openness to experience was consistently the highest correlation with creativity.

NOTE-TAKING PROMPT: Summarize the evidence that openness to experience is related to creativity.

How Is Conscientiousness Related to Aesthetic Preference?

Generally, those high in conscientiousness tend to dislike complexity, uncertainty, and ambiguity. Conscientiousness is highly related to conservatism, so the research on the relationship between conscientiousness and conservatism can be said to go back several years. For example, Barron (1952) found that more conservative participants gravitate toward simple and symmetrical designs, whereas those who are "dissident, cynical, somewhat eccentric, and deviant" gravitate toward the more complex and asymmetric designs (p. 386, Barron, 1952). Research by Wilson and colleagues (1973) also found that highly conservative types showed negative correlations with complex art. More specifically, the author found a strong negative relationship between conservatism and complexity ($r = -.56$) and a less strong, but still significant, negative relationship between conservatism and abstractness ($r = -.14$; Wilson et al., 1973).

Modern research has substantiated these findings. For example, Furnham and Walker found that conscientiousness was positively related to a preference for representational paintings (Furnham & Walker, 2001) but negatively related with liking complex paintings (Chamorro-Premuzic et al., 2010). Other research has shown conscientiousness to be associated with a preference for religious paintings (Ercegovac et al., 2015). In the domain of music, a negative relationship with intense music, such as Led Zeppelin or The Who, has been established (Cleridou & Furnham, 2014). In sum, conscientiousness seems to be associated with preferences for simpler and more traditional styles of art.

NOTE-TAKING PROMPT: The personality factor conscientiousness is related to preference for what kind of visual art? What kinds of art do those high in conscientiousness avoid?

How Is Conscientiousness Related to Creativity?

Behaviorally, those high in conscientiousness are less likely to play an instrument, go to concerts, listen to classical music, draw or paint, or read poetry (McManus & Furnham, 2006). In addition, the aspect of orderliness has been negatively linked to getting chills and to aesthetic absorption (Silvia & Nusbaum, 2011). Those high in conscientiousness don't seem to have the same affective responses, and this may play out in the hobbies and interests they choose.

There are mixed results for the relationship between conscientiousness and creativity. Feist (1998) found that conscientiousness is negatively related to artistic creativity but positively related to scientific creativity. Puryear et al. (2017) found that conscientiousness is negatively related to creativity in college students but positively related to creativity in other samples. The same study reported that conscientiousness was positively related to a creative product but negatively related to originality on a divergent thinking task. It is possible that when creativity is necessary to achieve specific goals, conscientiousness is an asset because it supports the ability to follow through with ideas and persist through obstacles. Negative relationships, however, may be the result of situations that demand rule bending or loosening of rigid behavioral expectations.

NOTE-TAKING PROMPT: Summarize the findings correlating creativity and conscientiousness. What third variable has been offered as a possible explanation for some of the results?

How Is Extraversion Related to Aesthetic Preference?

Overall, extraverts tend to have positive attitudes about art; for example, in the McManus et al. (2006) study, they had a negative relationship to anti-art attitude and a positive relationship with most questions on aesthetic appreciation. Like those high in openness to experience, extraverts preferred abstract and cubist art relative to more representational forms like Impressionism and Japanese art (Chamorro-Premuzic et al., 2009). In one study, extraverts shared a preference for classical art characterized by formal "correctness of styles," such as *The Voyage of Life: Youth* by Thomas Cole over Romantic art characterized by freedom of subject matter and style such as *Wheatfield with Cyprus* by van Gogh (Rosenbluh et al., 1972).

Behaviorally, extraverts seem to use music a lot in daily activities to promote a positive mood. For example, extraverts tend to rate pop music favorably (Ercegovac et al., 2015) and tend to select happy music in the background during activities (Chamorro-Premuzic et al., 2010). Also, extraverts are more likely to go out dancing (McManus & Furnham, 2006). It appears that extraverts use music to promote and maintain positive emotions and to connect with others socially.

How Is Extraversion Related to Creativity?

Next to openness to experience, extraversion is most positively related to creativity. Both Furnham et al. (1998) and Puryear et al. (2017) found positive correlations between measures of extraversion and creativity. One factor influencing this relationship may be the willingness to speak up and share uncommon ideas. Another may be the tendency toward

experiencing positive emotions. Though the reasons aren't always clear, there does seem to be something about the extraverted personality that connects with certain types of creativity.

NOTE-TAKING PROMPT: How are extraverts similar to those high in openness in terms of preferences for visual art? Also, what qualities do extraverts possess that may engender creativity?

How Is Agreeableness Related to Aesthetic Preference?

Though agreeableness rarely has strong correlations with art preferences (Cleridou & Furnham, 2014), some correlations have been established. Those high in agreeableness have been found to prefer representational art to abstract art (Furnham & Avison, 1997). Negative correlations have been established between agreeableness and art about diverse cultures/world art as well as depictions of violence, but positive correlations were found with religious art and landscapes (Ercegovac et al., 2015). In music, high scorers in agreeableness tend to dislike heavy metal but enjoy jazz/world and popular music (Ercegovac et al., 2015). Largely, those high in agreeableness seem to avoid difficult art and gravitate toward more soothing styles.

How Is Agreeableness Related to Creativity?

Agreeableness generally has low correlations with most types of creativity, though with the exception of originality scores on divergent thinking tests, most are positive. The highest correlations are found with self-report measures. Again, agreeableness is not a very predictive personality trait for creativity.

NOTE-TAKING PROMPT: What kind of art and music might you find in your friend's home who is high in agreeableness?

How Is Neuroticism Related to Aesthetic Preference?

Like agreeableness, there are fewer findings for neuroticism than for openness to experience, but some relationships have been established between neuroticism and artistic preference. Rosenbluh et al. (1972) found that neuroticism was correlated with a preference for romantic art over classical art. There were also negative relationships with intense and unpretentious styles of art in the Cleridou and Furnham (2014) study. This was particularly true for intense or unpretentious architectural styles. Neuroticism has also been positively associated with preferences for sad paintings, and those high in this trait are drawn to dark and cold colors versus warm and intense colors (Chamorro-Premuzic et al., 2010). These preferred styles tend to represent boundlessness and the emotionality those high in neuroticism may struggle with.

How Is Neuroticism Related to Creativity?

Interestingly, neuroticism is inversely related to creativity in contrast to the myth presented in Chapter 5. Both Feist and Puryear demonstrated negative relationships. This

seems to indicate that creativity is more commonly associated with positive rather than negative emotional stability. While creative work may draw from intense emotions, it also requires the willingness to be vulnerable and the strength to follow through with ideas, which may be difficult for those higher in neuroticism.

NOTE-TAKING PROMPT: Why might those high in Neuroticism be less disposed to creativity?

What Are Other Measures of Personality Relevant to the Study of Art and Creativity?

Intrinsic Versus Extrinsic Motivation

Think about what is motivating you to read these chapters. If you are motivated by internal rewards such as a love of learning, interest in the subject, personal sense of accomplishment, and personal growth, you would be high on *intrinsic motivation*. Intrinsic motivation is defined as doing something for personal satisfaction. In contrast, *extrinsic motivation* describes when one is motivated by external rewards such as a particular grade, praise, an award, or a raise. Findings are varied for the relationship between motivation and the Big Five (Furnham et al., 2005), though generally, findings indicate those higher in openness tend to be more intrinsically motivated (Bipp, 2010). Intrinsic motivation has consistently been associated with higher levels of creativity (Amabile, 1996; Stanko-Kaczmarek, 2012).

Sensation Seeking

Sensation seeking is a trait that describes people who prefer intensity and novelty over routine and comfort. Specifically, Zuckerman (1994) defines personalities high in sensation seeking as "seeking varied, novel, complex, and intense sensations and experiences and the willingness to take physical, social, legal, and financial risks for the sake of such experiences" (p. 27). Zuckerman created the Sensation Seeking Scale, which includes four components:

Boredom susceptibility: a tendency to avoid repetition and routine such as not watching the same movie twice

Disinhibition: preference for less control such as throwing wild parties and taking drugs

Experience seeking: trying unconventional activities such as exploring a new town or drug use

Thrill and adventure seeking: seeking exciting activities such as mountain climbing or skydiving

NOTE-TAKING PROMPT: Distinguish among the four different sensation-seeking subscales. Which might you score high or low in? Do you think that these have changed or remained relatively stable across your life span?

Openness to experience is positively correlated with sensation seeking; more specifically, openness correlates with all subscales of sensation seeking except boredom susceptibility. In other words, Sensation seekers are open to new experiences except for ideas. Furthermore, sensation seeking is negatively related to conscientiousness (Zuckerman, 2007). Correlations between sensation seeking and art preferences tend to follow the same pattern found with openness to experience. Furnham and Avison (1997) found that sensation seeking is positively correlated with enjoying surreal art and is negatively correlated with liking representational art. Zuckerman et al. (1993) found that high sensation seekers had tendencies to enjoy expressionist, high-tension paintings whereas those scoring lower on sensation seeking indicated preferences for realistic, low-tension paintings.

Virtues and Character Strengths

Although unchangeable traits have been the focus of psychology, what about the character that can grow, develop, be cultivated? Peterson and Seligman (2004) designed just such an approach by asking "What makes a good person?" They held discussions, conducted literature searches, examined people widely regarded as having excellent character strengths in many areas, and ultimately generated the Values in Action Classification (VIA, Table 6.3).

Table 6.3 Classification of character strengths.

1. Wisdom and knowledge – cognitive strengths that entail the acquisition and use of knowledge
   - *Creativity*: Thinking of novel and productive ways to do things
   - *Curiosity*: Taking an interest in all of ongoing experience
   - *Love of learning*: Mastering new skills, topics, and bodies of knowledge
   - *Open-mindedness*: Thinking things through and examining them from all sides
   - *Perspective*: Being able to provide wise counsel to others
2. Courage – emotional strengths that involve the exercise of will to accomplish goals in the face of opposition, external, or internal
   - *Authenticity*: Speaking the truth and presenting oneself in a genuine way
   - *Bravery*: Not shrinking from threat, challenge, difficulty, or pain
   - *Persistence*: Finishing what one starts
   - *Zest*: Approaching life with excitement and energy
3. Humanity – interpersonal strengths that involve "tending and befriending" others
   - *Kindness*: Doing favors and good deeds for others
   - *Love*: Valuing close relations with others
   - *Social intelligence*: Being aware of the motives and feelings of self and others
4. Justice – civic strengths that underlie healthy community life
   - *Fairness*: Treating all people the same according to notions of fairness and justice
   - *Leadership*: Organizing group activities and seeing that they happen
   - *Teamwork*: Working well as member of a group or team
5. Temperance – strengths that protect against excess
   - *Forgiveness*: Forgiving those who have done wrong
   - *Modesty*: Letting one's accomplishments speak for themselves
   - *Prudence*: Being careful about one's choices; *not* saying or doing things that might later be regretted
   - *Self-regulation*: Regulating what one feels and does

(*Continued*)

Table 6.3 (Continued)

6. Transcendence – strengths that forge connections to the larger universe and provide meaning
   - *Appreciation of beauty and excellence*: Noticing and appreciating beauty, excellence, and/or skilled performance in all domains of life
   - *Gratitude*: Being aware of and thankful for the good things that happen
   - *Hope*: Expecting the best and working to achieve it
   - *Humor*: Liking to laugh and tease; bringing smiles to other people
   - *Religiousness*: Having coherent beliefs about the higher purpose and meaning of life

Table 6.4 Peterson and Seligman's (2004) theoretical associations between Big Five and VIA character strengths.

Trait (and Representative Examples)	*Approximately Corresponding to Character Strength(s)*
Neuroticism (worried, nervous, emotional)	None
Extraversion (sociable, fun-loving, active)	Vitality; humor; playfulness
Openness (imaginative, creative, artistic)	Curiosity; creativity; appreciation of beauty
Agreeableness (good-natured, softhearted, sympathetic)	Kindness; gratitude
Conscientiousness (reliable, hardworking, punctual)	Self-regulation; persistence

Source: Adapted from Peterson, C., & Seligman, M. E. P. (2004). *Character strengths and virtues: A handbook and classification*. New York: Oxford University Press and Washington, DC: American Psychological Association.

Table 6.3 shows the 24 character strengths of the Values in Action (VIA) Classification organized with their corresponding six virtues (from Park and Peterson, 2009).

According to the VIA classification, 24 character strengths represent six virtues. The VIA-Inventory of Strengths (VIA-IS; Peterson & Seligman, 2004) is a 240 question self-report inventory. There are ten questions per strength, each using a Likert-type scale from 1 (very much unlike me) to 5 (very much like me).

Strengths Relation to Personality

Seligman and his colleagues proposed that there were practicable relationships among character strengths and personality traits captured by the five factors; see Table 6.4 for a summary of those proposed relationships. The subscale of appreciation of beauty and excellence (ABE) is of particular interest to our pursuit. Littman-Ovadia and Lavy (2012) studied a sample of 635 participants, administering the VIA-IS, Five-Factor Inventory (FFI), Positive and Negative Affect Scale (PANAS), Satisfaction with Life Scale (SWLS), and Subjective Well-being (SWB) inventories. Among their findings, ABE showed a significant, positive correlation with openness or experience, agreeableness, and extraversion. The authors also found ABE was associated with positive affect, SWB and SWLS. This demonstrates that this particular character strength seems to be important for well-being.

Further studies of the VIA-IS shows us the relative importance of aesthetic values. In a large 2006 sample, Park et al. (2006) were able to rank appreciation of beauty organized by country. These were 117,676 adult internet users. Remember, the scale goes from 1 to 5, so scores above three indicate that the strength is generally more representative of them than less representative. ABE seems to be a valued strength.

Appreciation of Beauty and Excellence and rankings by country (United States, United Kingdom, Canada, Australia and the Netherlands)

- US 3.82; virtue #10
- UK 3.67; virtue #9
- NL 3.65; virtue #10
- CAN 3.85; virtue #9
- AU 3.81; virtue #10

Additionally, appreciation of beauty and excellence, as well as curiosity, seem to become more prioritized with age. In a sample of 250 middle school students aged 10–13 in Philadelphia, United States (Park & Peterson, 2006), the mean ABE score was 3.35, and it was ranked as virtue #21. In a sample of college students, the ABE mean was 3.57 and ranked as virtue #16 (Karris, & Craighead, 2012). Perhaps these values increase with age; indeed, there is some research to support this theory (Martínez-Martí & Ruch, 2014). Alternatively, it could be sampling; for example, the large, worldwide sample is heavily weighted to the US, and the other samples were specifically drawn from the US. More cross-cultural, longitudinal research would answer the general question of how character strengths – ABE, in particular – change over time.

Clearly strengths such as ABE are valued but can character strengths be, well … strengthened? Martínez-Martí et al. (2018) developed an ABE intervention designed to promote attention to the beauty in the environment, recognizing the worth of beauty, maintaining an aesthetic attitude of aesthetic contemplation in the presence of beauty, and purposefully exposing oneself to beautiful stimuli. This three-week program was effective in increasing feelings of subjective well-being and some aspects of ABE. Though more research needs to be conducted, ABE may be a value that can be cultivated.

NOTE-TAKING PROMPT: What do you think is the value of the VIA beyond that of personality traits? Why or Why not?

What Factors Influence Personality and How Does Personality Influence Behavior?

Psychologists generally agree that personality results from a combination of genes, physiology, and environment. Gregory Feist (2010, 2017) outlines a model of the creative personality, advancing that personality variations are affected by genes and brain structure. His model suggests that our physiological makeup is the foundation of many individual differences: how social we tend to be, whether we need a lot of external stimulation, and whether or not we tend to be motivated by internal pleasure or external reward. This model is derived from research demonstrating that our genes directly influence the development of our nervous systems, and individual variations in the brain and neural complexity influence the way we view and respond to the world. Specifically, Feist relates these neurological mechanisms to differences in cognitive (way of thinking about the world), social traits (response to pressure to conform, authority, tradition), motivational traits (intrinsic or extrinsic), and clinical traits (degree of psychoticism/schizotypy). A combination of these traits may determine one's threshold for creative thought; for

Table 6.5 Can the causal direction of Feist's (2010) model flow in both directions?

Genes → Brain Structures and Processes → Personality Variations → Behavioral Response (such as creativity)
Genes ← Brain Structures and Processes ← Personality Variations ← Behavioral Response

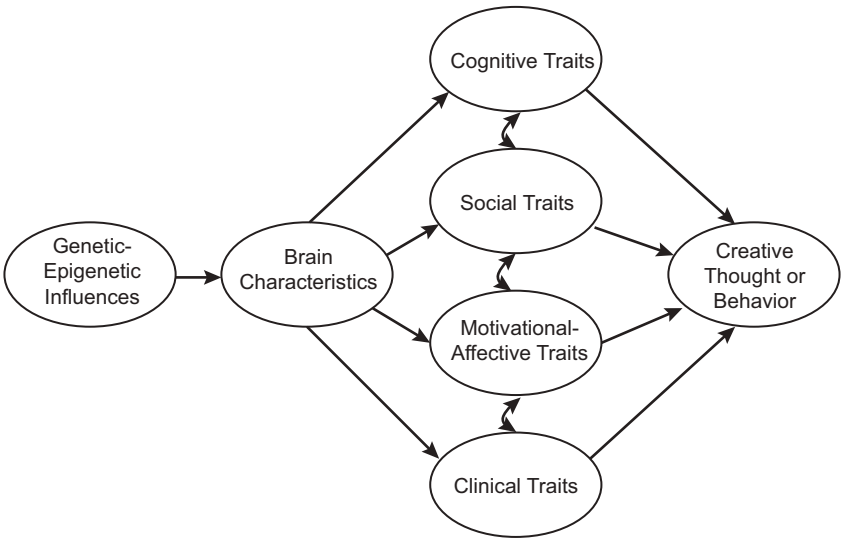

Figure 6.3 Feist's (2010) Functional Model of Creative Personality.

example, if one is open to new ideas, tends to resist conformity, is motivated by internal rather than external rewards, and has reduced latent inhibition (associated with schizotypy, discussed in Chapter 5), they are more likely to behave creatively. Feist also notes that this flow can be bidirectional. In other words, acting in creative or adventurous ways may influence the way you think and respond, influencing brain structures and processes and potentially even gene expression through epigenetic (changes in genes not involving changes to DNA) influence. Potential models for this kind of bidirectional influence are depicted in Table 6.5 and Figure 6.3.

NOTE-TAKING PROMPT: Summarize Feist's model. Do you think these links can be bidirectional, with behavior influencing biology?

In conclusion, personality is one reason there are variations in response to art and the motivation to create. There are many ways of examining personality, and the most relevant today is the psychometric examination of the Big Five traits. Of these, openness to experience emerges the strongest predictor of aesthetic response, aesthetic engagement, and aesthetic fluency as well as all measures of creativity. Personality traits may originate from our genes by way of establishing our neurological structure, but as we grow, our environment, along with the choices we make, can influence those structures and therefore change our personality. Personality is only one influence on our aesthetic

inclinations; the next four chapters look at others: perceptual, cognitive, emotional, and social.

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7 Perceptual Processing of Art

What You Will Learn

How does the static depiction of a scene on a two-dimensional plane have the power to make us feel expansive and think deeply? In this chapter, we will begin to break down the elements of aesthetic response. To understand the scope of this response, psychologists have to account for what we can *sense* and *perceive* (see, hear, etc.), what we *feel*, and what we *think* in addition to how our response is affected by (and affects) others. In this chapter, we will focus on the initial stages of this process: how we sense and perceive art. We will explore what happens in the eye and brain when we are looking at a painted canvas. For the sake of brevity, the focus of this chapter will be on two-dimensional visual art, although many of these principles are transferable and can form this basis of exploring other art forms.

Chapter Outline

How Do Psychologists Explain How a Two-Dimensional Image Can Engender a Personal Response?
What Are the Differences Between the Elements of an Aesthetic Response: Sensation, Perception, Emotion, and Cognition?
What Is the Biological Process of Seeing Art?
How Do We Know Which Patches of Light "Go Together" to Form an Object?
How Do We See a Three-Dimensional Image on a Two-Dimensional Canvas?
What Is Color?
Do Colors Have a Psychological Effect?

Terms to Identify as You Read

Absorbance
Additive Color Mixture System
Aesthetic Emotion
Aesthetic Judgment
Aesthetic Response
Aesthetic Triad
Analogous Colors
Atmospheric Perspective
Automatic Processes
Binocular Cues

DOI: 10.4324/9781003014362-7

Terms to Identify as You Read

Bipolar Cells
Bottom-Up Processing
Closure Principle
Cognition
Color Constancy
Color Wheel
Complimentary Colors
Cones
Context Effect
Continuity Principle
Contrast Effect
Controlled Process
Convergence
Cornea
Cornsweet Illusion
Depth Perception
Distal Stimulus
Ebbinghaus Illusion
Equiluminant Colors
Figure-Ground Segregation
Fixations
Form Perception
Fovea
Ganglion Cells
Gestalt Principles of Perceptual Organization
Glutamate
Horizontal Cells
Hue/Color
Inhibitory Neurotransmitter
Interposition (Occlusion)
Iris
Lateral Inhibition
Lens
Linear Perspective
Macula
Monocular Cues
Nanometer
Negative Space
Optic Ataxia
Optic Disk
Perception
Photoreceptors
Primary Colors
Prosopagnosia
Proximal Stimulus
Proximity Principle
Pupil
Reflectance
Reflectance Curve
Relative Size
Resolution
Retina
Rods
Saccades
Saturation (Chroma)

Terms to Identify as You Read

Sensation
Sensitivity
Shadows
Similarity Principle
Simultaneous Contrast
Spectrograph
Split-Complementary Colors
Subtractive Color Mixture System
Texture Gradient
Top-Down Processing
Value/Luminosity
Visual Smear
Wavelength
What/Temporal Pathway
Where/Parietal Pathway

NOTE-TAKING PROMPT: Before beginning, look at the Magritte presented in Figure 7.1 painting. What do you see? What is your first impression of it? Do you like the piece? Are you drawn to it? Unmoved? Or do you have an aversive reaction? Does your reaction change over time?

How Do Psychologists Explain How a Two-Dimensional Image Can Engender a Personal Response?

Imagine you are in a museum standing in front of a painting, like the Magritte in Figure 7.1. Try to do the previous exercise and articulate your thoughts about the image as you examine it before reading on. What did you notice about the process of your examination? Perhaps initially, the landscapes and colors made you feel calm, possibly bored, or possibly nothing at all. As you recognized objects within the image, you might have felt discomfort that something seemed "off." Then, maybe as you recognized the oddity, you might have had a pleasurable sensation of "Aha!" as you resolved the source of the discord. But perhaps that just led to more questions such as "Is it a clear canvas like a glass plate? Or a canvas perfectly painted to reflect the vision outside? Why would the artist paint this?" Your eyes perhaps darted around this painting in search of answers. You may have found this uncertainty boring or frustrating or fascinating. These emotions may have prompted you to read more about it or forget about it and move on.

Or perhaps none of this occurred to you at all; there are many differences among viewers, and the experience of art is as unique as the individuals themselves. Though there are several individual differences in the experiences of each artwork (and even within an individual, for example, if you are familiar with this piece, you may have a different experience this time than you did before), there are at least three neural systems responsible for the experience that are common to all: 1) sensory-motor; 2) emotion-valuation; and 3) meaning-knowledge. These three systems are known as the *aesthetic triad* (Chatterjee & Vartanian, 2014). In this chapter, we will focus on the first system and the others in the subsequent chapters.

As we begin the process of an aesthetic experience according to this model, in order to have an experience of the Magritte, first, you need to *see it* – to literally absorb the

Figure 7.1 Rene Magritte's *The Human Condition*, 1933.

light that is bouncing off it at varying wavelengths. The first neural system makes sense of those patterns of light by determining the boundaries of the represented objects, sensing indicators of movement, and noting indicators of depth. The second system compels us to, *evaluate it* in some way processing information about how this is affecting you (good/bad/boring/inspiring); and allowing you to have emotional responses such as soothing/surprise/joy/annoyance. Finally, the third system allows you to *recognize it*; to use your cognitive system to make sense of those patterns of electromagnetic energy and name

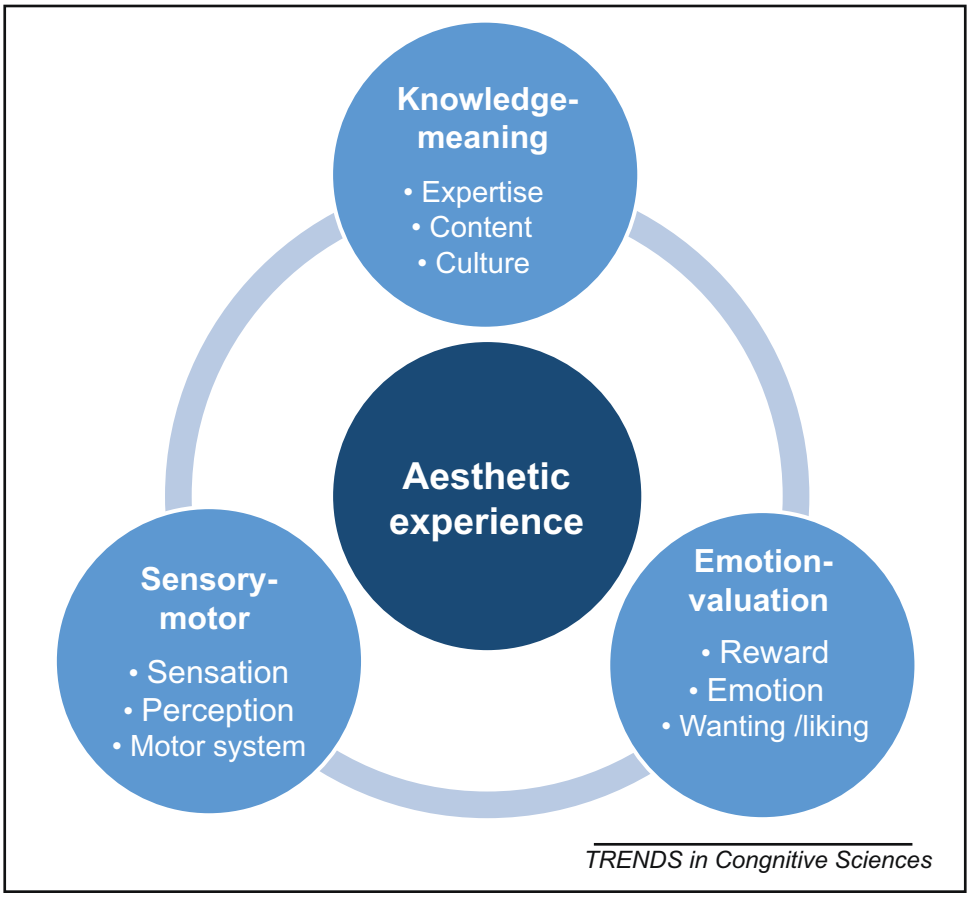


Figure 7.2 Aesthetic Triad from Chatterjee and Vartanian (2014).

them "tree," "landscape," "easel," "clouds," or "curtains." Perhaps you look it over again with new awareness and your attention is drawn to different aspects of the image, driven by the knowledge you have gained from your precious exposure.

Certainly, most of what you experienced was not in your awareness or control. How, for example, did you recognize that the tree was a tree and the canvas was a canvas? How did you discern the edges of where the floor meets the wall, where the wall meets the window ledge, or the subtle variation representing the lower edge of the canvas? You may have felt emotions – peace, surprise, curiosity – but how? Did you direct your thoughts and emotions, or did they just "pop up" automatically? All of these aspects: perception, emption, and cognition underscore the aesthetic process. Figure 7.2 depicts these three crucial aspects in balance, supporting the aesthetic experience.

Summing up, at a very basic level, to understand the psychological experience of art, psychologists have to account for what we *sense and perceive* (see, hear, etc.), what we *feel*, and what we *think*. One intuitive way to look at this is that perception leads to cognition, which leads to an emotional response.

Perception → Cognition → Emotion

In other words, we see the art, which causes us to recognize what is happening in the scene, which, in turn, causes us to have an emotional experience. But it isn't that simple! Take the first stage: perception. This seems like a simple and intuitive stage, but what we literally see is actually influenced by the other systems to a great extent. For example, the manner in which we direct our eyes is influenced by our knowledge system: Do you know a lot about the artist? Do you have some expertise in art composition? Do you have a lot of experience with surrealism? Our looking isn't only influenced by knowledge about art; for example, you know that you are not looking at Figure 7.1 in a museum (or Pintrest or an old photo album); instead, you are looking at this in a psychology of art textbook. So, before you even glance at the image, you probably formed an expectation that this piece will be used as an example to make some point about the psychology of art – a mindset you would not have considered in those other contexts yet that will influence the aspects of the image you pay attention to here. Further, you may have come into this situation in an emotional state – excited to learn about this topic, bored of it, and ready for the semester to just end already, or crestfallen because of an unrelated circumstance like an impending breakup; consequently, those emotional states will influence how you see the piece. In other words, before you even look at a piece, you have prior knowledge, expectations, and emotions, which will direct your attention to elements of the image, causing you to see it differently.

In contrast to the simple perception to cognition to emotion sequence depicted above, Figure 7.3 represents a model proposed by Leder and his colleagues (Leder et al., 2004; Leder and Nadal, 2014) that was devised to explain many of the complexities contributing to the aesthetic experience. In the model, the stages go from perception through different levels of cognition (memory, classification, and mastering) with a final state of evaluation. The emotional state is reevaluated throughout the entire process. This model also takes into account the context in which the art object is seen, previous experience, personal taste, and social interaction about/around the object. Crucially, it separately accounts for two levels of aesthetic response: judgment and emotion (discussed as follows). This chapter is focused on perceptual analyses, corresponding to the sensory-motor component of the aesthetic triad.

NOTE-TAKING PROMPT: What is the aesthetic triad? How does it relate to Leder and Nadal's processing model?

What Are the Differences Between the Elements of an Aesthetic Response: Sensation, Perception, Emotion, and Cognition?

Before examining the process of perceptual analysis, a few definitions are required. Despite the process being presented as a discrete category, it is helpful to remember that in experience, the boundaries among the elements of a model like the one in Figure 7.3 are fuzzy – i.e., we don't experience a sensation, finish that, and then move on to perception then cognition. Out of educational necessity, we will break the process down into the perceptual and the cognitive and each of those further into more components. As we proceed, however, it is important to remember what Rudolf Arnheim said: "The collaboration of perceiving and thinking in cognition would be incomprehensible if such a division existed" (1969, p. 1). I think it is wise to keep the dependency of each system with the others in mind, yet these conventional distinctions are useful, so let's begin with sensation.

Sensation refers to a pattern of energy in the environment detected by the nervous system; it is the process whereby we receive physical energy from our world. In vision,

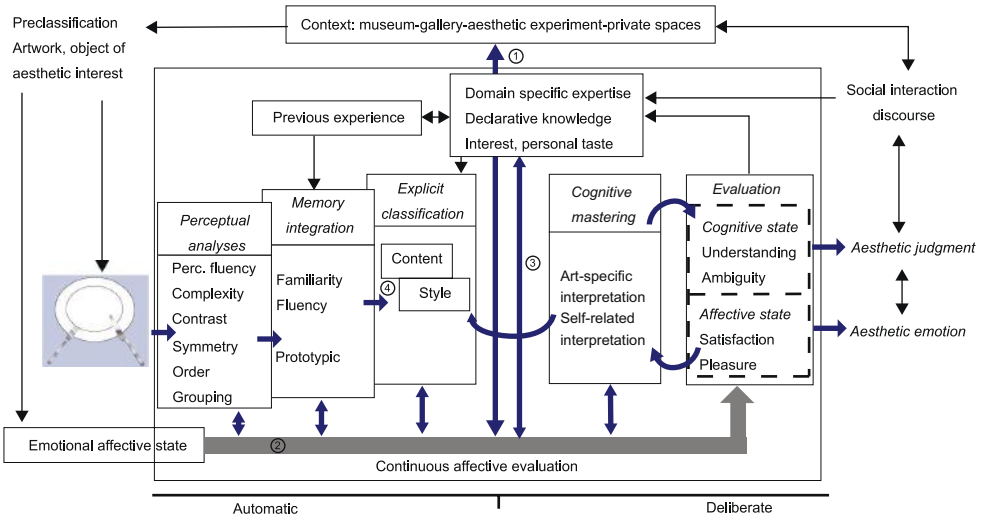


Figure 7.3 Leder and Nadal's (2014) updated model of aesthetic processing.

for example, it is the eye detecting the pattern of energy reflected off a canvas. Sensation is the pure experience of the object, without the benefit of memory or knowledge. Our different sensory organs and systems developed to detect different patterns of energy; for example, our visual system detects light (visible electromagnetic energy), whereas our auditory systems detect sound waves and our olfactory system detects chemicals.

In contrast, *perception* is the interpretation of these patterns of energy; the process of organizing and interpreting sensory information. Specifically, perceptual processes derive meaningful patterns from the raw sensory information. Through this process, we identify meaningful objects and events.

To illustrate the difference between sensation and perception,consider the illusion in Figure 7.4. Though it looks like there is a white square on top of a black one, the grey color in the middle of each square is exactly the same shade; this is referred to as the *Cornsweet illusion*. We perceive the bottom square differently because the lighter context band of white above it facilitates a *contrast effect*, or the perception of enhanced differences between objects when they are viewed simultaneously. Furthermore, a contrast effect is one example of a context effect wherein the perception of an object changes across different contexts. Thus, the exact same pattern of electromagnetic energy may be perceived differently – for example, as black, gray, white, etc., depending on the context.

Cognition is the process of gathering, representing, and using knowledge, including current sensory experiences and memories of prior experience. In the context of an aesthetic experience of art, cognition refers to mentally representing the art objects (such a painting, song, or novel), in awareness, including mental processes such as attention, memory, and reasoning, that formulate an understanding of the object. For example, our cognitive systems help us recognize that "This is an oak tree," "This is a Magrette," "This reminds me of home," and "This represents a surrealist work." Unlike sensation and perception, which are generally *automatic processes*, or processes that are executed without conscious control, cognition may sometimes be automatic and, at other times, under conscious control. For example, you may look at a painting and automatically generate

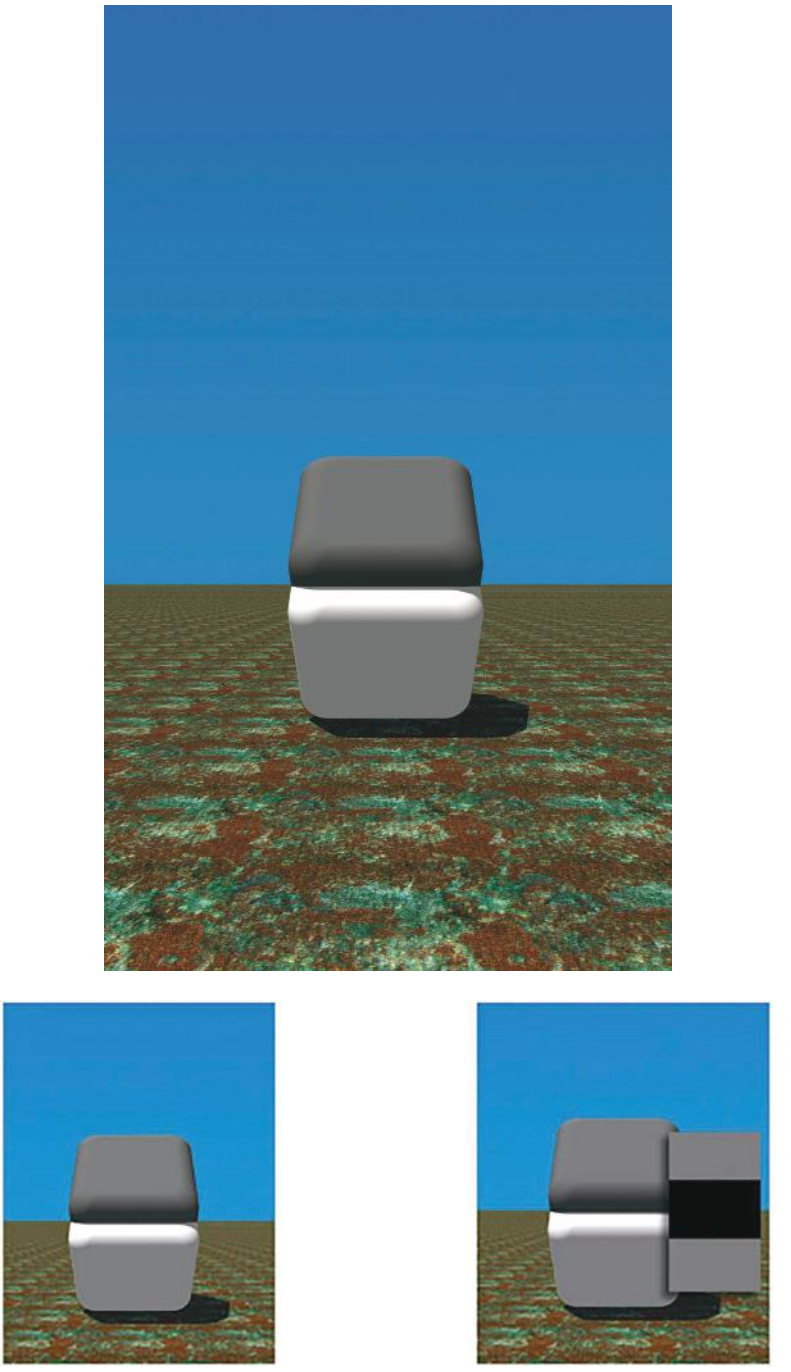


Figure 7.4 The Corsweet illusion is a demonstration that the same tone can look different in a different context. Notice that though the top looks lighter, they are actually the same color; however, the light or dark band provides a different context for the top versus the bottom figure

Source: Figure from Purves et al. (2002).

knowledge/memories associated with it, but you can also think, "I am going to compare those brushstrokes to that of other surrealist painters," which would be an example of a *controlled* process.

Affect and emotion are terms that refer to your visceral, or gut, reaction to viewing the art object. Of course, the initial response may differ from subsequent responses. Both the type and intensity of the emotion contribute to the aesthetic experience. You may feel a certain sense of loneliness looking at the image in Figure 7.1, but it may be of low intensity – just a hint. In contrast, you may be overpowered by the feeling of loneliness in Edvard Munch's *Girl by the Window* (1893); the feeling is the same, but the intensity may vary quite a lot. Moreover, the response may be simple or complex. For example, reactions may range from "I like it/dislike it," "I feel warm, peaceful," "I empathize with the sense of despondency of the subject," and "I empathize with the sense of despondency of the subject, but not as much as I feel like I should, and I simultaneously feel a sense of serenity." All of these are all examples of an emotional response.

It is possible to investigate many types of psychological responses, but we are now focused on the aesthetic response. An *aesthetic response* is the overall reaction to something in the environment on the basis of their perception of it (Berlyne, 1974), in this case a work of art. This response may develop and change over time with life experience and new information. It is your individual and deeply personal reaction to art. This is whether or not the art touches you, how it makes you feel, whether it brings you meaning, what it makes you think about, and so on. There are two components to the aesthetic response that will be discussed:

Aesthetic judgment: Evaluative response – is it good? In what way?

Aesthetic emotion: experience or absence of intensity such as pleasure, disgust, awe, etc.

NOTE-TAKING PROMPT: Look at the Magritte in Figure 7.1 and select a more emotional painting for you (maybe you can use Edvard Munch's *Girl by the Window*, mentioned previously). Break down your response to each of the two paintings and four categories described previously (sensation, perception, cognition, affect). Does your aesthetic judgment align with your emotion? Why or why not?

Do Our Eyes Determine Our Aesthetic Response or Do Our Brains? Bottom-Up vs. Top-Down Processes

Our eyes and brains work together to interpret the world around us. Robert Solso (2003) articulated this collaboration in 3 stages: 1) Analysis of visual field in terms of shapes, forms, contours, and contrasts; 2) Organization of this analysis into fundamental forms, mostly without prior knowledge; and 3) Attaching meaning to these forms using prior knowledge. The first two stages represent *bottom-up* processing – that is, processing the sensory information solely based on the stimulus available without reference to prior knowledge or context. It is also called stimulus-driven or data-driven processing. Examples include detection of form, color, and gestalt organization (described as follows). In contrast, *top-down* processing includes prior knowledge and context; as such, it is also called context-driven processing and directed perception. Both are routinely applied to perceptual processing; i.e., we use both in every situation to interpret the world around

BRONZE

B6O428

Figure 7.5 Top-down processing is influenced by context. The initial figure is easily recognized with the letter "B" in the first word context of letters, forming the word "bronze," and as "13" in the second, when followed by numbers, even though the mark itself is exactly the same.

Figure 7.6 Ambiguous image from Boring (1930). This could be a young woman looking away from the viewer or an old woman in profile. Often, what is seen depends on the age of the viewer.

us in every moment. Look at the image in Figure 7.5. Though the first and third characters are the same, most people easily recognize them as letters in the first context and as numbers in the second.

Top-down processes enable every individual to experience an artwork differently because every individual has different experiences to apply to the perceptual experience. To illustrate, the viewer's experience with art and life, personality, intelligence, interest, and emotional state are all factors in both the impact of the piece and often literally what the person sees. For example, how old you are may determine what you see here in Figure 7.6:

For the most part, the way physical energy is detected varies little across individuals, so let's start with looking at the properties of the physical energy in the world and how humans are able to detect that energy. Our focus will be limited to visual perception, but many of these general principles may also apply to auditory and other perceptual experiences.

What Is the Biological Process of Seeing Art?

It goes without saying that to experience the Magritte, you must first see the Magritte. Your visual system is not only adept at detecting variations within a certain range of visible light energy emitted or reflected from the art object; it is also efficient at stabilizing some areas and enhancing contrasts in other areas. Remarkably, before Figure 7.1 even enters your brain, your eyes have already worked to make the gray variations in the blue sky more "bluey" and sharpen the edges of the canvas in contrast to the curtain.

The visual system detects variations in light energy reflected off of the *distal stimulus*, or the physical entity in the environment. In this case, the distal stimulus is the Magritte image, the pattern of light energy being emitted from your book. By contrast, the *proximal stimulus* is the pattern of activity this creates across the cells in your eye – in other words, the image on the retina in visual perception.

Anatomical Structures and Functions of the Human Eye

First, let's get an idea about the anatomy of the eye before we dive deep into the cells and nervous system. Let's start by looking over the diagram in Figures 7.7 and 7.8.

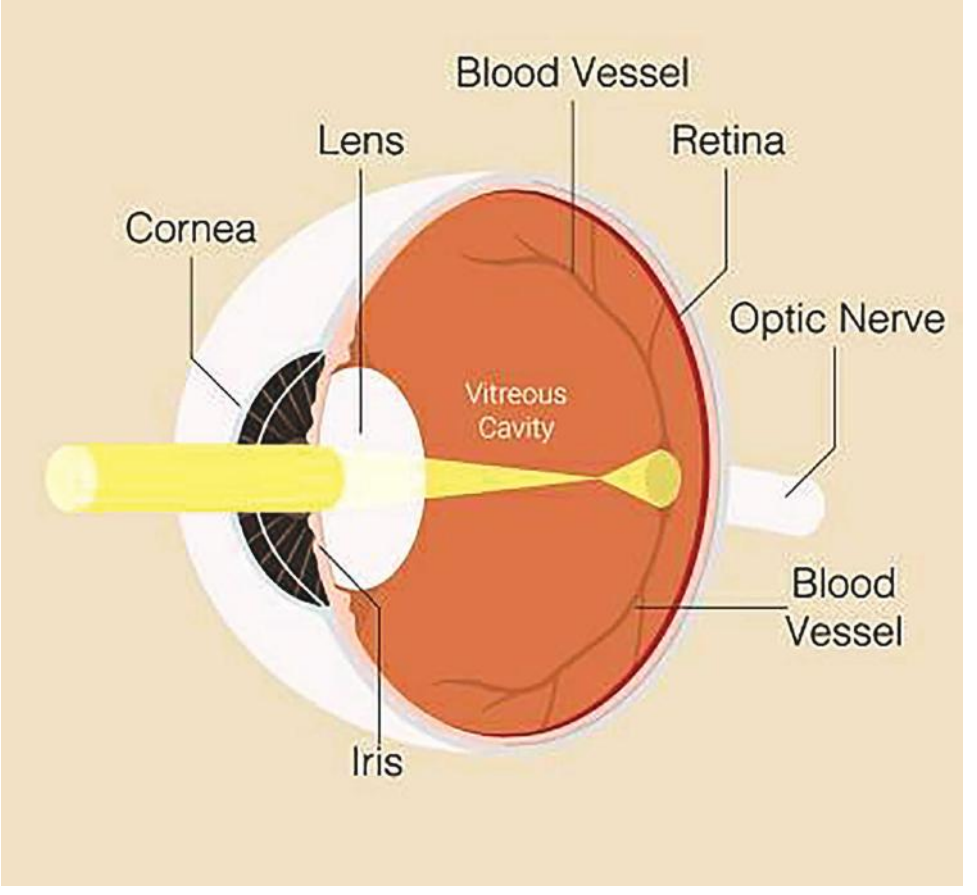


Figure 7.7 Diagram of the eye.

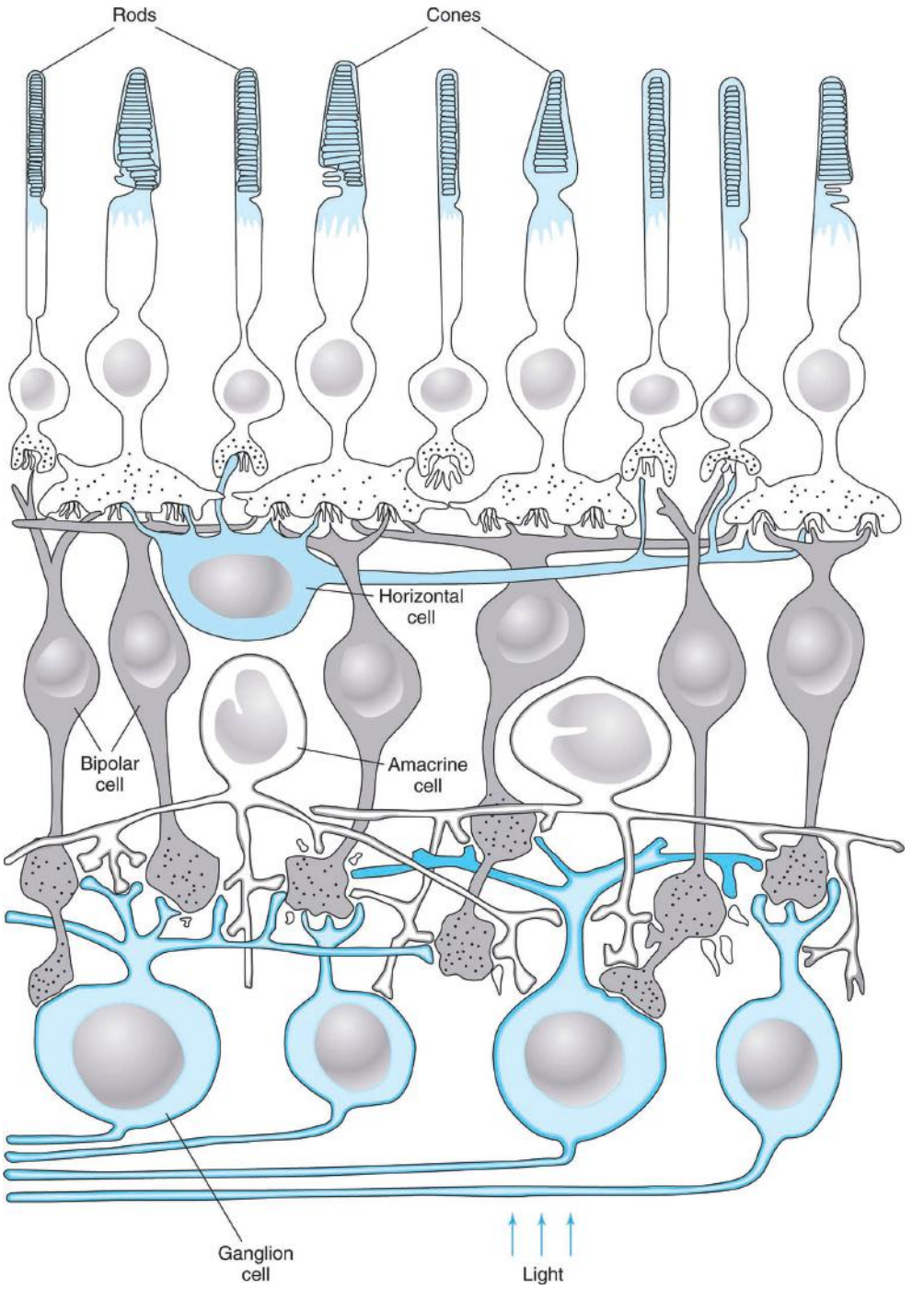


Figure 7.8 Anatomy of the retina.

Starting at the front surface of the eye – closest to your nose, the following are the important structures to know:

Cornea: The transparent portion of the outermost coat of the eyeball that covers the iris and the pupil. The cornea protects the eye while allowing light to penetrate.

Iris: The colorful part (the term "iris" comes from the word for rainbow). The outer layer of the iris consists of pigment, and the inner layer comprises blood vessels.

Pupil: The black part in the middle of your eye. The pupil expands and contracts to let just the right amount of light in. This means that in darkness, it expands to allow more light, whereas in brightness, it contracts to restrict the amount of light. The pupil also responds to stressors in the environment; for example, if you are frightened, your pupils will expand to let in more light.

Lens: The transparent structure inside the eye focuses light rays onto the retina; the lens is right behind the iris and allows us to focus. The lens must be transparent, so *cataracts*, or a disorder in which an opaque film covering the lens develops, severely impairs vision.

Retina: Finally, we get to the back lining of the eye, a structure called the *retina*. This is where the light gets transuded into neural signals by the *photoreceptors* (rods and cones). The retina is where the magic of vision happens! There are three major components of the retina:

Macula: the center of the retina where visual acuity is sharpest.

Fovea: a depression within the macula of the retina of the eye that contains a single layer of cones with no overlapping blood vessels; this region has the greatest visual acuity.

Optic disk: a blind spot where there are no photoreceptors because this is where the axons of the cells exit the eye to the brain.

Types of Cells in the Eye

In order to demonstrate how light passes through the nervous system to create an image of the world, consider how gossip spreads through a corporate environment. The information may start out as simple, but as the message goes from person to person, it gets bigger, more complicated, and more exciting even though it is not as faithful to the original circumstance that initiated it. That is analogous to how the eye works. Millions of cells (like people in a corporation) are trying to communicate a message with other cells, and each cell is trying to improve upon that message, often by highlighting the "juiciest" bits and downplaying the less important information.

The eye has three layers of cells. The first layer, the layer that is first to hear the news, paradoxically lines the very back of the eye, in a layer of cells called *photoreceptors*. Photoreceptors, also called rods and cones, detect the variations in light. In effect, they are the first ones to receive the gossip (the first ones to "see the light"). The middle layer, coming toward the front of the eye, contains two main types of cells referred to as *horizontal* and *bipolar* cells. These cells try to make the message more dramatic and clear before they pass it along. They make edges sharper and surfaces more uniform, and like someone telling a narrative they heard about a coworker or celebrity, they automatically tweak the story to make it a bit more interesting. Thereafter, the best information is sent on to

their managers, to the *ganglion* cells, which are responsible for passing it along to the brain (headquarters). So, it all starts with the photoreceptors.

Photoreceptors: Millions of Tiny Light Detectors

Photoreceptors (sometimes simply called *receptor cells* – although receptor cells refer to a more broad category of cells that includes receptor cells for other senses) produce electrical activity in neurons depending on the amount of light they absorb – i.e., the amount of electricity they produce is proportional to the amount of light that hits the cell. Photoreceptors do this by producing a neurotransmitter called *glutamate* in proportion to the amount of light they receive. Glutamate is an *inhibitory neurotransmitter*, which means that it makes a neuron less likely to produce an electrical signal. Just to make this fun for students to learn, the relationship of the amount of light to the amount of glutamate to the frequency of electrical signals produced by the photoreceptor neuron is somewhat counterintuitive: The *more* light absorbed into the receptor cell, the *less* glutamate to be produced by that cell, and the less glutamate produced causes *more* electricity to be produced. Get it? No? Think about it with another analogy:

In the office analogy, think of the glutamate amount as the degree of professional demeanor or exhibits or the amount of "cool" the worker possesses. Some gossip will make you abandon your cool and jump on your phone to start sending texts to your coworkers immediately. Impending pay cuts, potential layoffs, or an unexpected secret love affair with the boss: some things you just have to talk about! Before you know it, you lose your glutamate coolness, and this loss of restraint enables the messaging to start flowing.

More Light → Less Glutamate → More Electrical Impulses

Table 7.1 Relationship between the amount of EM energy, the neurotransmitter glutamate, and the amount of electrical activity in photoreceptor cells.

In this analogy, gossip is light, so let's say the light energy from the bright Florida sun invades a photoreceptor with its powerful light energy. This is like the juiciest gossip – definitely something to lose your cool over! The photoreceptor/office worker would get excited and lose his cool (i.e., stop producing glutamate) at once and immediately pass this bit on to his coworker in a message marked *urgent*. In contrast, if the energy from a 25-watt bulb reaches this photoreceptor/worker's desk, well, that wouldn't be such big news. The cell might notice it and roll their eyes to signal they heard it, but no urgent messages.

The two types of photoreceptors have very different job descriptions. *Rods* respond best to dim light; they do not detect color and are best equipped to detect peripheral motion and large objects. There are about 100 million rods in your eye. This is good if you want to see whether your child is still behaving from the corner of your eye (the proverbial "eyes in the back of mother's head" may well be rods!). *Cones*, on the other hand, respond best to bright light. In addition to detecting color, they are best for *visual acuity*, the ability to see fine details. There are five million cones in your eyes. Cones are responsible for your perception of words: You wouldn't be able to read this print if you did not have them!

Horizontal Cells: Ignoring the Boring Photoreceptors

Horizontal cells line the second layer of the eye (moving toward the face) and modify the strength of the signals sent by the photoreceptors. Horizontal cells generally weaken the strength of the signals sent by the photoreceptors, but they do it disproportionately, depending on the strength of the initial signal. Specifically, a very strong signal (bright light) is attenuated just a little, and a very weak signal (dim light) is attenuated a great deal. This accentuates the difference between the light and dark areas of the visual field.

Horizontal cells are responsible for *lateral inhibition*, where the responses of surrounding cells in the retina are suppressed. Imagine a patch of receptor cells. If one is activated by a beam of light, the surrounding cells will be activated as well. The horizontal cell is connected to all of these cells, so it detects the cells that produce the strongest response and tones down the response of the surrounding cells. The activity is responsible for the Mach band illusion, as follows. Mach bands form when areas of differing but uniform shading meet; the difference in shade will be exaggerated at the juncture. If you look closely at the edges of Figure 7.9, you will see a lighter band and a darker band right along the edges. These bands aren't present in the image itself – i.e., it is not an effect of greater reflected energy from the image; it is an effect of the horizontal cells disproportionally inhibiting the activity of neural signals right at the edge so that there is greater contrast and the edge appears to be sharper. This effect can be seen in the corner of any room where one wall meets another.

Think of horizontal cells as the supervisors at a company. They do not want to appear to encourage gossip and will generally try to curb the chitchat at the water cooler. So, most of what they hear is suppressed. Yet if they locate the source of the gossip, and if it is credible enough and juicy and "bright" enough, you know they will listen and pass it along to their supervisors!

Bipolar Cells: Sending the Good Stuff Along

Like horizontal cells, *bipolar cells* make direct contact with the photoreceptors. Bipolar cells respond positively to a reduction in glutamate from the photoreceptors (meaning more light is detected). The job of bipolar cells is to recombine information received by receptor and horizontal cells and pass this on to the ganglion cells. Bipolar cells try to discern the "truth" of the gossip, picking out what is a salient fact versus what is mere gossip before they try to impress their bosses by passing the message along.

Ganglion Cells: Lonely at the Top!

Ganglion cells receive information from bipolar cells and pass that information along to the brain. Actually, the *axons* of ganglion cells go directly to the brain. There are far fewer ganglion cells than there are photoreceptors, from about 100 million photoreceptors to 1.25 million ganglion cells. The ganglion cells are the last to process the message before it goes to the big boss (the brain), so many receptors may connect with a ganglion cell.

NOTE-TAKING PROMPT: Describe the type and quality of visual information conveyed by each type of cell: receptor, bipolar, horizontal, and ganglion.

Figure 7.9 Mach bands demonstrate that even though the value is the same throughout each strip, we see a small sliver of lighter value and a sliver of darker value at each intersection.

Visual Sensitivity Versus Resolution

You just learned that there are *far* more photoreceptors than there are ganglion cells. *Convergence* is the ratio of photoreceptors to ganglion cells. Further, the 100 million to 1.25 million ratio is not distributed evenly across the retina. In some areas, there is *low convergence*, close to one receptor to each ganglion cell, whereas in other areas, there is *high convergence*, hundreds of receptors to each ganglion cell. The degree of convergence affects visual sensitivity and resolution.

Sensitivity refers to the ability to detect stimuli. On the other hand, *resolution* is the ability to discern precise spatial properties. For example, have you ever ducked because you sensed an object being hurled at your head, only to peek hesitantly from your cowered position and see a little, itty-bitty fly? You have demonstrated great visual sensitivity: You were able to detect an object coming right for you (good job). However, you did not have the time to look at the object and get high resolution. Thus, the itty-bitty fly felt like a meteorite! This is a poignant example of a key principle: Convergence is the enemy of resolution!

As such, the more photoreceptors to a ganglion cell, the less likely you will be able to discern the object accurately. However, you are more likely to detect the object's presence even if you can't see it well. This is the trade-off between resolution and sensitivity.

In the *fovea*, convergence is about 1:1, or one photoreceptor to one ganglion cell, which is the best possible resolution. As we extend outward into the periphery of the retina, the ratio can get as high as several hundred photoreceptors to one ganglion cell. This underlies two specific types of visual perception as we extend away from the fovea to the periphery of the retina (see Table 7.2). Foveal vision relies on cones, has low convergence of receptors to ganglion cells, works best in bright light, engenders good acuity, and enables color perception. In contrast, peripheral vision relies on rods, has a high convergence of receptors to ganglion cells, works best in dim lighting, allows for detection of objects but with poor acuity, and cannot distinguish colors.

NOTE-TAKING PROMPT: Why is foveal vision so much more acute than peripheral vision?

Table 7.2 Distinguishing foveal versus peripheral version

	Foveal Vision	*Peripheral Vision*
Type of receptor	Cones	Rods
Number of receptors to ganglion cell	Few receptors	Many receptors
Best conditions	Bright light	Faint lights
Resolution	Good detail/Acuity	Poor detail
Color vision	Good color vision	No color vision

Vision is Dynamic

We are rarely fixated on a feature of the environment; we are constantly moving our eyes around, sometimes automatically and without conscious direction, sometimes consciously as when we choose to follow a particular person in a crowd. Further, our eyes do not smoothly progress over the scene, though it feels that way subjectively. In fact, as we look over a visual scene like a painting, our eye settles in a place for about a half of a second at a time in events called *fixations* and moves quickly to the next fixation point in movements called *saccades*. During movements, our visual capacities are significantly reduced – a phenomenon known as *visual smear*. So, while we feel like we are taking in the canvas all at once, we are continuously scanning and stopping, scanning and stopping, taking the image in as a series of small "snapshots" (Solso, 2003, p. 26).

In sum, as you take in the Magritte in Figure 7.1, the visible electromagnetic energy is bouncing off the image, less so in dark areas like the easel stand which is absorbing more of this energy and more so in bright areas, like the clouds, which is reflecting it more. The amount of light reflected makes your receptors adjust the glutamate they produce, causing these cells to send electrical signals at different rates. These signals are picked up by the bipolar and horizontal cells, which consolidate the signal and sharpen contrasts within the image. The sharpness of the image gets acute only when you are looking at it directly and fuzzy on the edges due to the convergence of the receptor to ganglion cells. So, you are only taking in small bits of the piece at any given time, but no worries! Your eyes are rapidly darting around the piece and constructing the entirety of the image in order to take it all in.

How Do We Know Which Patches of Light "Go Together" to Form an Object?

What and Where Streams

Color and luminance are processed in separate visual neural pathways in the brain; in fact, these pathways begin in the eye and are "as anatomically distinct as vision is from hearing" (Livingstone, 2014, p. 119). Let's move beyond the basics toward the process of identifying objects and perceiving motion. Significantly, *hue* is synonymous with color. It is easy to detect differences in luminosity in a grayscale image, but it is really difficult for most people to separate the luminance from the color in an object or scene. Even experienced artists can find this challenging. Luminosity is synonymous with value: the lightness or darkness of an object.

The pathway associated with hue is known as the *ventral (a.k.a. temporal) pathway* and is also called the *"what" pathway* in the brain. The pathway leads from the occipital lobe in the back of the brain to the temporal lobes just beneath the ears. The primary purpose of

Table 7.3 Summary of the temporal and parietal visual pathways.

What/Temporal Pathway	*Where/Doral Pathway*
Object recognition	Motion perception
Face recognition	Depth perception
Color perception	Figure/Ground segregation
Slower	Faster
Higher acuity	Lower acuity

this pathway is to identify objects in the visual field. When there is damage to the ventral pathway, people have difficulties identifying the shapes of objects, but they can locate them, use them, and move around them. For example, people with right temporal lobe damage along this pathway may experience *prosopagnosia* or face blindness, an inability to recognize faces, even family members who may only be recognized by speech or clothing rather than by face.

Conversely, *the dorsal (a.k.a. parietal pathway)* is also called the *"where" pathway*. This neural network extends from the visual cortex through the parietal lobe of the brain and is responsible for locating objects in space and aiding the motor system in moving toward them and grasping them. When damage to the dorsal stream occurs, a person can identify and describe objects but cannot grasp or move around them with ease. This inability to navigate fluidly through three-dimensional space is called *optic ataxia*. They may also be unable to imagine the locations of objects – for example, they would not be able to easily describe the locations of objects in their living room but still would be able to identify and describe what the sofa looks like. The distinctions between the 2 pathways are summarized in Table 7.3.

Interesting visual effects occur when the *what* is dissociated from the *where*. Specifically, Impressionists created the illusion of motion by using *equiluminant* colors, different hues of the same luminosity. Monet was especially effective at using this technique. By using colors of equal luminosity, he was able to achieve a sense of motion in his scenes: His water seems to flow and lap against painted boats; fields of poppies seem to swish back and forth in the wind, and the world moves slowly as dawn arises in his early morning sunrise. How did he achieve this? Look over Claude Monet's *Poplars on the Epte* (1891) in Figure 7.10.

Equiluminant colors trick the visual system because the *where* the system detects only the differences in luminosity whereas the *what* system detects differences in hue. So, there is a disparity: The *what* system clearly detects differences that the *where* system does not. When there is no such disparity, we can accurately identify the objects and their spatial relationships to the scene. Even as our eyes move around scanning the environment for differences in luminosity, the parietal pathway creates a "map" of the external world based on these differences in luminosity. As the eye moves across the scene, if there is no or little luminosity contrast, this map is unstable, giving the viewer a sense of movement (see Livingstone, 2014, for further analysis).

NOTE-TAKING PROMPT: Look over the previous Magritte image– where do you tend to look first? What can you see in your peripheral versus foveal vision? How do you move your eyes over the piece to "take it all in"?

Figure 7.10 Claude Monet *Poplars on the Epte* (1891). The water seems to move and sparkle as a result of equiluminant colors.

Perception – Making Sense of That Pattern of Energy

What Defines an Object?

Now that we have investigated the neural processes of sensation, let's look at the psychological processes of perception. If you have ever taken an art class, you may have learned that objects are defined in terms of *negative space*, the area surrounding an object in focus. One of the primary objectives of the visual system is to distinguish an object from its background. We primarily accomplish *figure-ground segregation* using contrasts: detecting differences in brightness, color, and glossiness to distinguish an object from the background.

The separation of the figure from the ground is best illustrated when the distinction is rendered ambiguous. In Figure 7.11, differences in the extreme contrast in color (blue versus white) distinguishes the figures that may be perceived as a white vase on a blue background or as two blue faces against a white background.

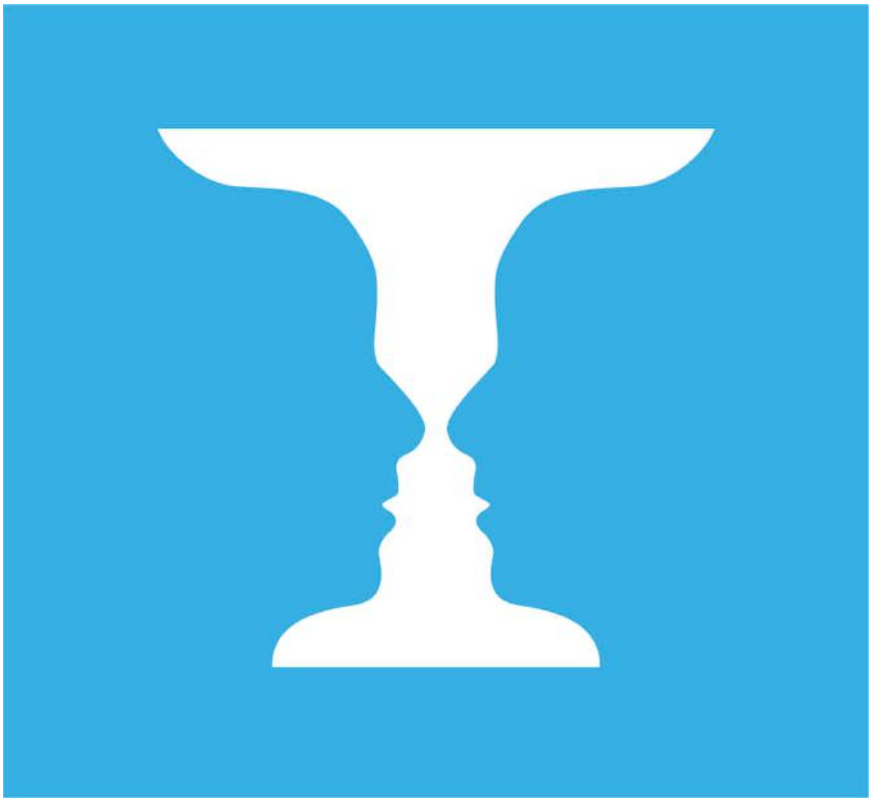


Figure 7.11 The vase face is a demonstration of figure-ground ambiguity. Is this a white vase against a blue background or two blue faces silhouetted against a white background?

Form Perception

The *Gestalt psychologists* studied extensively *form perception*, or the perception of objects, shapes, and patterns. This group of psychologists pointed out that the fundamental ability of human thought is the organization of sensations into meaningful patterns. In their studies, they discovered principles of how this organization happens. These *Gestalt principles of perceptual organization* help explain how we distinguish forms on a two-dimensional canvas.

The Gestalt principles of perceptual organization describe how objects are grouped. These principles include continuity, closure proximity, and similarity. Each principle is described as follows.

Continuity (a.k.a. good continuation): We tend to perceive figures or objects as belonging together if they appear to form a continuous pattern. In Figure 7.12, most people perceive one zigzag line intersecting another curved line rather than two curved jagged shapes intersecting in the middle.

Closure (a.k.a. **connectedness**): We perceive figures with gaps in them to be complete. Most people are able to immediately identify a circle in Figure 7.13.

Proximity: We perceive things close together as belonging together in sets. In Figure 7.14a, we perceive columns instead of rows using the proximity of the dots.

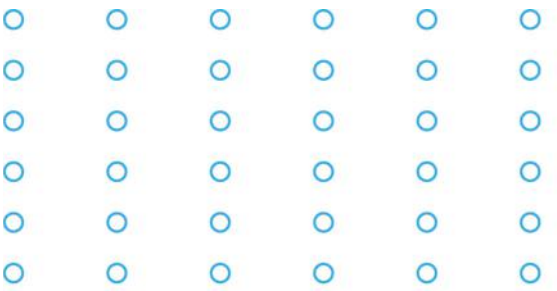
C. **The law of good continuation.** You will see a zigzag line with a curved line running through it, so that each line continues in the same direction it was going prior to intersection. Notice that you do not see the figure as being composed of the two elements below:

Look out the window at the branches of a tree, and focus on two branches that form a cross. You clearly perceive two straight lines, rather than two right angles touching each other.

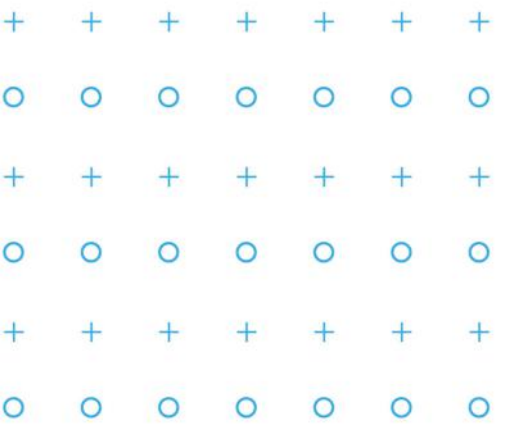
Figure 7.12 Most people see a zigzag line dissected by a curved line. It is assumed that the zigzag line continues along the same direction behind the intersecting curved line. One is unlikely to see two shorter zigzag forms that connect at the curved line, like in the following figure.

d. **The law of closure.** You will see a circle here, even though it is not perfectly closed. A complete figure is simply more tempting than a curved line! Now close this book and put your finger across one edge, focusing on the shape of the outline of your book. You should still see your book as complete, but with a finger in front of it.

Figure 7.13 Most people interpret this as a circle rather than a curved line, demonstrating a psychological tendency to perceive complete figures.



a. **The law of proximity.** You will see this arrangement as a set of columns—not a set of rows. Items that are near each other are grouped together. Now notice the typing in this book. You see rows of letters rather than columns because a letter is closer to the letters to the right and left than it is to the letters above and below.



b. **The law of similarity.** You will see this arrangement as a set of rows rather than columns. Items that are similar to each other are grouped together. Now look at the two words at the end of this sentence that are in **boldface type.** Notice how these two words in heavier print cling together in a group, whereas the words in regular, lighter print form their own separate groups.

Figure 7.14 In the top figure, most see a set of columns, not a set of rows, because the circles are placed closer together vertically. In the bottom figure, most see a set of rows instead of columns because the figures moving horizontally are similar to each other.

Figure 7.15 Mossy Forest by Joseph Koensgen.

Similarity: When we perceive figures that look alike, they are grouped together. In Figure 7.14b, we see alternating rows of dots and plus signs because the similarity in shapes groups the rows together.

These organizing principles are always part of our perception, not just in the context of examples like the previous figures. Consider how easily you separate the figure from the ground in Joseph Koensgen's *Mossy Forest* (Figure 7.15). Though the hues are similar, the mind easily uses the principle of similarity to distinguish the subtly unifying hues and patterns in the owl's feathers from those of the surrounding forest. Likewise, the proximity of the patterns (spots and lines) within those feathers is easily distinguished from those of the mossy branches as well as that of the bark. Using closure and good continuation, we easily infer the continuity of the branches and tree trunks despite the intersecting patterns of the owl and other branches.

Remarkably, this acrylic painting gives us a sense of depth within the two-dimensional space. How are artists like Koensgen able to achieve this? The answer is the next section on monocular depth cues.

NOTE-TAKING PROMPT: How are Gestalt grouping principles used in *The Human Condition* (in Figure 7.1)?

How Do We See a Three-Dimensional Image on a Two-Dimensional Canvas?

Another category of cues, *depth perception* cues (depth cues), inform how we perceive depth within a visual scene. The type we will discuss are collectively called *monocular depth cues (monocular cues)*, are signals of depth that can be perceived using only one eye. These cues are especially helpful in making forms on a two-dimensional canvas come alive. In contrast, *binocular cues* are cues that signal depth and must be perceived using both eyes. The following monocular depth cues are discussed as follows: interposition, linear perspective, relative size, texture gradient, atmospheric perspective, and shadows.

Interposition (a.k.a. occlusion) is a depth cue signified when one object partly blocks the view of another; the partially blocked object is perceived as farther away from the viewer. Consider Figure 7.16; no one has trouble determining which rectangle is closest to the viewer. This is because the edge of one rectangle interrupts the contour of the other.

Linear perspective: Parallel lines that are known to be the same distance apart appear to grow closer together, or converge, as they recede into the distance. Figure 7.17

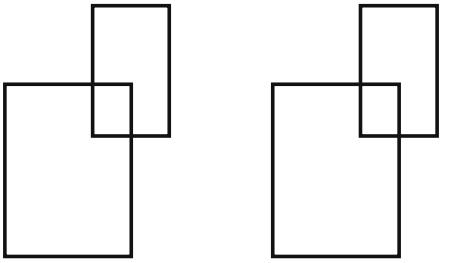


Figure 7.16 Example of interposition: In the figure, the rectangle interrupting the contour of the other appears closer to the viewer.

Figure 7.17 Example of linear perspective: the train tracks appear to recede into the distance as they converge. This photo also demonstrates texture gradient as the gravel is more distinct in the foreground and more blurry in the background, providing another depth cue.

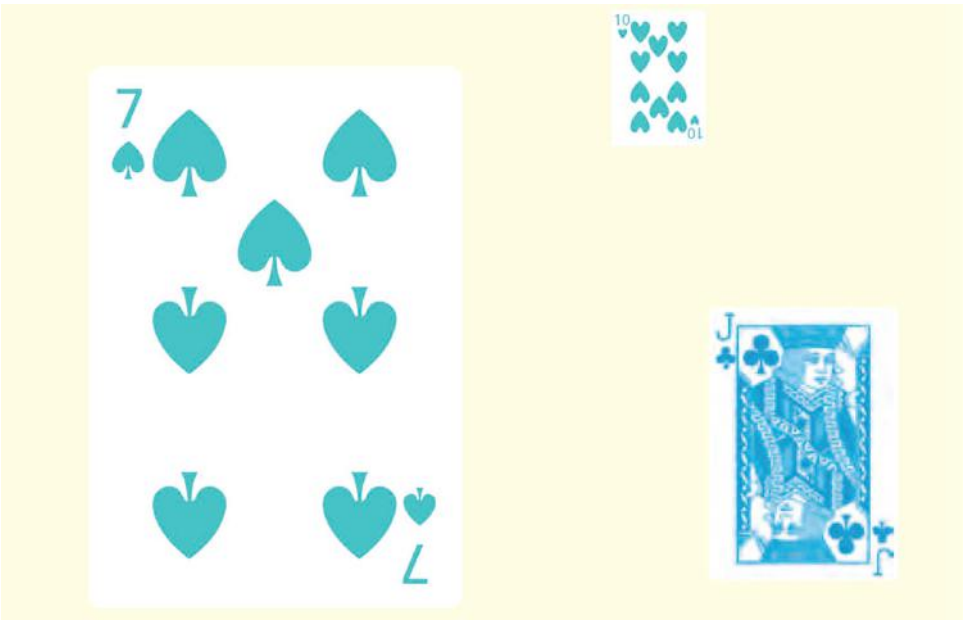


Figure 7.18 Example of relative size: the ten of hearts appears further away than the jack of clubs or seven of spades.

demonstrates this; the rails converge in the distance, indicating they are moving further away from the viewer.

Relative size: Larger objects are perceived as being closer to the viewer and smaller objects as being farther away. In Figure 7.18, the seven of spades isn't perceived to be huge in comparison to the other cards; it is perceived as closer to the viewer, whereas the jack of clubs is perceived as further away and the ten of heart as the furthest away.

Texture gradient: Near objects appear to have sharply defined textures while similar objects appear progressively fuzzier as they recede into the distance. Look back at Figure 7.17. The gravel near the viewer appears crisp and in focus, whereas the gravel in the distance is out of focus.

Atmospheric perspective: Objects in the distance have a bluish tint and appear more blurred than objects closer to the viewer. In Figure 7.19, the cones in panel (a) do not appear to recede as they do in (b). The gradual blurring of the upper row makes it look like they are more distant from the viewer.

Shadows: Shadows can provide information about depth because our visual system assumes the light comes from above, simply known as the *light from the above phenomenon*. Thus, in Figure 7.20, the circles with shade falling on the top appear concave with the light hitting the lower ridge of the circle, whereas the circles with shading on the bottom look convex with the light hitting the top.

In Figure 7.15, the painting by Joseph Koensgen shows us the owl is closer to the viewer than the branches through the principle of interposition; since the owl is the figure interrupting the branch, we understand that it is closer. Though it is subtle, a linear perspective may be visible in the single branches that happen to recede in the distance. The branches that are closer to the viewer appear larger in size, demonstrating relative

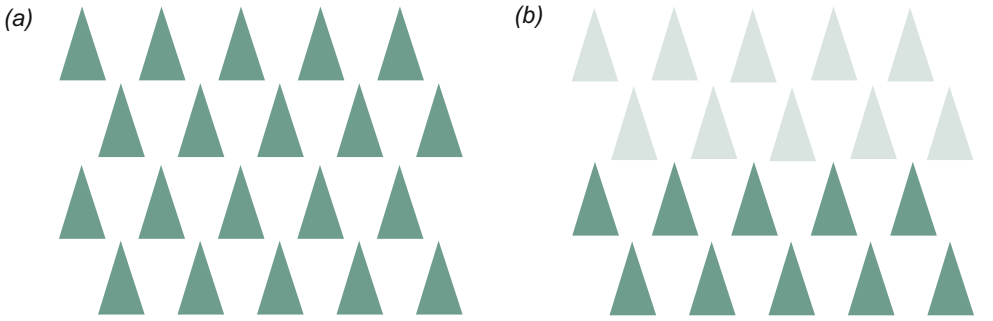


Figure 7.19 Example of atmospheric perspective: the shapes in panel a do not appear to recede into the distance, whereas the shapes in panel B do as a result of blurring the upper rows.

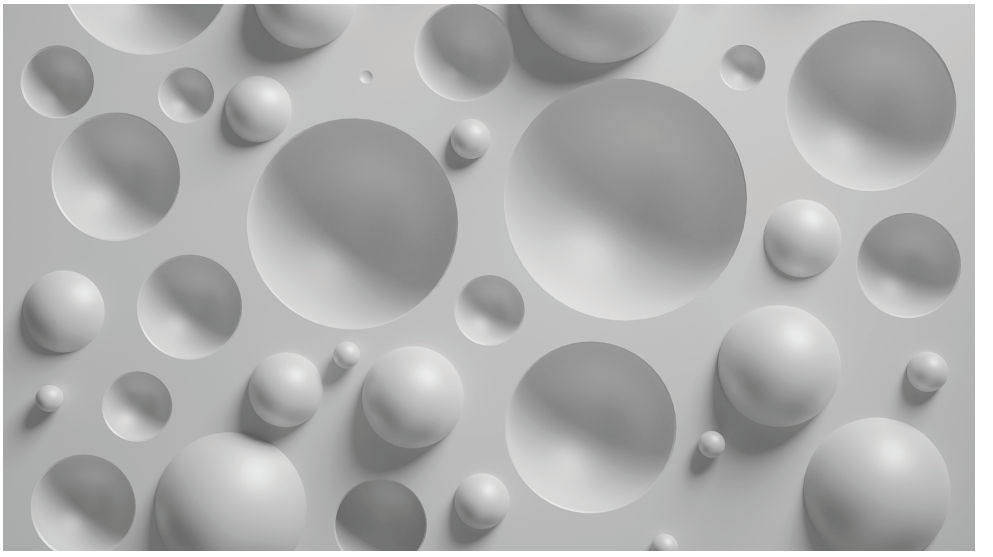


Figure 7.20 Example of how shadows produce a sense of depth. The circles with shade falling on the top appear concave, whereas the circles with shading on the bottom appear convex

Source: Reprinted from Wolfe et al. (2015).

size. Also, these nearby branches have a sharper texture than those in the distance, demonstrating texture gradient, and are blurred more as they recede demonstrating atmospheric perspective. Shadows appear on the underside of the branches with highlights on top, demonstrating the effect of shadow on depth perception. Collectively, all of these principles work on this two-dimensional canvas to create a sense of depth and bring us into this forest with the owl.

NOTE-TAKING PROMPT: How are depth cues used in *The Human Condition*?

What Is Color?

I don't think I am alone in saying that my aesthetic response to many of my favorite pieces of visual art is invoked by the masterful use of color. *Color* is also called *hue* – but to define it in ways other than a synonym can be difficult. This is because the scientific representation of color as wavelengths of energy is insufficient to fully explain the perceptual effect of color. We are always awash in electromagnetic energy moving around us in oscillating patterns at different rates. We describe the rate of this motion in terms of *wavelengths (λ)*, the distance from one peak to the next peak, measured in nanometers. One *nanometer* is one billionth of a meter (that is really, really small!) High-energy, rapidly cycling energy has short wavelengths whereas lower-energy, slower-moving energy has longer wavelengths. The full range of this traveling energy is referred to as the electromagnetic (EM) spectrum, portrayed in Figure 7.21. There is a huge variety of EM energy around us, but we can only detect a small range of this energy. For the range we can detect, the differences in wavelengths are perceived as differences in color. Crucially, what we are detecting is waves of energy, and *none of these waves are colors until our visual system detects them*. Put succinctly, without our eyes and brains, there is no such thing as color. Thus, color is the result of interactions among the length between peaks of EM waves bouncing off (or, in the case of screens, emitted from) matter in the environment, the anatomy and physiology of the visual system, and prior experience and context.

As represented here in Figure 7.22, the differences among the colors correspond with the variations in wavelengths. What we see as blue or violet corresponds with the shortest wavelength frequencies (380–470 nm), our perception of green and yellow corresponds with medium wavelength frequencies (550–600 nm), whereas we see orange or red when we detect the longest frequencies in the visible spectrum (630–760 nm), represented.

Again, we are awash in this EM energy, so how does this signify an object's color? Imagine a shiny red apple. When these waves interact with the apple, some frequencies are *absorbed* by the apple, and others are *reflected* off the surface of it. When we see an object as having a certain color, we are seeing the waves of EM energy reflected from the object. Thus, when we see this apple as red, we are actually seeing the fruit absorbing every wavelength *except* red (so, in a way, the apple is every color *but* red!). The red is reflected off the apple and detected by the cones in our retina. Within this context, a *spectrograph* is an instrument that can be used to measure the proportion of light reflecting off an object at various wavelengths. A *reflectance curve* charts the degree wavelengths are reflected from an object. Figure 7.23 demonstrates the results of a spectrograph to measure the wavelengths reflecting from various common surfaces. We can see that snow reflects the highest proportion of light across all wavelengths. We can also see that red

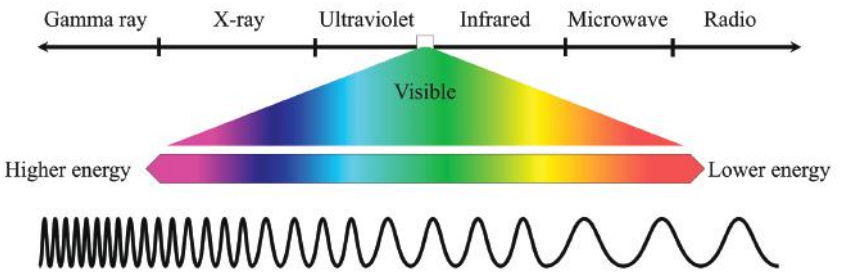


Figure 7.21 The electromagnetic spectrum – only a small portion consists of visible light.

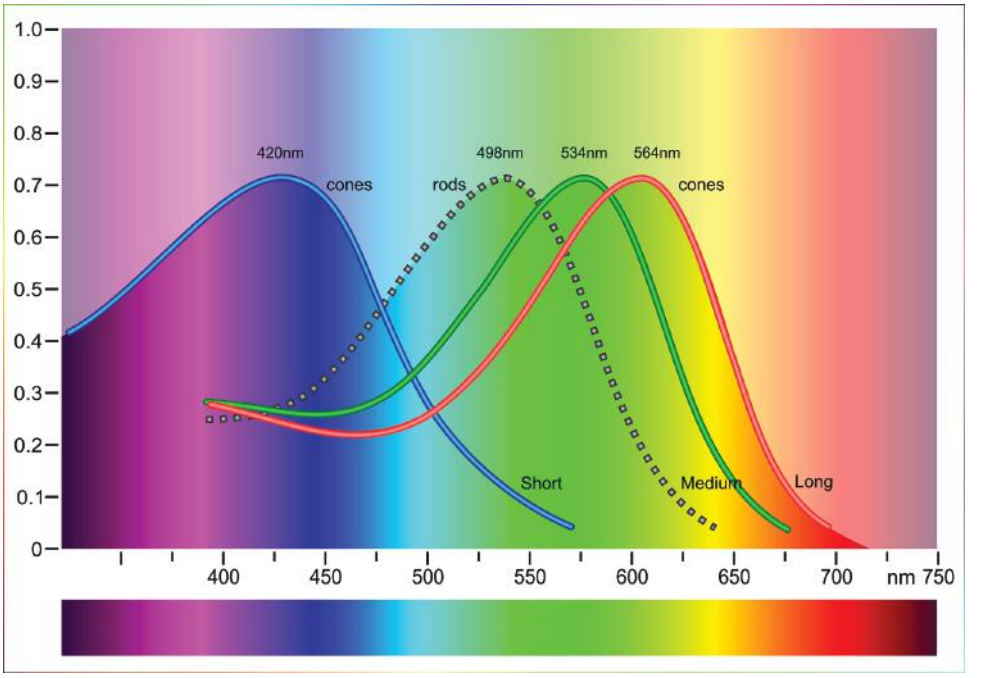


Figure 7.22 Differing wavelengths are detected as different colors. On the blue end of the spectrum, wavelengths are short, whereas on the red end, they are long.

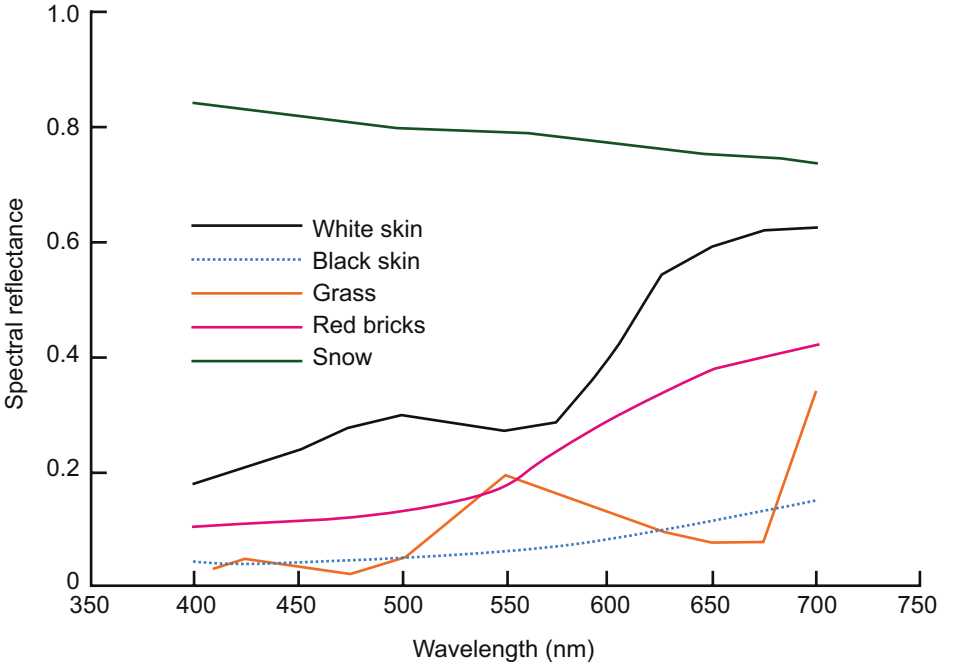


Figure 7.23 Spectral reflectance curve analysis reflected light from different objects.

Table 7.4 Subtle differences in colors activate the three cones at different frequencies. This table shows the relative activation patterns of brick red, red, and magenta.

Red Brick	*Bright Red Apple*	*Magenta*
Activates red cones at lower intensity	**Activates red cones at higher intensity**	**Activates the red cones and blue cones**

bricks are reflecting mostly longer wavelengths above 600 nm. In contrast, grass predictably reflects a lot of wavelengths around 550 nm. Also, we see that white skin is reflecting a higher proportion of light, whereas dark skin is absorbing more light across the spectrum, explaining how differences in skin tone are visually perceived.

We know now that the cones of our eyes do the work of detecting color – but there are only three types of cones! Yet, most humans can distinguish among *far* more than three colors. How does activity in just three cones allow for the magnificent variety of colors we are able to see and to discriminate subtle differences in color? First, the three kinds of cones correspond to detecting specific ranges of short, medium, and long wavelengths (abbreviated S-, M-, and L-cones, respectively). The ranges of each type are represented in Figure 7.22, with S-cones maximally detecting blue spectrum colors, M-cones maximally detecting green spectrum colors, and L-cones maximally detecting orange-yellow spectrum colors (though L-cones are often called red cones). Two pieces of information are critical to color perception. First, the frequency of firing from one type of cone, such as the S-cones – for example, are these cones firing at 100% of capacity or just 5% of capacity? Second, comparing the frequency of the response in one type of cone compared to the other two types of cones – in other words, the relative frequency of firing from each of the three types of cones allows us to see this colorful world and to distinguish ultramarine blue from ultramarine violet. See Table 7.4 to get a better idea of how this works.

Can You Mix All the Colors Together to Make White?

Yes, you can, but only if you are a graphic artist working with a computer or other source of emitted light to create color. If, however, you are a painter working with pigment, you will get black instead of white when you mix all the colors. In other words, light mixes differently than paint.

The combination of wavelengths in light is founded on the principles of an *additive color mixture system*. When colors are mixed in an additive system, they add *reflective* light. So, on a computer monitor, mixing green and red hues combines those wavelengths to create the perception of yellow by simultaneously activating both L- and M- cones. The fundamental colors of an additive color system are red, blue, and green (RBG). White results from all spectral wavelengths combined, as Isaac Newton discovered (with his prism) that the white light surrounding us actually contains all the colors of the spectrum. See Figure 7.24.

Primary colors are the minimum number of colors that can generate all the possible colors when mixed. Primary colors are not easily created through color mixtures; in fact, a "true" primary would be unable to be created through mixture. In a limited palette, you can use three primary colors to create a wide range of other colors.

Purple is sort of an odd color – the wavelengths at the lowest end of the visible light spectrum would produce purple (spectral purple is usually called violet, but this is applied very inconsistently across disciplines and conversation). Additionally, purple can be mixed by combining hues from each end of the spectrum: blue and red.

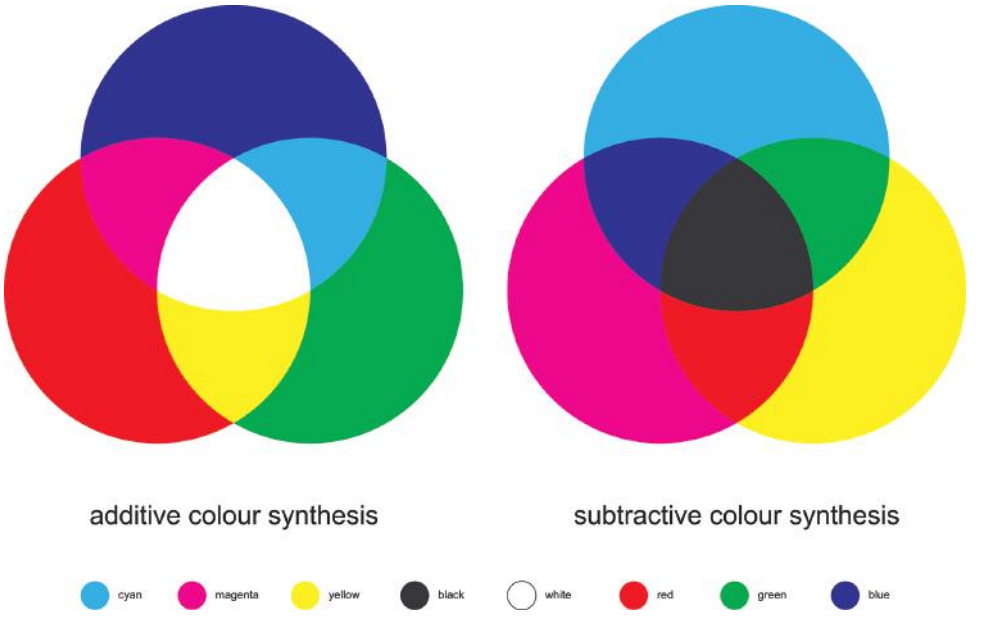


Figure 7.24 Additive versus subtractive color mixing.

Pigment, on the other hand, uses a *subtractive* color mixture system. When pigments are mixed, they add but the *absorbed* wavelengths of each rather than the reflected light – so, the reflections are effectively canceled out or subtracted. Remember when you were taught that the primary colors were red, green, and yellow? Here's the astonishing truth: The primaries of a subtractive color system are more accurately cyan, magenta, and yellow, as many who need to replace their inkjet printer cartridges know! Black is the result when all three are mixed, and so, all wavelengths are absorbed by the object or canvas. White is perceived when all light is reflected rather than being absorbed. One reason art students sometimes have a hard time learning to mix colors is that the foundation of RBY for pigment is not optimal for a subtractive color scheme. It is easier to use CMY as the primary colors for a wider range of rich, bright color mixtures (Eckstut & Eckstut, 2013). Try phthalo blue for cyan, quinacridone rose for magenta, and lemon yellow for a cool and bright color palette. Figure 7.24 compares the additive and subtractive color systems.

From a scientific standpoint, why are CMY better colors for a subtractive color system? You can see that on a color wheel, CMY are the colors right next to RBG. In essence, these represent the opposite of the optimal primary colors for light. Because now we need to think about absorbencies rather than reflectance, we find that cyan absorbs red light most efficiently; yellow absorbs blue light most efficiently, and magenta absorbs green light most efficiently.

NOTE-TAKING PROMPT: Contrast the additive color mixing system with the subtractive color mixing system. Why are the primary colors different for each?

Do Colors Have a Psychological Effect?

The colors we see are heavily influenced by context. For example, in the image that follows (Figure 7.25), both of the orange (middle) circles are exactly the same color. This is one of many visual illusions that explores the effect of context on perception. Our visual system compares the each square to its surrounding circle and exaggerates the differences between them. This is an example of *simultaneous contrast*, or the way in which two colors affect each other when occupying the same space or are in close proximity to each other. It is a contrast effect specific to color.

Another way context affects color perception is through *color constancy*, the perception of a color as the same despite changes in the surrounding light that alter the physical representation on the retina. We know that bananas are yellow, unless you are a visual artist – in which case you know they can also be green or brown or grey depending on the context. Even if no yellow wavelengths are hitting our retina, we see yellow because our visual system imposes constancy in ambiguous situations. In Figure 7.26, you can see how an artist would have to move past this psychological imposition to paint the banana with accuracy.

Psychological Effects of Single Colors

Do you feel calmer in a blue room versus a red one? The psychological effect of various hues is most likely due to the associations we have with those colors in memory. Though this varies widely across individuals, many associations are common to most humans. For example, most people associate fire with red-orange-yellow hues and water with blues and greens. Cathy Malchiodi (2007) summarized these common associations, as presented in Table 7.5. Initially, she created these as a way to prompt self-expression in art therapy, so this is not a list meant to apply universally. Rather, it is a prompt to think about the common associations we have to various hues and how this may affect us individually as we experience these colors.

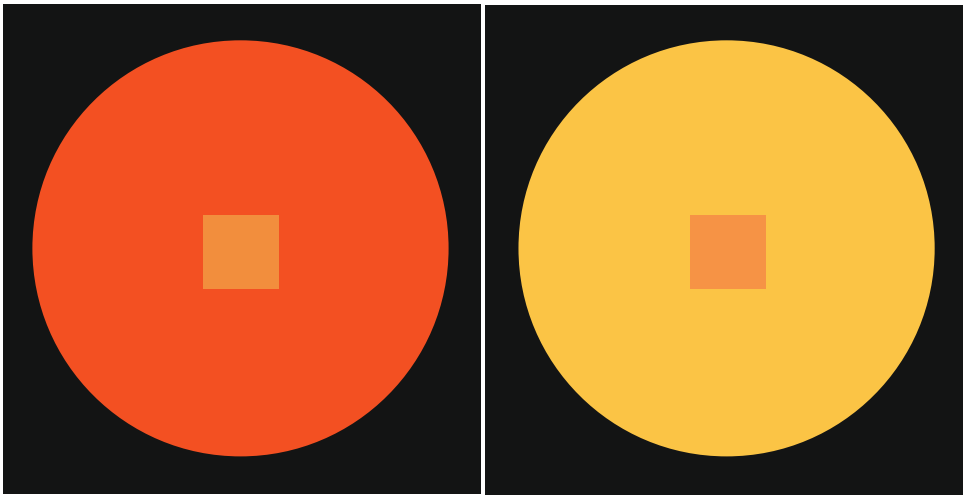


Figure 7.25 Simultaneous contrast: the square in the middle is the same color though it appears different with different surrounding contexts.

Figure 7.26 Though we might see each banana in each photo as yellow across its surface, we can see from the isolated squares this is not the case. Reproduced with permission from Marla Baggetta, PaintingLessonswithMarla.com.

Table 7.5 This table is adapted from Malchiodi's 2007 book. According to Maldiochi and many others, the associations we have with any color varies enormously depending on several contextual factors including culture, interest, education, and mood.

Common Color Associations (Malchiodi, 2007, p. 158)	
Red	Warmth, love, passion, birth, heat, life, blood, fire, wounds, anger
Orange	Harvest, warmth, energy, power, fire, misfortune
Yellow	Sun, light, warmth, wisdom, intuition, hope, energy, riches, masculinity
Green	Earth, fertility, vegetation, nature, growth, envy, overprotectiveness, creativity
Blue	Sky, water, sea, heaven, spirituality, relaxation, calm, nourishing, loyalty
Violet	Royalty, spirituality, wealth, authority, death, imagination, attention, excitement, paranoia, persecution
White	Light, virginity, purity, moon, timelessness, resurrection, clarity, loss, enlightenment, creativity
Brown	Fertility, soil, sorrow, roots, excrement, dirt, worthlessness, new beginnings
Black	Darkness, emptiness, mystery, beginning, unconsciousness, depression, loss, death

NOTE-TAKING PROMPT: When you look at the colors listed in Table 7.4, do you subjectively experience any of the previous responses to these colors? How do alterations occur with contrast and value? How does brightness influence your emotional response or trigger the associations you have with these colors? Do colors affect your emotional response to the Magritte? How do colors affect your response to your favorite works of art?

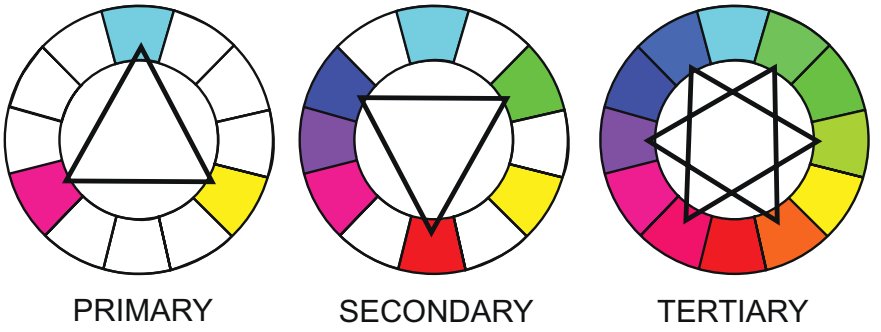


Figure 7.27 Color theory with CMY as primary colors.

Effects of Colors Working Together: Color Schemes and Color Theory

A *color wheel* (represented in Figure 7.27) can be used to represent the relationships among the spectral colors. Instead of linearly, the colors of the visual spectrum can be placed along a wheel and divided equally into hues (typically 12). This wheel can be used to create a pal ette with optimal color harmony and induce desired psychosocial effects. For example, when you want something to stand out, use *complementary* colors or the opposite colors on the wheel. As a case in point, red-green and purple-yellow combinations tend to "pop." If, however, you want something with a little less "pop," you could choose *a split-complementary scheme*. To create this, choose a color, find its opposite, then choose the two colors next to that opposite color. So, you might have a palette of blue, yellow, and orange. If you want a more harmonious, tranquil look, choose *analogous colors* – that is, colors right next to each other on the wheel. So, you may choose a range of blues and greens for a soothing feel to a composition. A *triadic color* scheme includes three colors equally spaced apart on the color wheel, like purple, orange, and green. This creates a more vibrant look. Square and rectangular color schemes can create a nice balance but work especially well when one of the colors is dominant. Examples are presented in Figure 7.28.

NOTE-TAKING PROMPT: Look at the Magritte in Figure 7.1 as well as some of your favorite paintings. Can you identify the color schemes used? Do you think the color scheme has a psychological effect on each painting?

Beyond Color: Saturation's (Chroma) Effect on Emotions

Saturation or chroma refers to the purity of a color's hue, moving from achromatic values (white, gray, or black) to the pure hue. Figure 7.29 presents a saturated red on the right with increasingly desaturated at various levels moving to the left. As you can see, a highly saturated (or chromatic) hue corresponds to a strong color, whereas the more white, grey, or black added, the more desaturated the hue becomes. Many researchers have found that saturation has a stronger effect on psychological response than hue (Gao et al, 2007; Suk & Irtel, 2010; Wilms & Oberfeld, 2018). For example, Wilms and Oberfeld (2018) found that more saturated hues corresponded to stronger emotional arousal, as measured by both self-report and amplitude of skin conductance.

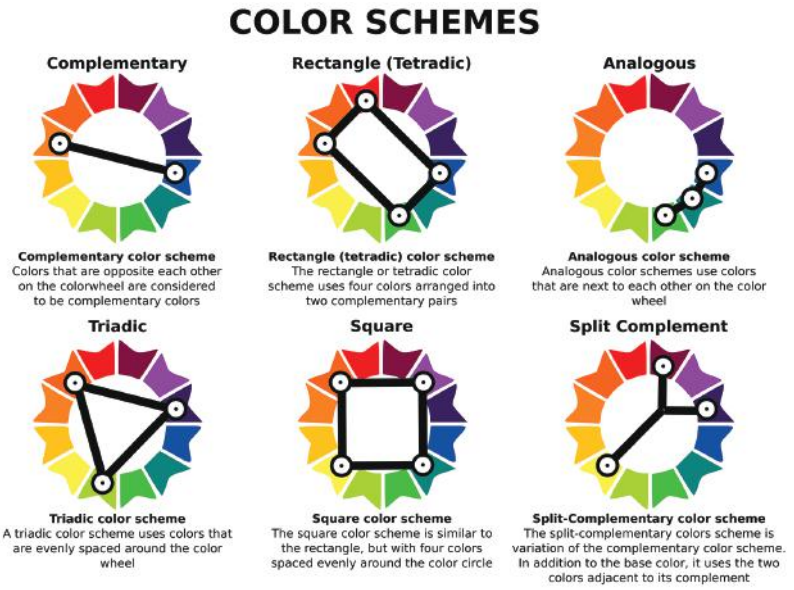


Figure 7.28 Various color schemes and the effect they frequently have on the viewer.

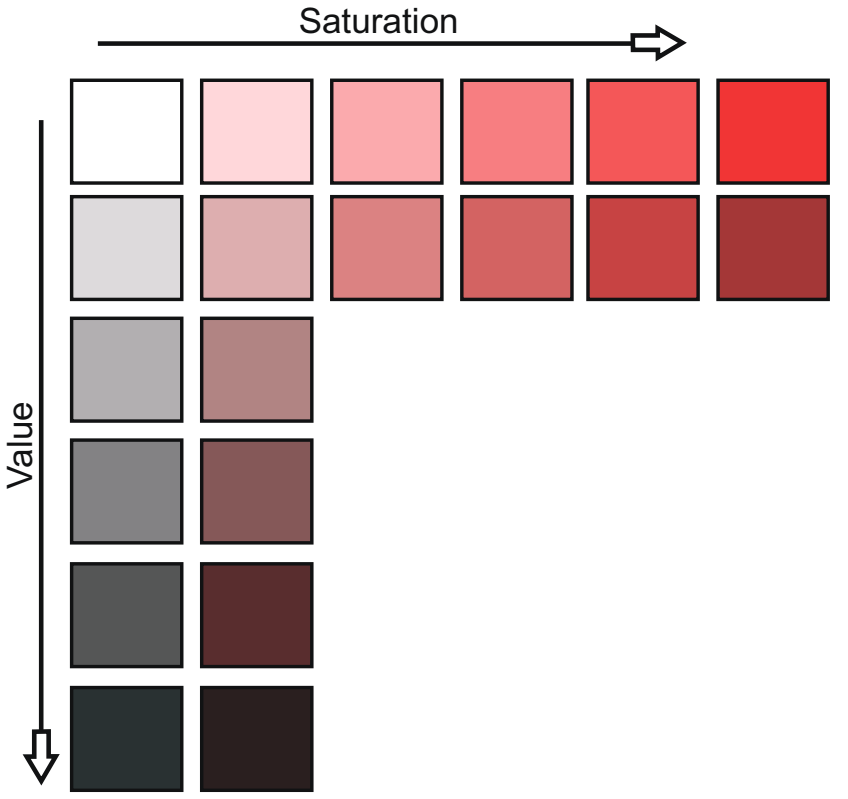


Figure 7.29 Example of saturation tones from highly chromatic/pure red to grey

Conclusion

When we look at a work of art, our nervous systems engage in considerable back-end processing at a subliminal level before we can even before we say the word "art"! Our visual system scans for boundaries and patterns and works to impose stability by sharpening contrasts between objects and extending constancies within them. Detailed information, including color and object identification is analyzed in one part of the nervous system, separated from the system, whereas specifying the depth and spatial layout of the work. Our eyes dart around the canvas on an autopilot mode as we construct a mental image of the work using information from these two interconnected systems. From this process, our perception formulates the construction of the mental image; this includes its relationship to the memories it invokes and our interpretation of the piece, as well as how these change over time. This process of integrating what we see with memory, context and interpretation is the subject of the next chapter, following the stages of Leder and Nadal's (2014) model, as previously discussed.

NOTE-TAKING PROMPT: Put a photo into a photo application or even a word processor and play with the saturation settings. How is the image affected by these changes in saturation?

This Chapter Both Starts and Ends with an Exercise

This chapter was written about the perceptual processing of two-dimensional, stationary visual art. Think for a moment how this model may apply to other art forms; maybe do some research before reading on. What are the basic perceptual elements of music, poetry, literature, performance, film, fashion, architecture, and so on? How do bottom-up and top-down processes influence the perception of these media? What elements of these pieces may be foundations in forming an aesthetic response?

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8 Cognitive Processing of Art

What You Will Learn

We know when we like art, but what thought processes occur that inform that sense of liking? In this chapter, we will explore how previous knowledge and experience inform our aesthetic response and how aesthetic experiences are built from cognitive engagement. This chapter will take you through how initial impressions are formed in response to art, how the cognitive system classifies art with respect to past experiences, and how we come to the point of a sense of understanding about an artwork. Further, we consider possible responses to challenging art – art that disturbs our expectations or is not easily classified.

Chapter Outline

Terms to Identify as You Read

Arousal Potential	**Cognitive Dissonance**
Collative Properties	**Conceptual Fluency**
Descriptive Titles	**Disfluency Reduction**
Ecological Properties	**Elaboration**
Elaborative Titles	**Encoding**
Episodic Memory	**Eudaimonic Responses**
Explicit Memory	**Facial Electromyograph (Femg)**
Familiarity	**Fluency Theory**
Golden Section	**Hedonic Responses**
Implicit Memory	**Links**
Long-Term Memory (LTM)	**Maintenance Rehearsal**
Mere-Exposure Effect	**Node**
Perceptual Fluency	**Pleasure-Interest Model of Aesthetic Liking (PIA)**
Priming	**Principle of the Aesthetic Middle**
Psychobiological Theory	**Psychophysical Properties**
Rehearsal	**Retrieval**
Retrieval Failure	**Salient**
Schemas	**Script**

DOI: 10.4324/9781003014362-8

Terms to Identify as You Read

Semantic Memory	**Semantic Space**
Sematic Network	**Spreading Activation**
Storage	**System 1**
System 2	**Typicality**
Visual Dissonance	**Working Memory (WM)**
Wundt Curve	

Where Does Knowledge Come From?

Understanding Memory and Cognition in Forming an Aesthetic Response

What goes on in our mind as we find some art pleasurable and rewarding but not others? Before starting the reading, consider the portrait that follows.

NOTE-TAKING PROMPT: Consider this image (Figure 8.1). Does it evoke any particular memories or feelings? Do you find it pleasant? Or disturbing? Interesting? Can you say why? What if you found out the title of this work is *The Modern Mona Lisa*? Do any of your answers to the previous questions change at all?

This chapter is about how knowledge and mental processes influence the aesthetic experience of art. We begin by exploring the nature of memory and distinguishing among types of mental processes. Then, we apply this to the experience of art, primarily visual art.

Memory is simply present moment awareness of something one has experienced in the past. Think of how often you rely on your knowledge and your prior experience as you navigate the world. You know how you get to your house because you have been there several times before, you know to order vanilla versus chocolate because you have tasted both before, how you tie your shoe because you have gone through the process before. You know the capital of France, your mother's maiden name, your best friend's face, and many, many other things because you have experienced them in the past and can use that knowledge in your experience of now. Congratulations! You know so much!

When we think about something, there is a corresponding pattern of neural activity distributed throughout the brain. Thinking about your best friend's face involves activation of a specific pattern of neurons in the occipital, temporal, and frontal lobes. Thinking about your brother's face activates a different pattern across these areas. Remembering how to tie your shoes, an entirely different kind of memory, involves activation patterns in the hindbrain and parietal and frontal lobes. Thus, memory can be described as a pattern of activated neurons across the brain.

Neurologically, memory is preserving a certain pattern of neural activity over some period of time. There are many types of memory corresponding to these patterns. First, *working memory (WM)* is the pattern of activity that is available to conscious awareness at a given moment. Thus, a certain neurological pattern is preserved while you are focusing on it (long enough to write it down or to solve a problem, for example). WM is quite limited in capacity; you can only hold a certain amount in awareness at a time. WM is

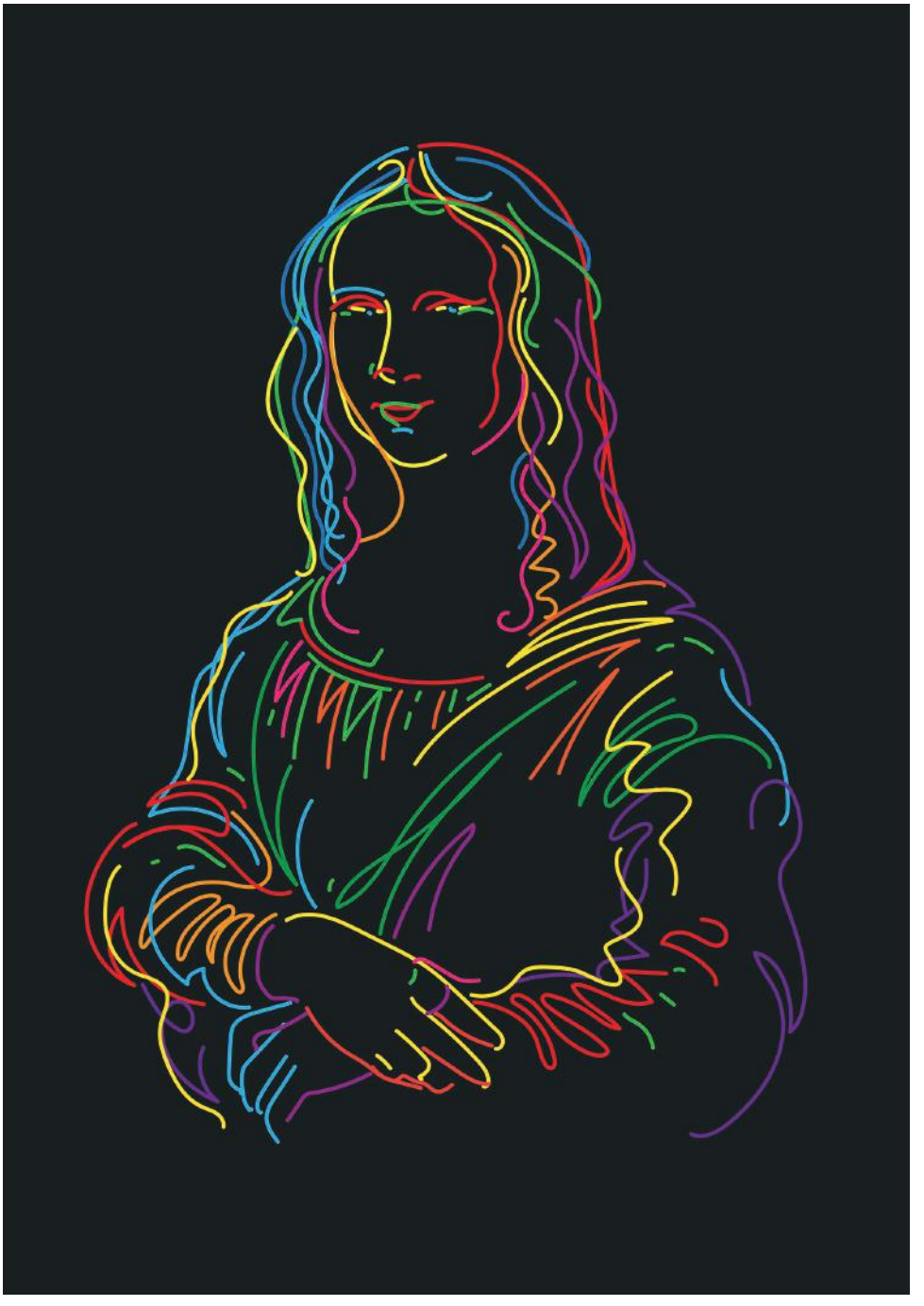

Figure 8.1 A digitally altered photo entitled *The Modern Mona Lisa*.

distinct from *long-term memory (LTM)*, a system of memory that stores this pattern over a long period after it has left conscious awareness and must be retrieved when needed. How does this happen? There are three aspects of LTM:

- **Encoding**: the process of getting the information into LTM
- **Storage**: preserving the information over time
- **Retrieval**: the process of getting the information back into working memory when needed

There are many ways to facilitate encoding, but two established ways are *rehearsal* and *elaboration*. Rehearsal occurs when a pattern of neural activity reoccurs. One way of rehearsing something is by repeating something to yourself over again to remember it. For example, if you needed to remember Leonardo da Vinci's original *Mona Lisa* for an art history course, you may repeat to yourself, "Leonardo da Vinci, *Mona Lisa*, 1503. Leonardo da Vinci, *Mona Lisa*, 1503," and so on. This is called *maintenance rehearsal* – you are simply maintaining the pattern you wish to remember in awareness for a short period. A similar way to rehearse is by reimaging the stimulus; in this case, you may visualize the portrait in your mind. Also, you might actually go back and study the image itself; in this case, you are literally reexperiencing it. These are all examples of *passive processing*, but there is a better way to make sure you remember something: *active processing*. This is when you do more than simply hold something in memory: You do something to actively think about it. *Elaborative rehearsal* is an active method of processing and our second method of encoding. Through *elaboration*, the stimulus is processed in a meaningful way. For example, if you thought deeply about what da Vinci's portrait means to you, how it is connected with and different from other styles of portraiture, and what you like and don't like about it, you would be much more likely to remember it because you would be engaged in an active process by asking questions and making explicit connections with your previous knowledge. Elaboration has been shown to be a far better method of encoding than maintenance rehearsal.

Once a pattern is stored in memory, the encoded information is preserved over time. The real trick, however, is retrieving this information at the right time and place. You know this is the case if you have ever taken a test and *knew* the answer but could not remember it right at that critical moment – i.e., you know what a *retrieval failure*, an inability to retrieve crucial information when you need it, is like. One way to avoid a retrieval failure is to recreate some of the conditions of encoding. For example, if you are trying to think of when da Vinci created the *Mona Lisa*, you may call to mind the details around seeing it in Louvre, the smell of the coffee you had the morning your made the trip to the museum and the sounds of the people speaking in different languages around you as you all made your way through the museum. These aspects of memory are at work in memory for all contexts, but we will specifically look at how they operate with respect to visual art.

NOTE-TAKING PROMPT. Distinguish between encoding, storage, and retrieval. Think about some works of art you have encoded through each method: a piece you used maintenance rehearsal to remember later and a piece you really took time to elaborate on and think deeply about. Is the quality of your memory different for each piece? If it is, how so?

LTM can be further divided into episodic memory, semantic memory, and procedural memory. *Episodic memory* is memory for events: such as the time your dad took you fishing, your first Christmas away from home, or the process of cooking dinner last night. These are memories tied to a specific time and place. Over time and with enough repetition across contexts, information can transfer from episodic to *semantic memory*. Semantic memory is memory for concepts and facts – i.e., your knowledge about the world. For example, I just know who da Vinci is, but I don't remember where or when I learned this information. It is just part of my knowledge of the world, and this is the realm of semantic memory. Finally, *procedural memory* is memory for how to automatically do something, such as ride a bike or tie your shoe.

Organization of Semantic Memory: Network Models

How is all the information we have about the world organized in a way that we can retrieve it when we need it? All of our conceptual knowledge is stored in a vast interconnected network called a *semantic network*. An example is presented in Figure 8.2. We can think of each concept we have in memory as represented by a bubble, called a *node*. Each of these nodes, or concepts, is connected to surrounding nodes through *links*, represented by lines or arrows. The closer together nodes are in the *semantic space*, the more related they are to one another. Also, more related concepts have less intervening nodes between them. Nodes are activated by a stimulus, such as a sensation, a thought, or by reading words on a page as you are now. Every time a node is activated, the nodes linked to it are activated as well, but those nodes are slightly more weakly activated than the first ones, and the next layer is even more weakly activated and so on through a process

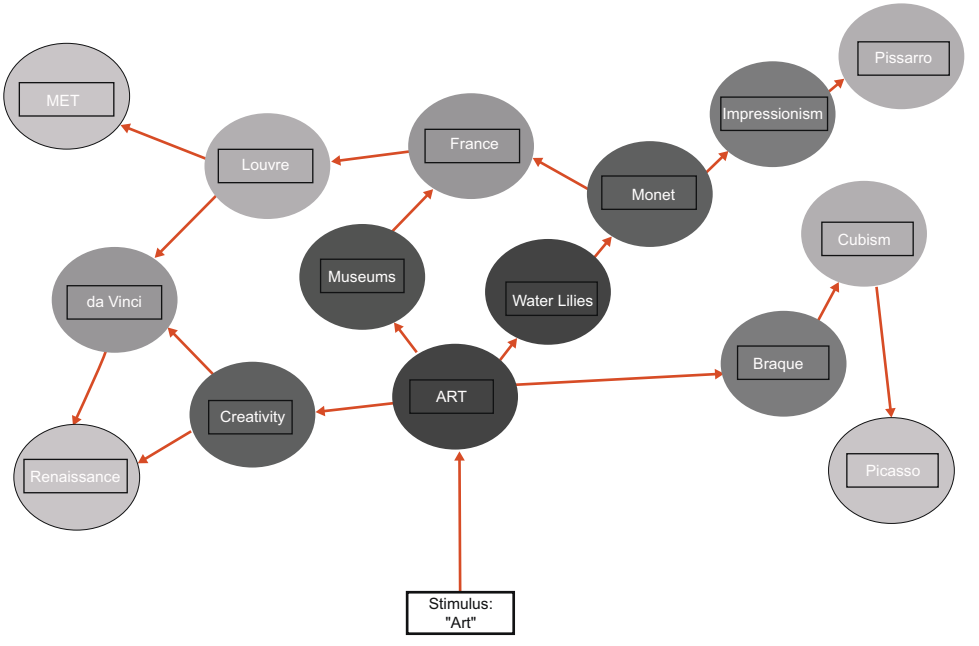

Figure 8.2 Semantic network of possible activations by the stimulus word "art." Stronger activations are darker, whereas weaker activations are lighter.

called *spreading activation*. Thus, some ideas are very strongly connected such that activating one concept almost immediately activates the related concept. These are represented by shorter, more direct links, whereas more distantly related concepts are represented by longer links with more intervening nodes.

Importantly, our experiences very much shape the structure of our individual semantic knowledge network, such that if someone says "art," what is activated for me may be very different from what is activated for you, and so on. In this way, our mental representations of art, or any other concept, can differ dramatically from one another. In addition, the associations within one's LTM network are changing throughout the lifespan, so your semantic representation of art is likely to be very different now than it was five years ago and will continue to be different five years from now.

Let's look at an example of what happens when someone says the word "art" using Figure 8.2. After hearing this word, ideas or nodes associated with the word are immediately activated. If the artwork this person is most familiar with is Monet's *Water Lilies*, this piece may be strongly associated with their concept of art. If you were to do a word-association task with this person represented in Figure 8.2, to the word "art" they might say "*Water Lilies*, museum, creativity, Renaissance, da Vinci." Furthermore, studies in cognitive psychology have routinely found the following:

- If you were to ask them to verify the sentence "*Water Lilies* is an example of art," they would do it very fast.
- If you were to ask them to verify the sentence "Impressionism is an example of art," they would be slower.
- If you were to ask them to verify the sentence "Pissarro is an example of art," they would do it even more slowly.

Thus, as Shimamura (2013) points out, our brains are always attaching memories to our sensations. In other words, as we experience our environment, we use this network to connect this experience with prior ones and generate labels for our concepts: "cat," "chair," "art," "impressionist," "dada." Also, this networked database of all our knowledge is altered every time we have an experience, and this is how we are able to build internal, interconnected patterns of concepts and categories. Every time you retrieve information from this network, you strengthen some associations and weaken others; every time a pattern is activated, it is strengthened. The more you experience art, learn about, create it, think about it, and remember it, the more associative links are created and modified.

NOTE-TAKING PROMPT: What do you think your activation model of art is like? Create your own network model of art using Figure 8.2 as a template. What nodes do you think are most strongly represented for you when you think about this concept? How do you think your network representation has changed over time?

Organization of Semantic Memory: Schemas

Another way of describing how LTM is organized is through schemas and scripts. *Schemas* are patterns formed in long-term memory based on stimuli that are frequently

Figure 8.3 Brewer and Treyens (1981) experiment. After viewing the photo on the left, people were much faster to identify the image.

encountered together so often that they form a generic representation of something (see Schank, 1999). For example, think of a kitchen: Most people have experienced enough kitchens to have a "kitchen schema," a generic representation of a basic kitchen. Although few people reading this have been in *my* kitchen, it is easy to guess that I have a refrigerator, sink, utensils, etc. If I say "I was in my kitchen thinking about this chapter," many will mentally activate these items in memory even though they have never seen my specific kitchen. An interesting fact about schemas is that people often really *believe they remember elements that they never actually experienced* because those elements are a part of the schema activated by that experience. For example, say you had stopped reading this book at the previous sentence. Then, later someone asks you if I explicitly mentioned a stove in this chapter. You might say, "Yes, actually I do recall reading about a stove." But it is a common cognitive psychology trick! You read about a kitchen, and some kitchen-schema items were mentioned – but not the stove. Several studies have shown that, when tested, many people believe they experienced schema-activated items that were not present. In one famous experiment by Brewer and Treyens (1981), participants were shown to a professor's office, shown in Figure 8.3, then asked to recall as many items as they could. Following this, they were asked to identify from a list of 131 objects which objects were in the office and which were not (61 were present in the photo and 70 were not). The authors found that schema-congruent items, like the brain and the bulletin board, were more frequently recalled, whereas schema-incongruent items, like the frisbee and screwdriver, were not recalled as frequently.

This also applies to frequently performed activities like going to a restaurant, referred to as a *script* – i.e., the key difference between scripts and schemas is that scripts are specific to a sequence of events, whereas schemas can be any concept. For example, most people

have gone to restaurants so often that they have developed a "restaurant script." The actions in a restaurant script include being seated, looking over a menu, telling the waiter your drink order, eating, and so on. If your friend says she went to a restaurant, you don't ask if these things happened because you assume they did, and you represent them in your mind to such a degree that if you were asked if she literally said "We were given menus," you may not be able to remember if it was mentioned or just a part of the usual restaurant script. We have several scripts in long-term memory, such as going to the doctor's office, getting ready for work, renting a car, and so on.

NOTE-TAKING PROMPT: Distinguish scripts from schemas. Give examples of each that apply to your own life.

Explicit/Implicit Memory Systems

Most of what we have been discussing has been under the umbrella of explicit memory. *Explicit memory* is deliberate recollection of information learned. It is also called *declarative memory* because you are able to verbalize it relatively easily. Furthermore, in explicit memory, you are consciously aware of what you are trying to recall. In contrast, *implicit memory* (a.k.a. *non-declarative memory*) is when some previous experience influences your response to a situation, but you are not aware of the influence of the previous experience. For example, procedural memory is not easily described, and you perform these behaviors you have learned in the past without having to think about what you are doing. *Procedural memory* is memory for how things are done – for example, how to ride a bike, how to mix watercolors, how to tie your shoes. Oftentimes, procedural memory is hard to verbalize. It is difficult for me to describe exactly how I ride a bike or drive a car; I just know how to do it! Procedural memory is part of your implicit memory system.

Mental Processes of System 1 and System 2

Nobel Prize winner Daniel Kahneman (2011) articulated a dual-processing system for cognition; we process our experiences through two independent yet interacting systems: The first is automatic, implicit, quick to react, and not worried about accuracy, called *System 1*; the second is deliberate, explicit, slow to respond, and is able to consider multiple aspects of the situation in question, dubbed *System 2*. Refer to Box 1 for a summary.

System 1: Automatic processing, fast, requiring little to no effort, person has no control over the process or outcome, not verbalized

System 2: Deliberate processing, focused attention is given to the elements that require effortful processing, under conscious control and able to be verbalized – this is where we ask why, why, why!

Box 1. System 1 versus System 2 properties Kahneman (2011)

You may have favorite works of art that initially disturbed, disgusted, or perplexed you – in other words, your first impression might not have been a favorable one, a response

enacted by System 1 that is heavily influenced by previous experience. However, with time, thought, and experience, you have grown to appreciate the piece on a profound level. How our memories and cognitive systems function helps us to understand our responses to art. We will begin with our very first impressions of a piece in the next section.

How Do We Form Our First Impressions About Art?

Implicit Memory Integration Stage

Consider once again looking at Figure 8.1 and reflect on how familiar you are with the work and style of the piece. If this style is very unfamiliar to you, you may not immediately like the piece. The title *The Modern Mona Lisa* makes the image connected with a style and image most everyone is very familiar with. Because there is such a discrepancy between this style and the image in question, this connection may be intriguing for some or simply confusing and off-putting for others. This is the subject of the next few sections: How do we go through this process of feeling comfortable with familiar art? Rather, how might we, at first, experience discomfort with unfamiliar art - then discover interest in the piece as we form new mental connections?

In this early stage of mentally processing a work of art, we will form an impression on the basis of an intuitive, System 1 response. How we respond here will likely be driven by our familiarity with the piece itself or with the general style of it. This familiarly contributes to *processing fluency* (often just called *fluency*), which refers to how easy it is to cognitively process the artwork. Reber (2011) discussed aesthetic preferences in the arts in terms of *fluency theory*. He advanced the idea that when information is easy to identify and access, it is comforting and rewarding to the individual. In other words, people prefer things they easily understand, and this can be seen across the arts. There are two kinds of fluency: conceptual and perceptual fluency. *Conceptual fluency* refers to the ease with which meaning can be derived, whereas *perceptual fluency* refers to the ease with which forms and patterns are identified. The mechanisms of this stage are not likely to become conscious, yet they affect aesthetic processing by prompting a general sense of like or dislike.

A well-documented, robust, and consistent psychological phenomenon is called the *mere-exposure effect*: We tend to gravitate to things we have experienced before (Zajonc, 1968). The mere exposure effect has shown time and again that just being exposed to something in the past predisposes people to like it, *even* in cases where they can't consciously remember having seen it in the first place. This effect works for things that have no inherent meaning for us; for example, Zajonc (1968) used Chinese characters and asked English-speaking participants to guess whether the symbols represented positive or negative concepts. If the symbol had been previously seen by the participant, they were more likely to rate the symbol as likely to be positive in nature compared to a symbol they had not seen.

This effect has been empirically applied to visual art. In one famous study, Cutting (2003) investigated impressionists' work with high versus low media exposure. The author first determined the frequency of each piece by counting the number of appearances in art books. Next, he created 66 pairs of images using one high-frequency painting paired with one low-frequency painting by the same artist, during the same era, and same genre (such as landscape, portrait, etc.). He showed these to college students and found that the high-frequency paintings were preferred over the low frequency paintings. Furthermore, children aged 6–9 years did not show such a preference since they have not had the same

level of exposure as adults, increasing the likelihood that familiarity motivated the results since children of that age would be unlikely to have the same frequent exposure to these famous pieces as the adults in the study.

In a second experiment, Cutting directly manipulated the presentation of these pieces himself. During his classroom breaks, he presented images of works previously established as low-frequency images four times more often than the high-frequency images. This wiped out the frequency effect, leaving them equally liked among his students. Cutting concluded from these experiments that the mere exposure effect is at work in fostering feelings of like and dislike among works of art.

Repetition priming (simply called *priming*), refers to the cognitive effects of repeated exposure to a stimulus and is responsible for the mere exposure paradigm. One of the primary cognitive effects of priming is a reduction in subsequent processing effort. As Shimamura (2013) explains, priming results in a reduction of brain activity because with repetition, the neural pathways activated by the stimuli become more strongly connected. It works something like this: The first time you look at a piece, your brain must work hard to associate sensory, emotional, and semantic information together for the very first time, requiring effort. Upon viewing it a second time, it is easier for your brain to retrace the previously established connections. With each subsequent view, it gets a bit easier so that at some point, activation of this pathway is effortless and automatic. What is remarkable is that these paths are accessed more easily even if you don't consciously remember the work. For example, Johnson et al. (1985) found that priming of unfamiliar melodies to those with Korsakoff's syndrome, a form of *anterograde amnesia* that makes it impossible to form new, explicit memories, yielded preference for the melody after they heard it although they didn't consciously remember hearing it.

If Fluency Theory Is Correct, Why Do Many Prefer Challenging Art?

You may be thinking about some of your favorite art or simply about some famous art and recognizing that the theory doesn't fit into examples of highly complex, exquisitely novel, even grotesque, brain-challenging pieces! Maybe you love Figure 8.1 because it has made you think about portraits in a new way or made you look up different styles of digital art you were previously unfamiliar with. It certainly doesn't seem to be the case that all art we enjoy is easy to process. It even seems to contradict the appeal of many beloved art movements like abstract expressionism and surrealism. To address this, Graf and Landwehr (2015) introduced the *pleasure-interest model of aesthetic liking (PIA)* to explain divergent patterns of liking for easy- versus difficult-to-process art.

According to the PIA model, aesthetic preferences are formed through two separate fluency-based processes. We first encounter an object and process the work in a bottom-up way; high fluency at this point yields a positive emotional response, whereas low fluency yields a negative response, corresponding with simple hedonic pleasure. However, there is a second pathway at work here, and it is through this pathway that an individual's level of motivation may yield more complex emotions such as interest, boredom, or confusion. Thus, something found pleasant in the first stage of processing may be found boring and unworthy of attention in the second. In contrast, an unpleasant object may engage the cognitive system in the second stage and be found to be quite interesting. Likewise, something very unpleasant may be just confusing instead of interesting, and so on. Perhaps you experienced something similar with our modern Mona Lisa? The model is named after the two possible positive outcomes of both processes: pleasure and interest.

NOTE-TAKING PROMPT: Review your reaction to Figure 8.1. How would you rate your interest versus your sense of pleasure in this portrait?

To test the PIA theory, Graf and Landwehr (2017) conducted an experiment which manipulated the fluency of abstract art images. A pilot study using over 450 images was conducted first to select images that were clearly high or low in fluency. In this preliminary study, fluency was rated by 904 participants using the following 3 questions:

1. The process of thinking about this picture is difficult for me . . . comes naturally for me.
2. The process of thinking about this picture is exhausting for me . . . is easy for me.
3. I perceive this picture to be sluggish . . . smooth.

From this analysis, authors selected three high-fluency, three medium-fluency, and three disfluent images as stimulus materials.

In the experiment itself, two levels of processing style were manipulated: automatic, in which participants were told to "go with their gut response," versus controlled, in which participants were asked to "focus on creating an appropriate title" for each image before evaluating it, causing them to have to think about what the image represented. In addition, half of the participants were asked to rate how pleasurable they found the image, whereas others were asked to how interesting they found the image to be. Thus, a 3 (fluency: high, medium, low) × 2 (processing style: automatic, controlled) × 2 (aesthetic response: pleasure, interest) design was administered and evaluated.

The authors found an advantage of fluency on evaluations of pleasure using a "gut level" response. In contrast, the effect of fluency on interest was found to be a matter of *disfluency reduction* – i.e., initially novel (i.e., disfluent) art that grew more fluent through processing efforts were viewed as more interesting. Other authors have reported similar findings supporting a dual-process model that includes both pleasure and interest as sources of aesthetic response (Ball et al., 2018; Belke et al., 2010).

NOTE-TAKING PROMPT: How does processing fluency affect the early stages of art appreciation? Can you think of an example of a work of art that you immediately found repulsive but interesting? This chapter has discussed two routes to aesthetic liking: pleasure and interest. Can you think of any more examples of art that differs across these two dimensions that you have personally experienced?

How Do We Classify Art?

Explicit Classification Stage

Familiarity and fluency influence liking by affecting processes that are not usually within our control. For example, as you looked at the three portraits in Figures 8.1 and 8.2, you had an immediate sense of comfort/discomfort/familiarity/interest/liking that was

determined by the images themselves, the context (textbook exercise), and your past experiences. After your initial impressions were formed, you might have begun the process of asking yourself questions or generating hypotheses about what you were seeing, maybe "What does this have to do with this chapter?" "I believe this work was influenced by the New York school." This kind of exploration typifies the next stage of processing: the explicit classification stage, the stage where we consciously think about and classify the art we are expe- riencing. During this stage, one explicitly processes the content and style information. As such, explicit classification requires System 2 processing, so now our thinking shifts to deliberate, conscious efforts that can be verbalized. Also, this stage is most influenced by variations in expertise. For example, someone with limited expertise may tend to associate the previous portrait with general labels such as "woman," "odd," "portrait," "pretty," and "colorful." In contrast, those with higher levels of expertise can identify with more precision the formal elements of style used by the artist and how both stylistic devices and subject matter fit into a period of art history. So, those associations may be "digital data moshing technique with surreal elements," "bright and complimentary colors," "no hard contours," "American feminist digital influences," etc. This is one reason that expertise is associated with a higher degree of liking; increasing expertise generates 1) increased familiarity, so the first stage of processing is facili- tated, and 2) increased ability to resolve disfluencies using an enriched conceptual vocabulary.

Thus, when an art expert experiences an unfamiliar piece, it isn't experienced as *that* unfamiliar. An expert can draw from a wide variety of experience and language to make sense of the novel art object. Expertise makes it easier to store and retrieve knowledge about a subject; thus, an expert is "someone whose extensive experience has created an elaborative associative knowledge base within a particular domain" (Shimamura, 2013, p. 120). As such, an expert can quickly identify similarities and relationships among new instances. Also, expertise facilitates learning of new items. In this way, when someone with a high level of expertise in art experiences a piece that is extremely novel, they can process and remember it much more efficiently than an art novice.

In one study, van Paasschen et al. (2015) studied art experts versus novices and found that the pleasure dimension was not affected by expertise whereas the more cognitive aspects of the experience (such as interest) were rated higher. Expertise was assessed using the Assessment of Art Attributes (AAA, Chatterjee et al., 2010) which asked about the number of museums attended and art classes taken over the past year. Participants rated artworks on four Likert-type scales: valence (happy – sad), arousal (calm-exciting), beauty (ugly – beautiful), and liking (I don't like it – I like it). Participants completed one session in a laboratory and another session in a museum. Crucially, in addition to understanding the effect of expertise, the authors were interested in whether or not training novices had any effect on these ratings. This is important because it would rule out the possibility of preexisting differences between people who like to spend their time doing art activities and people who don't. Artworks included abstract pieces and portraits.

The results showed that there were effects of art expertise before training, experts found the artworks to be more likable and beautiful compared to naïve viewers regardless of style. After training, there was still no effect of valence and portraits continued to be found more calming across both groups. However, training did have an effect on ratings of beauty such that trained novices rated artworks as more beautiful compared to naïve viewers. Thus, even limited increases in expertise can alter the aesthetic experience of art.

How Do We Understand Art?

Cognitive Mastering Stage

Have you ever experienced a sudden insight or an "aha" experience with respect to art? Cognitive mastering refers to discovering a sense of understanding about the piece. In other words, we discover what this artwork is *about*.

One way to investigate the cognitive mastering stage is to explore how we come to understand challenging art – again, art that is novel (disfluent) and hard to explore in a self-referential way. Belke et al. (2015) hypothesized that challenging art requires deliberate processing on the level of what the art is *about* rather than an immediate sense of pleasantness. They further proposed that the process of thinking about the meaning of a piece frequently increases liking and that this process is iterative – i.e., it isn't a "love at first sight" process but requires many cognitive cycles of thinking and questioning to derive pleasure from the piece.

To test these hypotheses, the authors first collected five portraits that were rated the most typical, called fluency portraits. A second set of five portraits were rated as lowest in typicality; this group was called the mastery portraits. Then, 48 participants were asked to rate each of the ten portraits on liking using a 7-point Likert scale. Then, these 48 people were randomly assigned to one of two conditions: 1) the high-cognitive-engagement condition, which required participants to rate each of the ten portraits on 20 scales (requiring a total of 200 ratings from this group); 2) the familiarity condition only required participants to "attentively look at the portraits," each of which appeared 2.9 seconds at a time and were presented 20 times in random order (thus, this group saw the 10 portraits 200 times rather than generating 200 ratings). After completing these tasks, the same ratings of liking were collected again.

The results indicated that, for the fluency portraits, liking averages remained stable across conditions (high cognitive engagement through rating versus familiarity by mere exposure). In contrast, liking increased for mastery portraits in the high-cognitive-engagement condition only. In other words, increased liking was only found for challenging portraits that were evaluated repeatedly rather than simply exposed to each piece. It seems that for some art objects, familiarity isn't enough to increase liking, but thinking more about these objects does prompt an increase in liking.

Moreover, the authors conclude that liking more challenging pieces requires iterative cycles of semantic elaboration to be experienced as pleasant. Furthermore, these results provide further evidence for a dual-process view of aesthetic pleasure. Both sets were associated with distinct liking patterns. Fluency responses are sensory based, arise early in the process, and don't require elaboration or expertise. In contrast, disfluent portraits require effortful processing over time to experience as likable.

Mastery Prompts: The Effect of Titles on Mastery and Aesthetic Response

NOTE-TAKING PROMPT: What do you think is going on in the poem that follows? Think about it, then go to the end of the chapter to learn the title of the poem.

Master of human destinies am I;
Fame, love and fortune on my footsteps wait.
Cities and fields I walk. I penetrate
Deserts and seas remote, and, passing by
Hovel and mart and palace, soon or late,
I knock unbidden once at every gate.
If sleeping, wake; if feasting, rise, before
I turn away. It is the hour of fate,
And they who follow me reach every state
Mortals desire, and conquer every foe
Save death; but those who hesitate
Condemned to failure, penury and woe,
Seek me in vain, and uselessly implore.
I answer not, and I return no more.

It makes a lot more sense when you know the title! Titles can serve to activate schemas, providing coherence to the experience of a work of art. This has been demonstrated in several psychological experiments, like this one by Bransford and Johnson (1972).

NOTE-TAKING PROMPT: As another illustration, name the following event described. Think about it, then go to the end of the chapter and learn the title of the paragraph.

The procedure is really quite simple. First, you arrange things into different groups depending on their makeup. Of course, one pile may be sufficient depending on how much there is to do. If you have to go somewhere else due to lack of facilities, that is the next step; otherwise, you are pretty well set. It is important not to overdo any particular endeavor. That is, it is better to do too few things at once than too many. In the short run, this may not seem important, but complications from doing too many can easily arise. A mistake can be expensive as well. The manipulation of the appropriate mechanisms should be self-explanatory, and we need not dwell on it here. At first, the whole procedure will seem complicated. Soon, however, it will become just another facet of life. It is difficult to foresee any end to the necessity for this task in the immediate future, but then again, one can never tell.

NOTE-TAKING PROMPT: Can you identify any schemas that were activated when you looked at Figure 8.1? How were these schemas changed when you saw that this was a depiction of the *Mona Lisa*? What about schemas that were activated when you looked at Magritte's *The Human Condition* (Figure 7.1 in Chapter 7)? Were these schemas challenged by the title? How does the title influence your interpretation of the work?

As the examples above demonstrate, the title of a work of art may pull a work together, connecting meaning with form. Moreover, this feels great for most people; the "aha" experience of sudden understanding is often found to be rewarding, thus contributing to the overall aesthetic experience. Unsurprisingly, researchers have found that when titles facilitate this experience of mastery, reports of liking increase. This effect extends to visual art as well (Cupchik et al., 1994; Gerger & Leder, 2015; Millis, 2001).

Name this picture:

In general terms, there are two types of titles typical of artworks, descriptive and elaborative. First, *descriptive titles* are titles that simply describe what is being depicted by the image. These titles are consistent with a fluent experience. For example, *Woman Gardening* would be an example of a descriptive title for the previous image. In contrast, *elaborative titles* are titles that communicate the figurative content expressed through the image. When the elaborative title generates a coherent understanding, the title can increase fluency. Some possible elaborative titles for Figure 8.4 may include the following:

- *Peace*
- *Garden of Eden*
- *Sadness*
- *Tending the Poisonous Plant*

How you think titles like these influence understanding and aesthetic response? Researchers have found that differences among titles strongly influence both understanding and aesthetic response. For example, Millis (2001) found that perceived understanding of an artwork is increased by the presence of either a descriptive or an elaborative title, but not a random, unrelated title. Elaborative titles have an advantage; however, when it came to ratings of aesthetic response when compared to descriptive ones, people tended to like artworks more when paired with elaborative titles.

More recently, many researchers have explored the influence of titles on aesthetic response using contemporary methodologies that don't rely on self-report as the only dependent variable. For example, Gerger and Leder (2015) assessed *facial electromyograph (fEMG)* recordings to capture changes in emotional and cognitive processing in addition to self-reported ratings of liking and interest. This technology can capture subtle changes in facial expression through the activation of two facial muscles: M. corrugator (the frowning muscle) and M. zygomaticus (the smiling muscle).

The researchers manipulated three title types for both abstract and representational works of art: 1) fluent condition, semantically matching title with artwork; for example, a painting depicting an array of colored circles entitled *Colored Circles*; 2) non-fluent, title meaning did not fit with the artwork – for example, the aforementioned array of colored circles in this condition entitled *Iron Man*; and 3) untitled pieces.

The results were that the fluent condition was the only condition where the smiling muscle was consistently activated. However, participants reported higher liking for both fluent and untitled works, though the untitled pieces also had stronger frowning muscle activations. The nonmatching condition significantly increased frowning muscle activations.

Interestingly, the authors did not find the highest self-reported liking in the fluency condition. Untitled works led to more activation in the frowning muscle, though the fluency and untitled conditions were rated similarly for liking. This shows a disconnect

Figure 8.4 A silhouette of a woman watering a flowerpot. How does your perception of this simple image change with differing titles?

in the theory that fluency alone drives liking. In addition, titles increased liking most for inherently disfluent, abstract works of art in contrast to representational pieces. Thus, it seems that the most positive aesthetic experiences are when there is some degree of disfluency that is able to be resolved coherently.

NOTE-TAKING PROMPT: How do the previous titles for Figure 8.5 influence the way you interpret and feel about this simple image? Are your feelings similar to what researchers have found for the influence of titles?

The Process of Mastery: Eye Movements

As mentioned in Chapter 7, when we visually explore a painting, we don't do so willy-nilly. Investigations of eye movements have demonstrated that we already have complex cognitive models formed based on schemas and semantic networks that drive our eye movements, determining millisecond by millisecond where we fixate and for how long we linger on each fixation point. These cognitive models can influence these fixations consciously (deliberately) or unconsciously (automatically) – i.e., via System 1 or System 2.

We learned in Chapter 7 that an eye movement is called saccadic movement. When our attention is directed to something we move our eyes to that area, then we fixate (pause) on that area and repeat the process. One saccade takes about 25–45 milliseconds, and the average fixation time is 300 milliseconds (less than one-third of a second). Frequently, we fixate longer on areas that catch our interest.

Visual art is thus viewed by fixation on a feature, moving the eyes, then fixating on another feature and so on. Many studies have shown that the viewer moves their eyes in a pattern that seems to be testing out hypotheses about the piece. The viewer's interest, context, salience, and prior knowledge may motivate a hypothesis, and the "eye is then dispatched to find information related to the hypothesis" (Solso, 1994, p. 139).

For example, Bubić et al. (2017) explored eye-tracking patterns for participants viewing Kandinsky's artworks. Both figural and abstract pieces were included in the study. The researchers randomly assigned participants to one of two conditions: titled or untitled. Liking ratings showed people preferred titled works better as well as figural representations over abstract. More importantly, the researchers determined areas of each image that was relevant to the title. They found that people in the titled conditions fixated in these title-relevant areas longer and returned to them more often. Lin and Yao (2018) found similar results for artworks with accompanying text – that viewers used information from the text to direct their gaze and process the piece efficiently. All in all, research on eye tracking while viewing works of art shows that we search for information while viewing the work of art rather than scanning the piece in a random fashion. Text, such as titles and contextual descriptions, can provide clues to efficient ways to scan the piece for useful information.

NOTE-TAKING PROMPT: Look at a painting and ask yourself one (only one) of the following questions: 1) How are the artist's use of brushstrokes similar to or different from other artists? 2) Can you try to discern the painter's mood during the time they painted the piece? 3) How does this piece reflect the zeitgeist of the period it was painted? Can you sense where your eyes fixate?

How Do We Think About Unfamiliar Art?

Coping With Cognitive Dissonance

Disfluent art provokes a phenomenon called *cognitive dissonance*, a state in which contradictory information seems to be simultaneously true. The concept is frequently applied to social psychology, when attitudes don't align with behaviors. In art, *visual dissonance* occurs when there is a difference between what we expect and what we see. For example, consider this piece by Man Ray (1921) called *The Gift*.

Figure 8.5 The Gift by Man Ray (1921).

It is certainly unlike anything most people have seen before – i.e., it doesn't easily fit into a prior-knowledge schema. Moreover, it contains several contradictory schemas: ironing fits with schemas surrounding dull, domestic chores. This is contradicted by these creepy spikes, which seem more fitting of a torture schema and rather alarming,

especially when connected with domestic chores ("chores" is perhaps the least alarming schema of all time). In fact, the spikes render the first schema impossible: Ironing with this iron would *not* be successful! To further add to the levels of cognitive complexity, there is the schema activated by the title *The Gift*. Activation of the gift schema is normally associated with warmth and generosity, but this is violently contradicted by these iron spikes. So, three incompatible schemas are now activated simultaneously by this piece. What now?

There are three possible responses when faced with visual dissonance (adapted from Solso, 1994, pp. 122–5). I call these the 3 Rs:

1. **Reject:** Dismiss the piece altogether – for example, "This is dumb" or "This isn't art."
2. **Revise:** Mentally change the dissonant elements to make them more schema consistent – for example, "This would be better the spikes were removed."
3. **Reflect:** Think about the art object and why it is creating dissonance; think about what spikes on an iron could mean – for example, "This could mean something deeper than what is represented. Perhaps it is making a statement about the oppressiveness of domestic life."

The first two are dismissive of the work in front of you, and while these reactions may reduce discomfort, they are unlikely to produce mastery or growth. A general aesthetic principle is to separate the question of art you like from whether or not it is good. I would add that it is useful to separate what you like from what you can learn. When you are faced with disfluent art – i.e., art that does not easily fit with your idea of what art should be like – what do *you* do?

NOTE-TAKING PROMPT: How did you respond to the dissonance in Figure 8.1, or 7.1 – or any other work for that matter? Did your initial response fit with one of Solso's three reactions? Did your response change with more reflection?

One reason we reject challenging art is because our emotional reactions may run the gamut from dislike to disgust. Yet, one of the best aspects of art is that it challenges us to explore your own emotions. That is what will be discussed in Chapter 9.

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Answers to exercises on page 185: 1) Opportunity and 2) Laundry

9 Emotional Processing of Art

What You Will Learn

Have you ever stood before a painting and felt you were being elevated, or gotten chills from listening to a poem, or felt so deeply moved by a novel that you find tears in your eyes that have nothing to do with sadness but are, in fact, associated with a deep sense of pleasure? These are the kinds of emotional experiences art can offer, and most find these experiences intensely pleasurable. Clearly, emotions play a crucial role in these experiences. Somehow, these emotions stand apart from our everyday emotional experiences. First, we will learn about the psychology of these so-called everyday emotions, and then we will consider emotions in the context of an aesthetic response. Specifically, this section will cover what might distinguish aesthetic emotions from other kinds of emotions. Also, you may have noticed that negative emotions play a significant role in many art-inspired aesthetic emotional responses; how are negative emotions processed in art? Then, the formal properties of visual art that elicit emotional responses will be discussed. Finally, this chapter will end by contemplating how emotions elevate cognitive mastery of artworks.

Chapter Outline

What Are Emotions From a Psychological Perspective?
What Is the Relationship Among Components of Emotion?
What Distinguishes One Kind of Emotion From Another?
How Many Discrete Emotions Are There?
Are Certain Emotions Specific to the Aesthetic Response?
How Do Negative Emotions Contribute to the Processing of Art and Literature?
What Properties of Art Cause Aesthetic Emotional Responses?
What Is the Relationship Between Emotions and Cognitive Mastery of Art?

Terms to Identify as You Read

Action Tendencies
Aesthetic Emotions
Appraisal
Art Schemas
Art-Elicited Emotions
Art-Represented Emotions
Autoappraisers
Cannon-Bard Theory

DOI: 10.4324/9781003014362-9

Terms to Identify as You Read

Cognitive Monitoring
Confederate
Dimensional Models of Emotion
Discrete Models
Distancing-Embracing Model
Emotion or Emotional Response
Feeling or Subjective Feeling State
James-Lange Theory
Reappraisal
Schacter-Singer Theory
Tridimensional Theory of Feeling

Let's start by considering these works of art:

NOTE-TAKING PROMPT: Before delving into the reading, look at the images in Figures 9.1 and 9.2 and describe your emotional response.

What Are Emotions From a Psychological Perspective?

How did you feel as you looked over Figures 9.1 and 9.2? Did you instantly identify with an emotion from each piece, or did your emotional response develop over time? Did it feel like a simple emotional response or a complex one with many layered feelings? How do these emotions differ from other "real-life" emotional experiences?

Figure 9.1 Caspar David Friedrich, *Monk by the Sea*, 1808–10.

Figure 9.2 Mark Rothko, 1958, *Black on Maroon*, Tate.

Also consider your response to a literary passage from J.D. Salinger's *The Catcher in the Rye* (1951): "My brother Allie had this left-handed fielder's mitt. He was left-handed. The thing that was descriptive about it though, was that he had poems written all over the fingers and the pocket and everywhere. In green ink. He wrote them on it so that he'd have something to read when he was in the field and nobody was up to bat. He's dead now."

As you read this passage, you may have formed a clear picture in your head of a child in the outfield of a baseball diamond, perhaps bored out of his mind and more interested in the poems that captured his imagination to such a degree, he was compelled to write them in green ink on his glove. Then, with the words "He's dead now," a ball (decidedly not a baseball) is unpredictably and unceremoniously dropped from your heart without any of the flowery language the death of a child deserves. If you are like me, these last three simple words affected you emotionally: Maybe you were angry or disturbed, sad, surprised, confused – or a combination of all this and more. Memories may have flooded your mind; you may have called to mind losses of your own or the fear of those losses. In the few seconds after reading these three matter-of-fact words, you may have shifted your emotional state many times – surprise, confusion, sadness. Further, your emotional response has likely shifted over time if you have, like me, read this passage many times before, and it may shift over the years as well. The negative emotion depicted makes this powerful and compelling in a way that reading about the death of a child in the newspaper would not. Why is this?

NOTE-TAKING PROMPT: Read the passage from J.D. Salinger and describe your emotional response as well. Think about all of the forms of art that have elicited an emotional response from you – visual, literary, musical – and try to reflect on why you respond in such a way.

Art can clearly elicit an emotional response, but it is just as clear that there is not just one possible emotional response to a piece – even to three simple words. There is huge variation across people and even within one person over time. Also, it isn't just the form on Van Gogh's canvas or Salinger's three words evoking the emotion: It is so much more! For example, think about the context: your own experience with depression or with losing loved ones may color your experience of the work.

Like most of the concepts associated with the human condition, emotion is complex and multifaceted. It seems tempting to reduce the experience of emotion as a simple stimulus - response. Following an experience, the appropriate emotion arises until it dissipates or is replaced with another experience (for example, reading about death makes you sad until some time passes or you focus on something else). In reality, most researchers in the psychology of emotion have found that an emotional response is a layered *process* – a response that changes over time as a result of fluctuations from multiple internal and external inputs, not as a singular state of consciousness. Modern researchers distinguish between an *emotion* or *emotional response*, which includes the myriad of changing physiological and appraisal processes (the process defined more specifically, as follows) and a *feeling* or *subjective feeling state*, which is a conscious awareness and labeling of this process such as "I feel sad" (Scherer, 2000; Scherer et al., 2019). This idea of emotion as a process is elaborated by one of the most well-known researchers in the psychology of emotion, Paul Ekman. The following is his definition of emotion from his 2003 book, *Emotions Revealed*:

> Emotion is a process, a particular kind of **automatic appraisal** influenced by our **evolutionary and personal past**, in which we sense that something important to **our welfare** is occurring, and a set of **physiological changes** and emotional **behaviors** begins to deal with the situation.
>
> (Ekman, 2003, p. 13 and 2021: www.paulekman.com/universal-emotions/)

Let's break down aspects of this definition:

1. **Automatic appraisal**: We are constantly scanning our external and internal environments for information that is important to us. Ekman describes *autoappraisers* as neurological mechanisms that allow us to automatically assess that something significant is happening and react in milliseconds (p. 21–2). Initially, our bodies initiate a quick and dirty response; we might have a general sense of "Ew," "I like this!" or "Something looks wrong."
2. **Appraisal is influenced by past**: This past is encoded through two means: 1) evolutionary, biological processes – for example, when we respond to a snake; or 2) learned, personal, and cultural influences such as whether or not a job offer is viewed as beneficial.

3. **Sense that something important to our welfare is occurring**: We have evolved these emotional responses to cope as quickly as possible with the situation before us. Ekman (2003, p. 19) describes this importance to *our own* welfare as the central or core route, but he also describes eight other routes, including empathic responses to witnessing others experience pain and joy.
4. **Set of physiological changes and behaviors are set in motion to deal with the situation:** These changes include autonomic nervous system responses, motor responses (for example, fight, flight or flee), action tendencies (the urge or disposition to act – like looking away or running toward something), facial responses, and voice alterations that prepare us to deal effectively with the situation before us. For example, we focus our attention when we are angry: Our eyes narrow, and our bodies prepare for aggression. As other examples, we also withdraw in sadness: Our bodies slow down, become small, and conserve energy. However, our bodies expand as we get ready to broaden and build with joy (see Chapter 4)!
5. **Feeling state:** This entire process is interpreted as an emotion – the awareness of these fluctuations resulting from this process is a conscious representation of what is happening, including the subjective feeling of being angry, sad, joyful, etc.

I would add *cognitive monitoring*, the evaluation and regulation of one's own cognition and internal states, to this definition. Remember, emotion is a process, as Scherer (2019) says, a "flow of continuously changing component states" (p. 35). Part of this process is an ongoing cognitive evaluation of the appropriateness of the type of emotion (for example, is anger appropriate for this situation?) and degree of emotion (is this irritation versus rage appropriate for this situation?) (Ekman, 2003; Robinson, 2005). On the basis of such monitoring, we may *reappraise* the situation. For example, we may (thankfully) recognize that it isn't a snake; it is just a twig, so the fear response is not appropriate.

NOTE-TAKING PROMPT: Describe a recent emotional reaction you have had and detail how the elements of Ekman's definition may have come into play during your emotional experience. Also, when you looked at or read the examples in Figures 9.1 and 9.2, what did you feel in your body? What words went through your mind? How can you relate your experience of these pieces to the previous definition of emotional response?

What Is the Relationship Among Components of Emotion?

One of the central important questions addressed by researchers in the psychology of emotion has been how these components of emotion relate to one another: 1) automatic appraisal; 2) physiological and motor responses; 3) the subjective experience of feelings like "anger" or "sadness"; and 4) the ongoing cognitive appraisal, monitoring, and reappraisals. One influential early theory focused on the physiological causes of emotion and was advanced by William James and Carl Lange. Although they proposed their theories independently, they were so similar that it is now called the *James-Lange theory of emotion*. According to the James-Lange theory, a physiological response is a required component of emotional experience. Physiological responses can include an increased heart rate,

muscular tension, pupil dilation, and a wide range of other responses that vary in type and degree.

According to the James-Lange theory, when you see a snake in your living room, your specific autonomic nervous system mechanisms kick into overdrive. For example, your heart rate skyrockets, your muscles tense up as they prepare you to run out of there like Gabby Thomas at the Olympics, and your pupils dilate like an anime character. According to the James-Lange theory, we sense these physiological changes in our body, and these sensations are perceived as the subjective feeling of fear. In other words, our hearts don't race, muscles don't tense, and eyes don't dilate *because* we are afraid. *We are afraid because our hearts race, muscles tense, and pupils dilate*. In another situation, say your spouse eating the last cookie, you would have a different physiological profile; for example, your eyes may narrow, fists tense, jaws clench with muscles ready to attack rather than flee. This physiological experience occurs, which you subsequently feel as anger. In James's (1890) words,

> Common sense says, we lose our fortune, are sorry and weep; we meet a bear, are frightened and run; we are insulted by a rival, are angry and strike . . . this order of sequence is incorrect . . . the more rational statement is that we feel sorry *because* we cry, angry because we strike, afraid *because* we tremble.
>
> (p. 449, original italics)

While the James-Lange theory was an important impetus for psychologists to consider what constitutes an emotion, it certainly wasn't the last word in emotional theory. Another influential theory, the *Schacter-Singer two-factor theory of emotion* (1962), proposes that, instead of *specific* physiological responses corresponding with specific emotions, a general fight-or-flight response contributes to all emotional responses. It is the *cognitive appraisal* – an explanation you tell yourself about the situation, including how important it is and how well you are able to cope with it, that distinguishes fear from anger from joy and so on. To demonstrate this, the researchers conducted an experiment in which they injected some participants with adrenaline and others with a placebo. In addition, some were told about the genuine side effects of being administered adrenaline (shaking, increased heart rate, etc.); another group was told there would be no side effects, whereas a third group was given misleading information about the effects of adrenaline (numbness, itching – which are not really effects of adrenaline). Participants were also divided into one more condition: anger, euphoria versus placebo. In the anger condition, participants were asked to fill out a questionnaire with insulting questions like "With how many men (other than your father) has your mother had extramarital relationships? Answer choices: under 4; 5–9; or 10 and over." But that wasn't all! A *confederate*, someone posing as a fellow participant but who is actually in cahoots with the experimenter, was in the room with them, getting angrier and angrier throughout the experiment. In the euphoria condition, the confederate was happily playing around versus the placebo condition with no confederate at all. Thus, the researchers were able to observe the effect of different contexts on the interpretation of general physiological arousal. Participants were closely observed, asked about their emotional states, and had their pulse taken before the adrenaline was administered and after the experiment.

The authors found that the interpretation of the situation in the context of a physiological response was critical for the reported subjective feeling. All were in the same physiological circumstance, an adrenaline shot, but they labeled the resulting subjective feeling in accordance with their circumstance (Schacter, 1977). Specifically, the results

showed that when participants didn't know they were given adrenaline, they were more influenced by the confederate's mood, interpreting the physiological response as anger or euphoria depending on how the confederate was behaving. In other words, they didn't know *why* they were so jittery and seemed to attribute their physiological state to the circumstances. The authors concluded that a cognitive appraisal is needed to label the emotion and that specific physiological responses are not always the cause of an emotional response.

Thus, the two-factor theory (general physiological response plus cognitive interpretation) showed that the *interpretation* of the situation is what distinguishes this arousal as "anger" or "fear." For example, again, the snake is just sitting there on your sofa, and your heart rate skyrockets, your muscles tense up, and you get the anime eyes. As you sense these changes in your physiology, you interpret them in conjunction with the situation: snake + sympathetic nervous response means fear. *But if* you had these same physiological responses in another context, same skyrocketing heart, muscle tension, and anime eyes while watching a movie, you might interpret this as suspenseful excitement. If the same responses occurred while looking at your spouse, it might feel like love. And of course, if the same responses occurred while looking at your spouse eating the last cookie, they may feel like anger. The idea is that our physiology and behavioral responses to the situation are interpreted by our cognition as a feeling state via the context of the situation. Though the Schacter-Singer theory has demonstrated the importance of the cognitive component, later experiments have found that there are indeed specific physiological profiles associated with specific emotions.

Modern theories, similar to the Kahneman (2011) distinction of System 1 and System 2 (introduced in Chapter 8), theorize that there is one system for noncognitive, automatic appraisals that respond quickly and automatically and a second, separate system, interacting with the first, that assesses the situation cognitively using central nervous system responses (Scherer, 2000). For example, Zajonc (1984, the mere exposure effect guy from Chapter 8), showed that an emotional response can occur without cognitive awareness. Recall that he found that preferences were influenced simply by having been exposed to the stimulus (like Chinese characters) even when one couldn't consciously recall having seen the stimuli before. Zajonc concluded that this was evidence that emotions can arise without the influence of cognition.

This system appears to be useful from an evolutionary perspective – for example, backing away from that "snake" even if it does later turn out to be a stick. This two-system theory is supported with physiological evidence; for example, LeDoux (1996) found that sensations can send signals to the amygdala without input from the cortex, triggering a physiological response before you can even label what is going on. This autoappraisal is quickly followed by a cognitive appraisal and then monitoring the situation as it unfolds further. Thus, it seems likely that emotional responses should be thought of as two independent yet interacting systems that are mediated by separate but interacting nervous system functions associated with an automatic appraisal and a cognitive one.

NOTE-TAKING PROMPT: Imagine you see a horrible injustice unfold before your eyes – describe your emotional response in terms of James-Lange, Schacter-Singer, and modern theories.

What Distinguishes One Kind of Emotion From Another?

How is the experience of sadness conceptualized distinctly from that of anger or joy? One theory posits that emotional responses are *discrete* from one another – i.e., that an anger response is a completely different *kind of* biological and behavioral response compared to one of joy or fear. According to this theory, there are only a limited number of emotions that can be called discrete, and these are considered *fundamental* or *basic* emotions because they are rooted in biological patterns that are common across cultures. In contrast, a *dimensional* model views emotions as a continuum of physiological arousal, as depicted in Figure 9.3. This class of theories originated with the father of experimental psychology, Wilhelm Wundt's (1896) *tridimensional theory of feeling*, which approached the classification of emotions along three dimensions of 1) pleasant-unpleasant (valence); 2) calm-excitement intensity (arousal), and 3) relaxation-strain. According to the class of theories based on dimensional models, all emotions can be described as located along these 3 dimensions: Anger is on the unpleasant side of the valence continuum, high intensity on the arousal continuum, and high along the tension continuum. A variation of anger, rage, would be further along each of these dimensions. In contrast, tenderness would be pleasant, low intensity, and low tension. For a visual example, see Figure 9.4. Importantly, however, Wundt himself asserted that there are differentiations among *kinds* of emotions, particularly with respect to physiological responses, so even he was not a pure advocate of a dimensional model.

While dimensional models are intuitive, many psychologists have offered criticisms based on observations that certain emotions are indeed associated with *specific* physiological responses rather than just a generic fight-or-flight response. For example, as far back as the 1950s, Ax (1953) was able to differentiate different physiological patterns associated with anger and fear; specifically, he found fear was associated with elevated levels of adrenaline, whereas anger was associated with noradrenaline. More recently, Stemmler

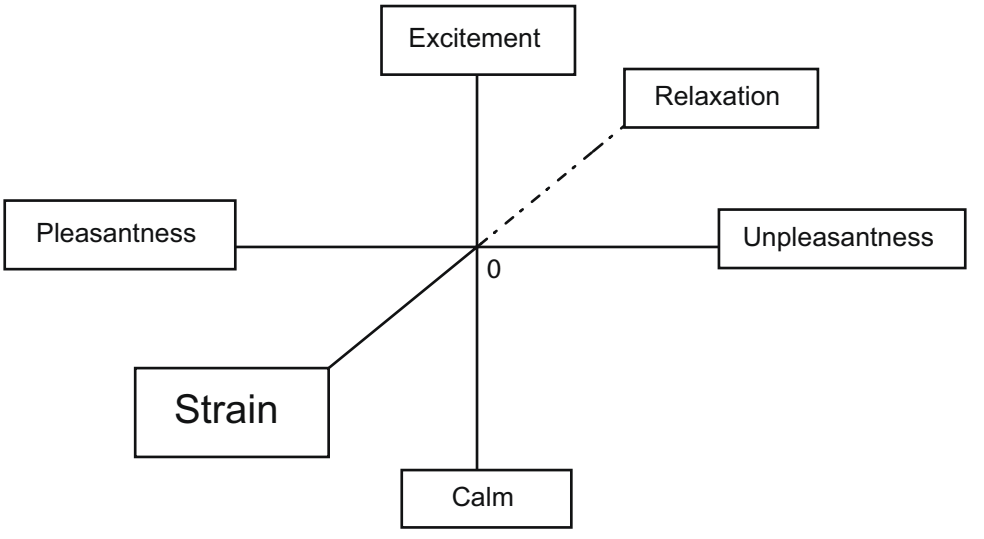

Figure 9.3 Wundt's tridimensional theory of emotion

Source: Image Reprinted from Diriwächter (2021).

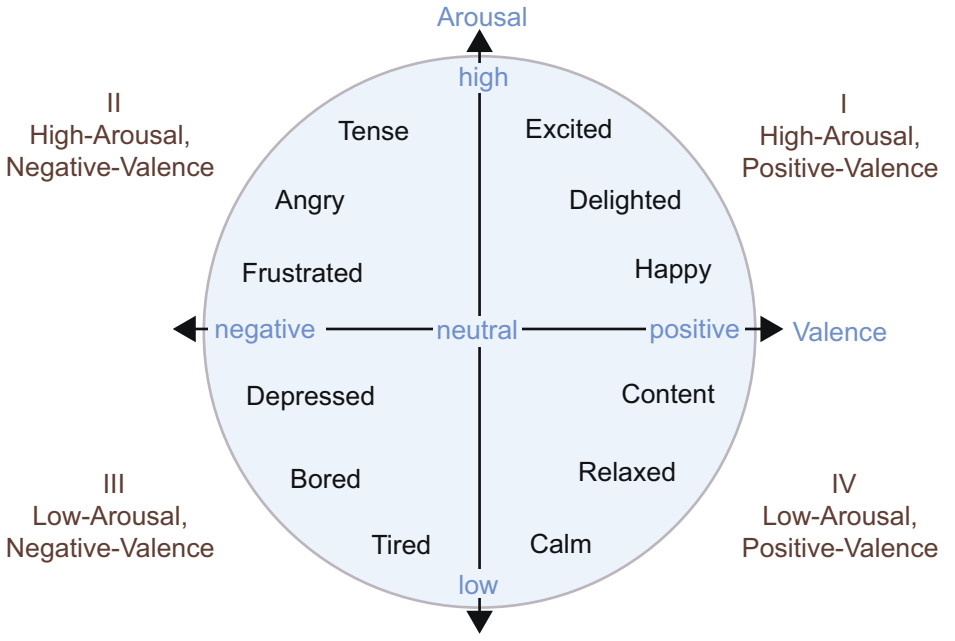

Figure 9.4 Example of a dimensional model of emotions using a circumplex. Liu et al. presented at CHI conference (2018) obtained from ResearchGate.

et al. (2007) also found some distinct patterns of activity; for example, they reported that the emotions of anger versus fear can be distinguished by a collection of physiological response patterns (including blood pressure, EEG, and respiratory excursions) corresponding with behavioral action tendencies for approach versus withdrawal, respectively. Ekman (2016) found that most contemporary emotion researchers agreed with Wundt that emotion is best understood as a function of both discrete categories along dimensional continua representing intensity and valence.

NOTE-TAKING PROMPT: Distinguish between discrete versus dimensional theories of emotion. How can they complement each other?

How Many Discrete Emotions Are There?

Given the advocacy for at least some discrete emotions, what evidence may establish an emotion as discrete? In addition to specific physiological profiles associated with specific emotions noted previously, Ekman and Friesen (1971) famously cataloged distinct facial expressions that are universally recognized across cultures. Over the years since that publication, Ekman and his colleagues have conducted many studies verifying distinct facial expressions for seven emotions: anger, fear, joy, sadness, disgust, surprise, and contempt (Ekman, 2003, 2021 website). These emotions are considered discrete because the facial expressions automatically generated by these emotions are universally recognized as such.

Many researchers have followed Ekman in empirically cataloging the discrete emotions, and there have been disagreements as to what counts as a discrete emotion along these dimensions. What do psychologists currently believe? To find out, Ekman (2016) administered a survey to 248 researchers who published psychological research on emotion. The survey consisted of a list of 18 emotions with instructions to check which are considered discrete emotions. He found that there is a high agreement of empirical support for the universality of five emotions as discrete emotions; specifically, these five emotions had over 75% agreement among the researchers responding to the survey: anger (91% agreed this was a basic emotion), fear (90%), disgust (86%), sadness (80%), and happiness (76%). All others, including surprise and contempt, were under 40% agreement. So, it seems there is agreement that there are at least 5 discrete emotions.

NOTE-TAKING PROMPT: What evidence suggests there are discrete emotions? Consider evidence in three categories: physiological, cross-cultural, and inter-rater reliability.

In summary, a generally accepted account of emotional response purports that emotion is a process informed by both physiological and cognitive responses. It begins with a quick, automatic appraisal that causes physiological changes that prepare the body to cope with the triggering situation. These changes include motor responses and action tendencies as well as zero facial changes that are consistent across cultures and distinct for at least five emotions. This automatic appraisal and response is followed by a cognitive appraisal of the situation that changes the quality and tone of the appraisal and informs the response: What is this emotion? Is it the right response, and is it the right level of response to contend with the situation? This cognitive appraisal continues with ongoing cognitive monitoring, and so reappraisal is a part of the emotional response. It is no wonder that Leder et al.'s model describes emotion as an ongoing process and not a discrete stage (refer to Figure 7.3 from Chapter 7).

You may be thinking that this all works very well for the snake in your living room or the spouse eating your cookie, but what about the hollow shock of the words "He's dead now" or being moved by the vastness of the sea in comparison to the small human figure in 9.1? We now begin to answer the question: How are emotions applied to the arts?

Are Certain Emotions Specific to the Aesthetic Response?

Some emotions, like being moved, a sense of awe, and a feeling of beauty, seem to be more associated with works of art than with other experiences. Are these emotions a separate class of emotions? If so, what is it that makes them so?

Even everyday emotions can take a different tone in an aesthetic context; for example, it may seem to you that getting angry about the social inequity depicted in a novel or on a mural or in a song is qualitatively different from how this anger is experienced in real life. How is the emotional experience of art viewing different from our everyday emotional experiences? We now turn our discussion to discuss *aesthetic emotion*. Remember from Chapter 2 that the definition of aesthetic extends beyond the arts; thus, this discussion can include broader lines of aesthetics beyond the arts (for example, aesthetic experiences of sunsets, faces, equations, etc.).

Though aesthetic emotions have been investigated for a long time, only recently has a theoretical framework been proposed. This analysis, by Winfried Menninghaus and his colleagues (2019) is able to account for a comprehensive amount of data. To understand aesthetic emotions provoked by art, the authors first distinguish among the following three terms:

Art-represented emotions include cues to the emotion being depicted within the piece itself: perhaps greys for sadness, emotional expression of despondency in the portrait, wilting flowers signifying depression. Importantly, these emotions may be *understood* by the viewer without being *felt* by the viewer; for example, you may arrive at the understanding that the monk in Figure 9.1 is experiencing melancholy, but you may not feel this melancholy yourself. Likewise, the matter-of-fact tone Salinger uses to describe the fact of Allie's early death suggests the narrator is at some level of acceptance (though this is a very nuanced passage); however, *you* might actually be shocked and saddened by this revelation in contrast to the art-represented emotion. Your response would be an art-elicited emotion that may not be the same feeling as what has been represented.

Art-elicited emotions are the emotions that arise in you because of the art object. Again, these emotions may be consistent or inconsistent with what is being represented. You may actually feel loneliness in response to the depiction of the monk's solitude. Or you may feel relief that you are not currently feeling lonely. You might even feel angry or joy or curious – or nothing at all. If what you feel arises from the art object, it is considered an art-elicited emotion.

Neither of these is the same as the *aesthetic emotion* itself, which is an emotional response that is associated with a perception of the quality of the art object. The fact that I feel instantly drawn into the beauty depicted by the way loneliness is represented in *Monk by the Sea* is an important factor in how much I appreciate it. Therefore, this is considered an aesthetic emotion. Using the authors' example, you may feel glad that a killer was caught in a novel, but if this feeling of gladness is not associated with your perception of the quality of the novel, it isn't an aesthetic emotion. According to Menninghaus et al.'s (2019) theory, this evaluative component distinguishes aesthetic emotions from the other kinds of everyday emotions.

NOTE-TAKING PROMPT: Look at the paintings in Figures 9.1 and 9.2 and identify the emotions that are art represented, art elicited, and aesthetic response. What aspects of the artistic representation elicit these emotions?

Thus, the authors suggest that there is a discrete class of aesthetic emotions that are characterized by an inherent *appreciation* of the aesthetic object provoking the emotion. Moreover, the authors advance four necessary conditions of an aesthetic emotion (summarized from pages 171–2):

1. To be an aesthetic emotion requires *aesthetic evaluation*.
2. To be an aesthetic emotion requires that each different aesthetic emotion (awe versus suspense versus being moved, for example) corresponds with a specific type of aesthetic virtue (the expert use of light or minimal wording, for example).
3. To be an aesthetic emotion requires correspondence with subjective feelings of pleasure or displeasure derived from the art object.

4. To be an aesthetic emotion requires that this emotion is a predictive component in whether or not the art object is ultimately liked or disliked.

The idea that aesthetic emotions are a separate class of emotions on the basis of aesthetic appreciation is not without controversy. In a response to Menninghaus et al., Skov and Nadal (2020) argue that there are no aesthetic emotions; to call something an aesthetic emotion is to imply there is a whole discrete class of emotions specific to aesthetic situations that are different from emotions not associated with aesthetics – that is to say, that they differ in meaningful ways from everyday, nonaesthetic emotions, and they claim the Menninghaus et al.'s theory did not meet this standard. Though the theory raises some questions, there is evidence that the way we emotionally respond to works of art differs from the way we respond to similar events in real life, and this seems to include a component of appreciation. One area of evidence for this concerns the role of negative emotions in life versus art.

How Do Negative Emotions Contribute to the Processing of Art and Literature?

The Catcher in the Rye is one of my favorite novels, though the story is not in itself joyful or uplifting. So why do I love it so much? In fact, as I mentally flip through my most beloved art objects, very few can be considered outright pleasant, and in fact, most may be considered depressing or disturbing by many viewers. Yet, they remain my treasured favorites, and I do derive much pleasure out of experiencing and reexperiencing them. Rather than the peaceful emotions I seek out in my life, these paintings, novels, and plays disturb me, move me, touch my heart, and invite me to explore the human experience more richly and connect me to higher levels of meaning. I find that journey a pleasurable one, although it involves a ride through negative emotions that I would *not* appreciate in the same way if they actually happened in my life! Of course, I would not find the same experience of beauty in the short life of a sibling or have a sense of the sublime as I look at a clearly despondent person in a café. So why am I drawn to such melancholic pieces in the museum? Why do I read tragic novels again and again? In short, in the real world, we tend to avoid negative situations and approach positive ones; paradoxically, sometimes, the art we love the most is negative in tone or subject matter. Yet, many of us seek out these experiences. What's up with that? Why are negative emotions so important to art reception?

Many theories have asserted that art provides us with a layer of distance that allows us to derive pleasure from the negative experiences depicted by the work. One such theory is called the *distancing-embracing model* (Menninghaus et al., 2017). According to this model, negative emotions do three important things in the context of art: 1) capture attention; 2) promote emotional investment; and are 3) highly memorable. In the Salinger passage, for example, would you expect a reader's attention to be as riveted, as invested in the narrator's journey, and memorable if these last three words were omitted, rendering this just a nice paragraph about a kid's baseball mitt? Of course not. But the fact that I know this is a story and not an email changes the way I manage the emotions that arise – it is a story, so I am more able to embrace all the variations of emotion elicited by the journey. Thus, the model proposes there are two processing mechanisms at work for negative emotions in art:

First, psychological *distancing mechanisms* are at work through the activation of *art schemas* basically what promotes the perception of distance is that you *know* you are not in the

situation being depicted by the art; you are fully aware that you are engaging with a work of art and not experiencing real life. The activation of such a schema induces a sense of safety and control that prevents the negative emotions from being incompatible with a sense of enjoyment.

Second, these distancing mechanisms allow for another set of processes to take place that allow for the enjoyment and even embracing of negative emotions, aptly named *embracing mechanisms*. There are five components to embracing processes:

- **The interweaving of positive and negative emotions.** In a composition or narrative, the interleaving of positive with negative alleviates potential boredom compared to just eliciting positive feelings, promoting a more intense experience as well as the psychological capacity to fully embrace the bad with the good.
- **Mixed emotions** are mediators of purely negative emotions. Mixed emotions are described by the authors as the "third player" in the emotional repertoire of the art experience; there are positive and negative emotions on opposite ends, and mixed emotions represent a third category with distinct value. For example, listening to a sad song may elicit not only feelings of sadness but also emotions like nostalgia, which is a mix of feelings of sadness with tenderness, creating a pleasant experience. As Robinson (2005) said, "Works of art and literature typically both describe and cause readers to experience hitherto unexplored blends of emotion for which there are no handy folk psychological labels" (p. 183). Such devices cue art schemas that allow the reader to recognize this is a literary journey and be free to fully embrace the range of emotional response.
- **Aesthetic virtues of the artistic representation itself** – for example, the simplicity of Salinger's words and the expert use of Friedrich's color allows me to embrace more openly the feelings of loss and loneliness depicted. Such mechanism have been empirically tested. For example, Menninghaus (2017a) altered poems with the same content – 20 joyful and 20 sad poems. He found that across both styles, feelings of being moved were more frequently associated with higher degrees of *parallelistic diction*, or recurring patterns in a poem (such as a consistent meter throughout the poem or the repetition of a word throughout the poem).
- **Symbolic meaning construction**. As discussed in Chapter 8, we tend to enjoy engaging in higher-level cognitive processes in an effort to understand the meaning of a work of art that generates enjoyment. The quest to find meaning in Salinger's character Holden Caulfield's suffering makes engagement with the novel enjoyable.
- **Emotion-regulation through script genre expectations.** If you are reading a fairy tale in a children's book, you know there will be a happily ever after, so you are able to fully embrace the ups and downs of the tale, knowing it will all work out okay. As my nine-year old niece said when reading Harry Potter, "I'm not dumb. I know the main characters won't die." She sure knows how to apply genre expectations to manage her emotional response!

In summary, this model suggests that the knowledge that we are experiencing art contributes to a degree of emotional distance. This knowledge allows us to experience the emotional content in a way that offers safety and control. The properties of art draw us into the embracing of difficult emotions, ultimately creating a positive, rewarding experience in spite of the negative content.

NOTE-TAKING PROMPT: How would you summarize the distancing-embracing model? Does this model help characterize the way you process negative emotions portrayed or elicited by art versus real life? Why or why not?

What Properties of Art Cause Aesthetic Emotional Responses?

We have discussed the differences between art representation and elicitation and aesthetic response. But what *about* the art makes us catch feelings? In her book, *How Art Works: A Psychological Exploration*, Ellen Winner (2019) discusses three ways that visual art can depict emotion.

1) **Literally,** such as a statement in a script like "He was sad," a character crying, or a smiley face graphic. For example, refer to the emojis on your cell phone!
2) **Metaphorically,** such as a representation of wilting flowers, a violent storm, or light emerging through the trees of a forest. For example, in Figure 9.1, a massive grey storm envelops a small figure of a monk, depicting smallness in a vast and unpredictable world.

Table 9.1 Takahashi's (1995) association of line with emotions.

Theme	*Structural Characteristics*
Anger	Jagged, pointed forms
	Repetition of lines
	Jagged texture
	Thick lines
Joy	Curving, circular forms
	Repetition of circles
	Rounded texture
	Thin lines
Tranquility	Horizontal lines
	No repetition
	Smooth texture
	Thin lines
Depression	Hatched lines filling the format
	Curving, descending lines
	Thin lines
Human energy	An exploding image
	Rising triangular forms
	Repetition of lines
	Thick lines
Femininity	Curving lines
	Crossed forms
	No apparent repetition
	Smooth texture
	Thin lines
Illness	A form of one type superimposed on a form of another character
	No repetition
	Smooth texture

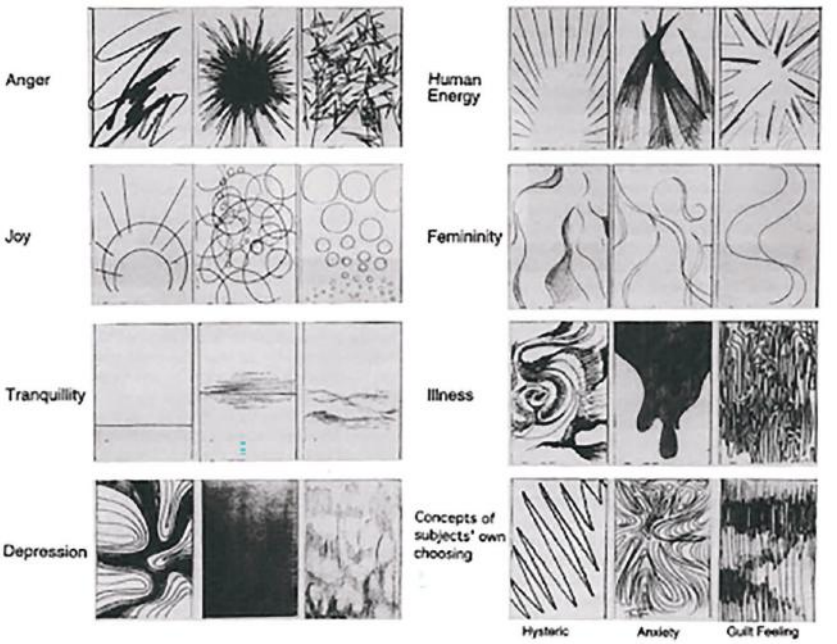

Figure 9.5 Some of Takahashi's (1995) drawings used in the experiment.

3) Through **formal properties** such as color and line, rapid brushstrokes of dark, desaturated colors, and jagged lines at strange angles. For example, in Figure 9.2, the dark desaturated colors with quick brushstrokes perhaps depict a sense of foreboding – of not-quite resigned sadness.

The first two points are easier to describe and therefore aren't as psychologically intriguing as the last point. As Ellen Winner points out in her book, "It is not difficult to explain how we recognize paintings of weeping people as sad, nor how we recognize paintings of barren landscapes as sad. What is more mysterious is how we are able to recognize paintings as expressing emotions by their compositional structure" (p. 62). When I look at a Rothko, as in Figure 9.2, I always get an instant sense of elicited emotion. Why? It is certainly harder to explain this than understanding that a :-) 🙂 indicates happiness or a ☹️ :- (indicates sadness (these represent Winner's first level of literal depictions). How do we sense emotion in color, brushstrokes, and line? In fact, do most people perceive emotions in these formal properties?

The consensus is that we *do* perceive emotions in art (see Silvia, 2011, for a summary of theories and findings). Though it isn't clear whether formal properties consistently convey more complex emotions, there is agreement on which formal properties are associated with more general, simple emotions such as pleasant versus unpleasant, sadness versus happiness, or anger versus calm (Winner, 2019). The more interesting question is, are the same emotions universally perceived or are they encoded culturally? Winner describes research with children as well as cross-cultural research to conclude that there is evidence to support at least some degree of universality to the perception of emotion

HEAVY	is down, thick, dark and near.
GOOD	is homogeneous and bright.
FAST	is thin, bright, and diffuse.
HAPPY	is colorful and bright.
UP	is up and diffuse.
ENER-GETIC	is colorful.
LOOSE	is hazy, rounded and blunt.
STRONG	
EXCITE-MENT	is colorful.
QUIET	is horizontal.
BLUE	
BAD	is heterogeneous, colorless, thick, dark and crooked.
LIGHT (weight)	is thin and bright.
DOWN	is down and crooked.
BLACK	is colorless, dark, thick, and concentrated.
WOMAN	is colorful, thin and bright.
LAZY	is blunt.
TIGHT	is clear and angular
GREEN	is colorful.
NOISY	is crooked.
GREY	
SLOW	is down, horizontal and blunt.
WHITE	is thin and bright.
CALM	is bright.
MAN	is thick.
YELLOW	is colorless, bright and hazy.
WEAK	is thin and bright.
SAD	is colorless.

Figure 9.6 Highly associated concepts across culture (Osgood, 1960).

from formal properties. What are these associations? Next, we consider a few findings of formal properties affecting an emotional response in visual art.

TThere is empirical evidence from studies with children that the properties of line, color, and shape universally influence the perception of simple emotions in art. For example, Callahan (1997) found that children as young as three can recognize emotions depicted in art. What might they be looking at? Another study found children can identify the emotional content expressed through color at three years old and demonstrated they get better at it with age (Pouliou et al., 2018). Other studies have presented evidence that formal properties are universally associated with certain emotions. In a cross- cultural study, a preference for curved lines was observed across three cultures: Ghana, Mexico, and Spain (Gomez-Puerto et al., 2018). Additionally, Takahashi's (1995) work with students from Kyoto found the associations in Table 9.1 and Figure 9.5 with a high agreement.

Finally, Osgood (1960) found cross-cultural support for the perception of emotion in shapes. The study required people to pick which simple drawing is most associated with an adjective like "bad," "yellow," or "calm." There was high agreement among Americans, Japanese, Navajo Americans, and Mexicans. Figure 9.6 represents the highest agreements. So, there is some documented evidence that at least some formal properties of visual are universally interpreted as depicting certain emotions.

NOTE-TAKING PROMPT: Doodle some emotions such as angry, sad, happy. What is it about these forms that expresses your emotions? Are these consistent with the previous findings?

What Is the Relationship Between Emotions and Cognitive Mastery of Art?

Imagine that I just directly *tell* you that nature is vast and powerful and that man is small in the face of it, but there is a sublime, spiritual power buoying us through and connecting us to that vastness. In contrast, imagine contemplating this idea as you are viewing Caspar David Fredrich's *Monk by the Sea* in Figure 9.1. Likewise, I can tell you that *The Catcher in the Rye* is about using inaction and isolation to protect oneself against the conformity and inauthenticity demanded by the adult world of 1950s America, but this is not the same as experiencing this through Holden Caulfield's eyes.

Philosophers and social scientists such as Martha Nussbaum (2003) have observed that we can learn from art through having our emotions aroused. She claims that what is psychologically important about a novel is our emotional involvement with it. Though emotions are not always necessary in understanding every work of art, emotions are often important signals on our way to cognitive mastery. Experiencing our emotional response as we feel for a solitary monk beside the immense ocean or accompanying a lonely kid through a lonely New York City – these are, in Jenefer Robinson's words, "a sentimental education" (2005, title of Chapter 6).

Referring back to the Leder and Nadal (2014) model, one of the great sources of enjoyment from art is the experience of mastery. In fact, Nussbaum (2003) has claimed that the idea that emotions are separate from cognition is a false dichotomy – emotions should be viewed simply as a part of the functioning, reasoning human being. Perhaps this is a clue as to why art is so satisfying? The interweaving of emotion and cognition to the point that the lines are blurred: emotion informing a thought followed by a thought

inspiring a new emotion and so on – all inspiring us toward a new state of cognitive mastery and appreciation of human experience.

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10 Social Psychology and Art

What You Will Learn

Can art make one more open to change? In this lesson, we will investigate elements of social psychology and culture. We will then learn about techniques of persuasion and propaganda and discuss why art can be so persuasive. We will also examine the role of art, especially literature, in promoting empathy and prosocial behaviors. Finally, we will discuss the representation of minority groups in art and media and the effects that differing levels of representation has for individuals.

Chapter Outline

What Is Social Psychology?
What Is Social Consciousness?
What Is Culture?
Does Art Reflect or Create Culture?
What Are Some Relevant Psychological Elements of Social Influence and Persuasion?
What Is the Difference Between Art and Propaganda?
Can Art Make You More Empathetic?
Can Art Promote Prosocial Behaviors?
What Are Some Possible Mechanisms for Art and Social Change?
Is Everything We Know About Art Weird?
Does Representation Matter?
How Can We Help?

Terms to Identify as You Read

Altruistic Motivation
Bandwagon
Central Route of Persuasion
Cognitive Empathy
Compassionate Empathy
Cultural Dissonance
Culture
Discrimination
Egotistic Motivation
Einfühlung
Elaboration Likelihood Model (ELM)
Emotional Empathy

DOI: 10.4324/9781003014362-10

Terms to Identify as You Read

Glittering Generalities
Modeling
Name Calling
Norms
Peripheral Route of Persuasion
Persuasion
Plain Folks
Prejudice
Propaganda
Prosocial Behaviors
Racism
Social Consciousness
Social Dissonance
Social Learning Theory
Social Psychology
Social-Cognitive Abilities
Stereotypes
Taboos
Testimonials
Theory of Mind (ToM)
Transfer

What Is Social Psychology?

Recall from Chapter 1 that *social psychology* is the scientific study of how people think about, influence, and relate to one another. In essence, it is the study of how other people shape the way we think, feel, and behave. Some topics under the rubric of social psychology include the effects of prejudice and stereotypes, effective psychological tools of persuasion, and prosocial behaviors like altruism. The study of art has an important place within social psychology. Primarily, of course, art is widely considered an artifact of culture; the art object reflects the time, place, zeitgeist, and challenges of its sociological birthplace. Conversely, art also has a unique ability to influence how people think about and relate to one another. A core question for psychologists, sociologists, and anthropologists in this area is this: Does art reflect or create culture?

What Is Social Consciousness?

Social consciousness is the degree that we are aware that we are a part of a larger group. Often this awareness is triggered by *social dissonance* – a disparity between personal needs and the needs of the group (Sanders et al., 2021). As with other layers of engagement with the arts, dissonance plays a role in whether art maintains current cultural standards or invites change.

What Is Culture?

Many would agree with the observation that art is a significant part of culture, but what exactly does culture mean? *Culture* refers to the enduring behaviors, ideas, attitudes, and traditions shared by a large group of people and transmitted from one generation to the next. Some aspects of culture include norms and taboos.

Norms are rules for accepted and expected behavior – they are usually the culprit at work when someone says "That is just how it is done!" In other words, norms implicitly or explicitly prescribe accepted behavior. For example, where I live, we usually eat using silverware instead of chopsticks or fingers. Also, we say "Hello" when we pick up the phone instead of "This is Shannon" or "This is Buddy the Elf, what's your favorite color?" Of course, there are certainly a host of more socially relevant cultural norms; for example, just a few hundred years ago, it was normal for white men to own black men and women as slaves in America. Clearly, and thankfully, cultural norms are subject to change over time. An interesting question is how art might shape evolving cultural norms? For example, did stories like *The Adventures of Huck Finn* by Mark Twain have an effect on social consciousness?

Taboos are restrictions or prohibitions on behavior imposed by a culture – for example, the incest taboo (it is prohibited to have sexual relations with immediate family members) or the taboo in many cultures against interracial marriages. Of course, taboos, like norms, change over time. Interracial marriages are thankfully not as taboo in my country as they were a century ago. Again, an interesting question is whether that shift was influenced by cultural artifacts, perhaps by TV programs like *The Jeffersons*, a television program in the United States from 1975–85 featuring a successful African American couple along with their neighbors, an interracial couple. Or did programs like the Jefferson's merely reflect the pre-existing cultural shifts in marital norms and taboos?

NOTE-TAKING PROMPT: What is the difference between norms and taboos? Can you think of cultural artifacts that have contributed or reflected cultural shifts in your society?

Does Art Reflect or Create Culture?

Consider Chris Ofili's *Holy Virgin Mary* described as "a carefully rendered black Madonna decorated with a resin-covered lump of elephant dung. The figure is also surrounded by small, collaged images of female genitalia from pornographic magazines" (Sensation, 2010, para. 8). Clearly, Ofili's portrayal of Mary wasn't your typical religious icon. Ofili violated several taboos – displaying feces for one. In fact, using feces to represent a holy woman associated with purity, not to mention associating religious iconography with genitalia, specifically genitalia from pornographic magazines. That is some pretty epic levels of taboo violation! Thus, it is not surprising that the piece was a center of controversy when it was displayed in Brooklyn in 1999.

Certainly, Ofili pushed the bounds of cultural expectations, specifically for the United States at the turn of the millennium. But how were those expectations shaped? Further, in the past two decades since the original exhibition, how have our current expectations been altered and informed by works like the *Holy Virgin Mary*? Ofili is not the first artist to break taboos or even the first to break those expectations within the same subject matter of religion and sexuality. Many works we now consider classics, including representations of our most sacred cultural virtues, like *The Virgin and Child* by Botticelli, were sometimes the center of scandal or at least discomfort and indignation. As Duggan (2012) stated, "(During the Renaissance) when the Virgin Mary began to look too much like the prettiest girl in town, the boundaries of religious art were strained, if not erased"

(Duggan, *Big Think*, para. 3). It may be difficult to think that canonical works of art representing the current mainstream of religious iconography could, at one point, have been scandalous – but perhaps this just demonstrates how enmeshed our thinking is with the dictates of the culture that surrounds us.

Certainly, cultural context influences what is generally considered normal, beautiful, controversial, and repulsive in art. In contrast, art sometimes has the power to shape cultural context, but the relationship is complex. Consider that Ofili had a showing in New York in 2014; this was 15 years after the initial controversy and opened to excellent reviews (Sooke, 2014). Of course, there are many reasons for the change in reception, but it is intriguing to think, as the new museum curator Massimiliano Gioni states, "In art, any transgression eventually gets absorbed and digested, and that's not necessarily a form of surrender that is it's just what artists do: broaden the definition of what's possible and what is accepted. Throughout the history of the 20th Century, art that was shocking at one point becomes normal after a while" (Sooke, 2014, para. 12).

We previously discussed cognitive dissonance in chapter 8 and social dissonance. Now, we shift the discussion to *cultural dissonance*, or the sense of discomfort people experience when there are inconsistencies in cultural expectations. This often occurs when one belongs in some way to one or more cultures or when overall cultural perceptions are shifting – for example, when formerly accepted taboos and norms are changing and therefore behavioral expectations not as certain as they may have been perceived before. Art, with its heightened ability to evoke aesthetic emotions and shifts in schemas, can be a catalyst for this cultural dissonance. What do we do when we are presented with a Virgin Mary in dung? Like with cognitive dissonance, there are three possible responses (adapted from Solso, 1994, pp. 122–5).

1. **Reject**: Dismiss the art object entirely: "This is horrible/grotesque/disgusting – it should be banned or destroyed." For example, the mayor of New York City at the time of Ofili's first exhibition threatened to withdraw funding and close the Brooklyn Museum of Art in response to such an "offensive" work being displayed.
2. **Revise**: Attempt to mentally change the parts that make you uncomfortable. "This would be better if it fits my cultural expectations" or "I wish Ofaili would create a Virgin Mary using paint instead of dung."
3. **Reflect**: Think about the dissonant elements, ask questions, and research potential perspectives. For example, you might think about an association with religious purity and elephant dung could mean and perhaps look up information about the differing cultural norms between African and European art.

NOTE-TAKING PROMPT: What is cultural dissonance? Compare cultural to social and cognitive dissonance. Give an example of how you have reacted to cultural dissonance yourself.

What Are Some Relevant Psychological Elements of Social Influence and Persuasion?

To examine the role of art in elevating social consciousness, the psychological elements of persuasion should first be examined. *Persuasion* is the process by which a

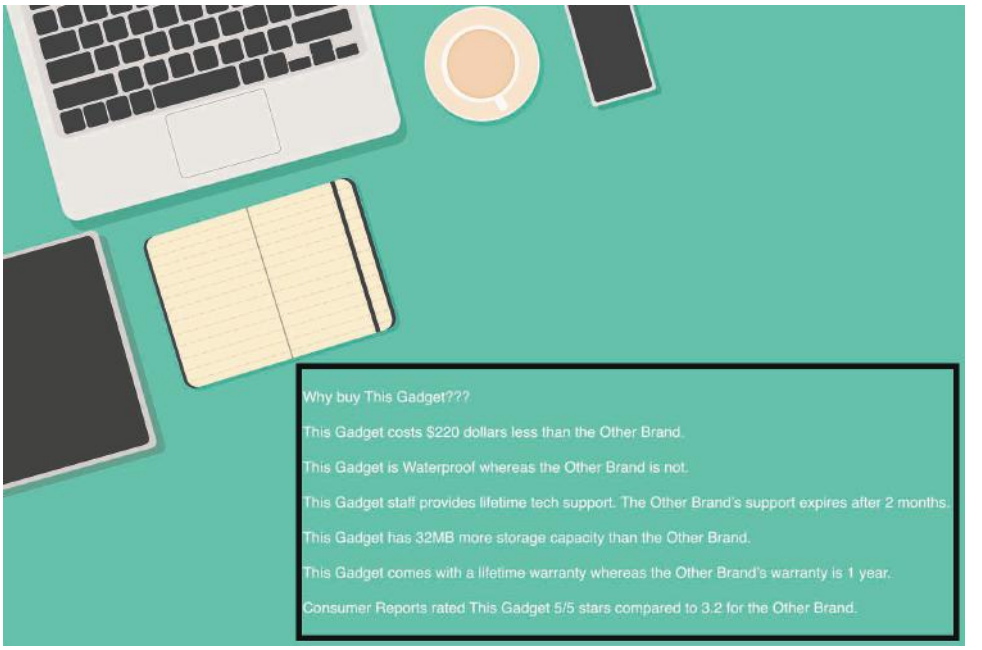

Figure 10.1 Advertisement demonstrating use of the central route of persuasion.

person's attitudes or behavior are, without duress, influenced by communications from other people. There are two widely acknowledged paths to persuasion: the central route and the peripheral route (Petty & Cacioppo, 1986a, 1986b). The *central route* is engaged when people are encouraged to think deeply about an issue by focusing on the strength of the arguments. In contrast, the *peripheral route* focuses on acceptance of the message without much rational thought. These two routes constitute the *Elaboration Likelihood Model* (ELM, Petty & Cacioppo, 1986a). This model posits variables in the context of a message that increase or decrease likelihood of elaborating on (thinking about) the message conveyed. The central route is employed when the likelihood of elaboration is high, whereas the peripheral route grabs attention when the likelihood of elaboration is low.

For example, say you want to buy a Gadget and refer to Figures 10.1 and 10.2. The first advertisement is an example of using the central route to persuasion. The central route is obviously much more labor-intensive; you have to think through arguments and weigh supporting evidence and that takes time. However, once you do, your acceptance of the message tends to be longer lasting. The second ad uses the peripheral route – it grabs attention and plays on notions of celebrity and authority. The peripheral route often leads to a quick emotional response and message acceptance, but that acceptance is typically short-lived.

The magic of art in persuasion lies in its capacity of engaging both routes, but we have to be open to the effort involved in elaboration. Art has the capacity to captivate our emotions as well as make us see another perspective and think more deeply. For example, *The Holy Virgin Mary* engages attention, but to grow from the experience that Ofili

Figure 10.2 Advertisement demonstrating use of the peripheral route of persuasion.

offers requires thinking that extends beyond the boundaries of current cultural norms and ideas.

NOTE-TAKING PROMPT: Distinguish the central route of persuasion from the peripheral route in Petty and Cacioppo's Elaboration Likelihood Model.

What Is the Difference Between Art and Propaganda?

If art excels at persuasion, couldn't that be a bad thing as well as a good thing? One of the most interesting intersections between the arts and psychology has been in the areas of persuasion and propaganda. *Propaganda* is a specific type of persuasive message presentation aimed at serving an agenda "to propagate" (actively spread) a specific point of view or an idea. Whereas art is associated with openness of interpretation where reflection is the impetus for change, propaganda is associated with narrowness – the message is intended to promote a *specific* attitude or behavior. Moreover, the mechanisms of propaganda are emotionally manipulative (see following).

Distinguishing propaganda from other forms of communication isn't always simple. We all know Figure 10.3 as a clear example of propaganda: But what about Jackson Pollock's *Autumn Rhythm*?

Although the distinction between propaganda and other forms of communication, including art, seem intuitive to many, in practice, the distinction is not always clear. In fact, after a publication in 1973 by art critic Max Kozloff revealed that the CIA had been using work by abstract impressionists like Jackson Pollock, the question became, *is* all art propaganda? (BBC, Sooke, 2016; Clark, 1997; Liese, 2003). The idea of that article was that abstract expressionism and other forms of modern art that were finally "free from its traditional patron groups of monarchy, aristocracy and government" (Clark, 1997, p. 8) was now being co-opted to promote American values abroad. Thus, the question of whether art could be free from propaganda at all emerged. If it can't, is there a possibility of "good" propaganda or "anti-propaganda" propaganda? (Clark, 1997). In short, questions about the role of art and artists on social consciousness were now being seriously questioned in the art world.

Some well-known propaganda techniques manipulate emotions make the receiver feel alone or stupid to encourage uncritical acceptance of the message. Here are just a few such techniques:

Bandwagon: Persuasion based on the assumption that the opinion of the majority is always valid – that is, everyone believes it, so you should too; *everyone* is doing it, so should you!

Testimonials: Invoking the support of well-known public figures to persuade. Lady Gaga is doing it, so should you!

Glittering generalities: Use of vague and empty but attractive and/or comforting language to associate with a product or idea. Be free and fancy and full of fun with (insert product here)!

Transfer: Persuading by transferring good feelings about one thing onto a product or idea. This is why attractive models stand next to advertisements of cars.

Figure 10.3 A WWII propaganda poster.

Plain folks: The persuader "is just like you" so he/she can empathize with your situation, and you should vote/buy/think/support the object of their persuasion. Hey, I'm just like you, so I know you should do this!

Name-calling: Attempt at persuasion by insulting the person instead of rational argument. If you don't buy this, you are a communist!

Art has the capacity to engage with emotions, imagery, and narrative in ways expository prose does not. Attention is more easily captured and sustained. The effect may make us more vulnerable to messages than we may be otherwise. Art in the context of propaganda encourages you to stop thinking and adopt the behaviors and attitudes intended by the

Figure 10.4 Autumn Rhythm (Number 30), 1950, by Jackson Pollock, The Met Fifth Avenue Museum
Source: © 2021 The Pollock-Krasner Foundation/Artists Rights Society (ARS), New York.

creator – i.e., the purpose of propaganda, unlike other forms of art and communication, is to guide attitudes and behavior toward specific goals.

NOTE-TAKING PROMPT: What are some qualities of propaganda? Do you agree with the assertion that the purpose of propaganda is to inhibit independent thought and make it easy to adopt specific attitudes and behaviors? What kinds of exposure to such media is in your world: Ads or social media memes, perhaps? What elements of art make them more persuasive?

Can Art Make You More Empathetic?

> "Do you know what it means to be empathetic?
> It means that when you are being forcibly taken to a dungeon, when you have a large knife pointed at your back, when you are trying to be brave, you are able, still, to think for a moment of the person who is holding that knife.
> You are able to think: "Oh, poor Mig, she wants to be a princess so badly and she thinks that this is the way. Poor, poor Mig. What must it be like to want something that desperately?"
> (Kate DiCamillo, 2003, *The Tale of Despereaux*)

Elements of art can influence prosocial behaviors as well. *Prosocial behaviors* are any behaviors performed for the benefit of others and can be *egotistic* in motivation, with the primary goal of benefiting oneself, or *altruistic* in motivation, with the primary goal of benefiting others (Dovidio & Banfield, 2015). Empathy is an emotional; response that "stems from another's emotional state or condition, is congruent with

the other's emotional state or condition, and involves at least a minimal degree of differentiation between the self and the other" (Eisenberg & Fabes, 1990, p. 132 as cited in Dovidio & Banfield, 2015). In the previous excerpt, the protagonist feels what it is like to be her captor – to want something so badly they are compelled to perform a desperate act. Interestingly, the connection between art and empathy is as old as the word itself; the word empathy derives from German word *Einfühlung*, a term in aesthetics meaning to "feel into" art.

Empathy is part of a larger set of abilities related to navigating the social world called *social cognitive abilities*, or "one's ability to perceive, interpret and respond to social information" (Dodell-Feder, 2018, p. 1713). Other examples of social cognitive abilities are the ability to read facial expressions and theory of mind. *Theory of mind (ToM)* is the understanding of another individual's mental state and is closely related to empathy (Premack & Woodruff, 1978). Of course, empathy is multifaceted, and there are at least three types of empathy (Winner, 2019):

> **Cognitive empathy**: Involves imagining what someone else is going through; an understanding of what they are feeling but without feeling it yourself.
>
> **Emotional empathy**: Goes beyond understanding to an affective experience within oneself a sense that "I feel this with you."
>
> **Compassionate empathy**: This form of empathy involves action – one is moved to want to help.

Most of the research on empathy in the arts has focused on cognitive empathy, most likely because it is the simplest to quantify. There are many tests of cognitive empathy, but one of the most well-known is the Reading-the-Mind-in-the-Eyes test (RMET; Baron-Cohen et al., 2001). For this test, photos of people who are experiencing emotion are shown to participants but only the eyes are shown, as in Figure 10.5. The participant is presented with four adjectives and has to indicate which emotion the person in the photo is experiencing.

What does this have to do with art increasing prosocial behaviors? Well, art, especially literary fiction, has been shown to increase levels of empathy, a predictor of prosocial behaviors. Why? Hakemulder (2000) suggests that literature serves as a kind of moral laboratory – i.e., in literature, we can experiment with other perspectives in a safe environment. Likewise, Oatley (2016) views literature as a social-simulation device that provides us with a way of considering other perspectives without risk to ourselves.

I think this hypothesis feels intuitive to most readers. I am an avid reader of fiction and feel as though I have experienced the world through hundreds of minds. Through the books I've read, I have been a lonely teenage boy in the 1950s grappling with the "phoniness" of the world, grown up in a magic-soaked India as a changeling child born on the very night of independence from Britain, been a governess in a creepy mansion full of dark secrets in the attic, and so on. I've *felt with* these fictional minds – their fears and desires; I've understood their motivations, and I've fallen prey to their faulty reasoning and tagged along with their misguided behaviors. Through stories, we can practice our empathy skills in our own beds versus out in the world, like pilots practice flight using simulators on the ground. As we enter other minds, we can take a stab at seeing the world through another person's perspective, then come back safe in our beds with a cup of tea.

Figure 10.5 Example of Reading the Mind in the Eyes Test (RMET). Answers (moving down) are "playful," "upset," and "desire"

Source: Retrieved from https://www.romankrznaric.com/outrospection/2010/01/30/359.

Many studies have connected empathy with reading. For example, avid readers tend to do better on the Mind-Eyes test (Mar et al., 2006, 2009; Panero et al., 2016). Avid readers in these studies were defined as those scoring high on the Author Recognition Test, a simple test of exposure to books by listing several authors among several nonauthors and having the participant pick out only the genuine authors (ART, Stanovich et al., 1995). To explore the connection between fiction and empathy, Mar et al. (2006, 2009) used the ART and the RMET to find that more familiarity with fiction was positively correlated with higher scores on the RMET whereas nonfiction readers scored significantly lower on this test. Is there something about fiction that promotes empathy? Even though the results were still significant after controlling for personality traits and social abilities, it is still hard to draw a firm conclusion from a correlational study.

However, there is also some experimental evidence. In a well-known series of experiments, Kidd and Castano (2013) randomly assigned participants to read short literary stories, short popular stories, nonfiction essays, or nothing. Across five experiments, they found that those assigned to read literary texts scored higher on the measures of theory of mind, including the RMET. The results are considered tenuous, however, because there have been some failures at replicating the results. For example, Panero et al. (2016) failed to replicate these findings, though they did find that those who routinely read fiction gauged by the ART scored higher on the RMET, replicating the Mar et al. (2006, 2009) studies. Kidd and Castano (2019) also did their own replication, finding only mixed support across 3 experiments. So, can a causal conclusion be drawn?

To address this question, Dodell-Feder and Tamir (2018) conducted a meta-analysis of 14 experimental studies, like the Kidd and Castano (2013) study and Panero et al. study (2016). This analysis included only comparisons of literary fiction to nonfiction (not popular fiction), and there were a wide range of measures for social cognition included beyond the RMET. The authors also included non-published studies in the analysis. The finding was that, taken together, there is experimental evidence that reading fiction improves performance on tasks of social cognitive ability when compared to reading nonfiction. Though the effect size was small (g = .15–.16), the authors (and I) argue that it is meaningful – certainly meaningful enough to warrant critical attention to the mechanisms at play and how those may be implemented to facilitate greater social consciousness.

What about the distinction between literary texts and popular ones? Again, the results are mixed, with Kidd and Castano (2013) showing a clear advantage for literary texts. However, others have shown increased social cognitive skills in response to popular stories. One such finding is the "The Harry Potter effect": data showing increased social consciousness for those familiar with J.K. Rowling's Harry Potter book series. In one study, Vezzali et al. (2015) found that attitudes toward stigmatized groups such as refugees and homosexuals were more compassionate for readers of the series who identified with Harry Potter, the protagonist of the series. Throughout his adventures, Harry and his friends are confronted with stigmatized groups (such as characters who don't come from wizarding families) and exploited groups (such as house elves relegated to be slaves to prominent wizarding families).

The authors found positive prosocial attitudes when engaging with these themes through the books, across three studies: one experimental design with children either talking about stories of prejudice (for example, the time the Hogwarts bully picked on a a main character for coming from a non-magical family calling her the derogatory term

"mudblood") versus about non-socially relevant excerpts from the books (Harry's experience with buying a wand for the rst time). One important aspect of this experiment is that it included a relevant discussion: children did not just passively read these passages. The findings indicated that children who identified with Harry had more accepting attitudes toward immigrants. The other two studies were correlational, using high school and college students, finding that those who read Harry Potter and identified with his character had more accepting attitudes toward homosexuals whereas college students who identified less with the evil character had more prosocial attitudes toward refugees. Importantly, this study shows that the perceptive taken by the reader may influence the development and direction of empathy.

NOTE-TAKING PROMPT: Summarize the empirical support between literature and empathy. Are you convinced of a causal connection? Why or why not?

Can Art Promote Prosocial Behaviors?

The previous study addressed attitudes, but is behavior influenced as well? Studies by Dan Johnson (Johnson, 2012; Johnson et al., 2014) have provided some evidence that it may be. Johnson (2012) found that those who were mentally transported – that is, more absorbed by a story – showed increased empathy for the protagonist and increased altruistic behavior; specifically, they were more likely to help a stranger whose pens fell on the floor. Johnson et al. (2013, 2014) also addressed some real-world applications, finding that transportation into literary narratives decreased prejudice against Arab Muslims.

Increased prosocial behaviors have been documented across many forms of art. Kou et al. (2020) conducted an analysis of four American national databases that included data on prosocial traits (such as perspective taking), behaviors (such as volunteering, donating, and informal helping), and art consumption (viewing, reading, watching), and art creation (making art like painting or playing music). They found that both creation and consumption of art were positively associated with prosocial traits and behaviors; however, for behaviors, larger correlations were generally found with consumption of art. This held true across artistic media: "All types of arts creations and consumption, regardless of genres, had significant correlations with all three forms of prosocial behaviors – donating, volunteering, and informal helping with only a few exceptions" (p. 486).

What Are Some Possible Mechanisms for Art and Social Change?

If art is connected to social change, we might ask how art is more persuasive than other communication modalities. Djikic and Oatley (2014) propose that there are three components to art that produce changes in individuals toward empathy: 1) simulation; 2) personality fluctuations; and 3) indirect communication.

The first feature is *simulation*, as discussed previously, literature offers a simulation of the social world from the point of view of other people in other circumstances. This enables the reader to gain expertise in ToM like a pilot does in a simulation of flying. In the second feature, art and literature prompts *fluctuations in personality*, specifically stylistic devices prompt disturbances in our "usually fixed schemas of personality." As the authors' state,

"Literature temporarily unfreezes the personality system" (p. 501). For example, Djikic et al. (2009) modified literary stories to create the following two conditions:

> **Original**: A short story by Chekov called "The Lady with the Little Dog" (1899)
> **Control**: Court case description based on details of original (which participants rated just as interesting so that interest wasn't the factor motivating the difference between conditions)

The dependent variables included the Five-Factor inventory (version by John et al., 1991) and ratings of emotional intensity from 1 to 10 before and after reading.

It was found that participants in literary condition had significantly more changes in personality but not in the same ways across individuals. For example, participant 1 may have increased in openness to experience and decreased in conscientiousness, whereas participant 2 may have decreased in agreeableness. In other words, after reading literature, participants tended to evaluate their personality on the FFI questionnaire differently than they did before reading compared to those who read the same content in a courtroom context – but they each person felt altered by this piece of literature in different ways.

Finally, art and literature use *indirect communication* to create change. Unlike exposition meant to persuade (from science to propaganda) or popular media like television sitcoms, literature is characterized by presenting text in a way that invites inferences rather than spelling everything out. For example, Kotovych et al. (2011) modified Alice Munroe's short story "The Office":

> **Original:** "But here comes a disclosure which is not easy for me. I am a writer. That does not sound right. Too presumptuous, phony or at least unconvincing."
> **Control**: "I am embarrassed telling people that I am a writer."

The authors reported that readers in original condition both understood the situation better and felt a closer connection to the narrator. It seems the less direct, more stylistic way of presenting this information had an effect.

Generally speaking, periods of instability precede change – for example, in cases of trauma that lead to growth. Djikic et al. (2012) suggest that art is an elective way to produce variability in personality traits. This was hypothesized to work differently for different people. For example, if a reader is already in an unsettled place in life, introducing more instability through art may cause a hardening of attitudes and clinging to beliefs about yourself. To investigate this, the authors exposed participants to two conditions of Giotto's (1267–1337) cycle of seven vices – a series of paintings that collectively tell a narrative about the dangers of vices such as envy, infidelity, and wrath. One condition received the original works, and the other viewed distorted versions of each piece by dividing them into four quadrants that exchanged places within the painting. Before and after viewing, all participants took a version of the FFI and answered questions about their emotional stability by indicating the intensity of ten emotions they were feeling, including unsettledness (0 to 10 in intensity). Then, participants were divided into three groups: participants into high unsettled, medium unsettled, or low unsettled (serene). It was found that serene individuals saw themselves differently (in idiosyncratic ways) in response to the modified paintings. In contrast, unsettled individuals became more stable in how they reported their personality at the posttest. Thus, individual differences at the outset strongly influenced how art affected the way a person saw themselves.

NOTE-TAKING PROMPT: How do Djikic and Oatley (2014) propose that simulation, personality fluctuations, and indirect communication contribute to the elevation of empathy in an individual?

Is Everything We Know About Art Weird?

One slogan that has emerged recently is the "representation matters" referring to the large discrepancy between how – and how often – minority groups are represented in the media. Are there really differences in the representation of social groups across media? And, as the slogan suggests, do these differences matter?

In response to the first question, yes, there are documented differences in representation, for example in museums. A study by Chad Topaz and his colleagues (2019) found that across 18 highly regarded museums in the United States (including, for example, the Museum of Modern Art and the National Gallery of Art), 85% of the artists represented in these collections were white and 87% were male. Even when museums had diversity goals explicitly stated in their collection mission, the actual representation of diversity was frequently still lacking. Efforts to alleviate these discrepancies have been sustained since at least the 1980s, when the Guerilla Girls started a campaign to improve representation (See Figures 10.6 and 10.7). However, clearly not enough has changed at the institutional level.

Improvements in representation can be seen in media; for example, Tukachinsky et al. (2015) found increased representation for minorities, particularly African American minorities, in roles perceived as likable and morally responsible. However, though this analysis demonstrated that representation for African Americans improved, there were still substantial issues for other minorities. In particular, Asian and Native Americans were represented so infrequently, they often couldn't even be analyzed in any statistically substantial way. Also, Latinx, the largest minority group in America at around 16% of the population, were only represented in 3.3% of primetime television characters. Worse, almost 25% of Latinx characters were depicted as overtly sexual, a significant difference from other minority groups.

Figure 10.6 Guerrilla Girls, 1989. Tate www.tate.org.uk/art/art-terms/f/feminist-art.

Source: Copyright © Guerrilla Girls, courtesy guerrillagirls.com

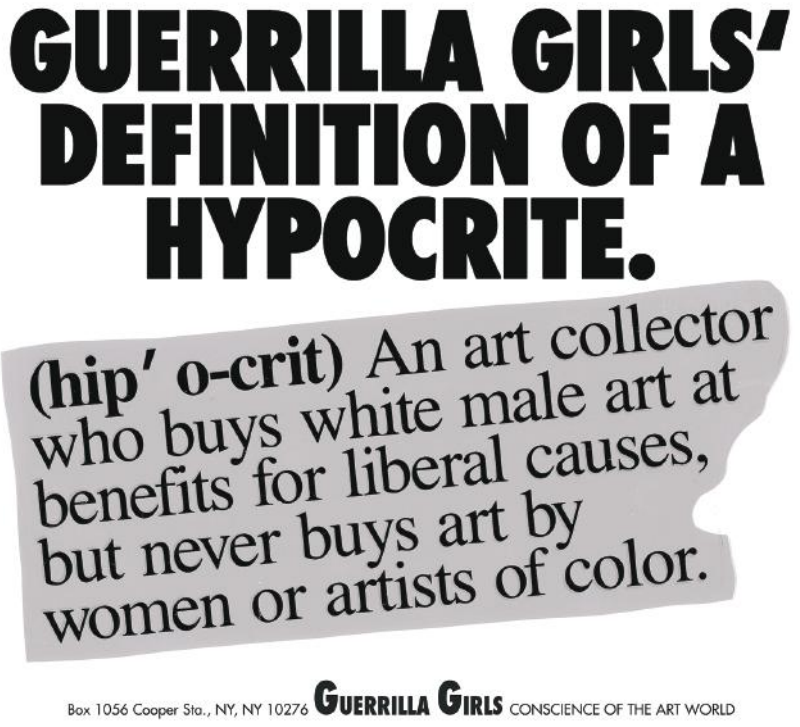

Figure 10.7 Guerrilla Girls, Do Women Have to Be Naked to Get Into The Met. Museum? 1989.
Source: Copyright © Guerrilla Girls, courtesy guerrillagirls.com.

For films, though representation is improving, there are still issues of representation concerning writers and executives according to the UCLA report (2020): This report found that men had 44.1% of lead acting roles and 40.2% of the total cast in the 145 films released in 2019 examined in the report; people of color made up 27.6% of lead actors, and 32.7% of all film roles in 2019. By comparison, women make up about 50% of the US population and minorities slightly more than 40%, and this is a significant improvement over past reports. However, behind the scenes is another matter. Minority writers were severely underrepresented; women held just 17.4% of writing jobs, and only 13.9% of writers were people of color. Furthermore, studios' unit heads were 86% white and 69% male.

Surely science, with such emphasis placed on representative samples, is better. Not so, according to an article in the APA monitor – samples in social science tend to be WEIRD, an acronym standing for "Western, educated, industrialized, rich, and democratic" societies. WEIRD societies represent "as much as 80 percent of study participants, but only 12 percent of the world's population – are not only unrepresentative of humans as a species, but on many measures they're outliers" (Azar, 2010, p. 1). These samples have led to oversimplified scientific conclusions in the fields of perception and cognition – and likely many more areas of knowledge.

Does Representation Matter?

There seems to be demonstrable differences in representation – but do these differences have an effect on cultural behaviors and attitudes? Are the under-/misrepresented groups affected by how they are represented? Again, yes, a lack of representation and overrepresentation of negative stereotypes does have an effect on cultural attitudes toward individuals as well as the physical and mental well-being of the groups depicted. To understand this phenomenon, first, we must distinguish between attitude and behavior. The following definitions are summarized from apa.org:

> **Prejudice**: A biased attitude toward another person or group formed without direct experience.
>
> **Stereotypes**: Generalizations formed of particular people on the basis of group members – are usually negative and resistant to change.
>
> **Discrimination**: Treating people differently on the basis of group identification – on the basis of prejudiced attitude and stereotyped cognitions.
>
> **Racism:** Draws on prejudice and stereotypes to form a doctrine of the superiority of one or more races and the converse inferiority of others. This doctrine can intensify the justification of discrimination as well as prejudicial and negative stereotypes.

Catastrophically, the effect of underrepresentation and the overabundance of negative and stereotypical representation in media is to perpetuate these stereotypes, increasing health problems within the affected groups. So, yes, representation does matter. We have had an understanding of this since Albert Bandura (1963) introduced *social learning theory* and his famous bobo doll experiment (Bandura et al., 1961). Bandura theorized that *modeling*, the imitation of the behaviors of other individuals, was a significant influence on learning social behaviors. He and his team of researchers demonstrated that when children are exposed to adults kicking and punching an inflated toy (a bobo doll), they are more likely to imitate this behavior themselves. Thus, the social learning theory posits that every individual in a society doesn't need to be rewarded for specific social behaviors; if a child sees another child get a toy for sitting quietly at her desk, other children will model this behavior, learning it as the appropriate behavior in the context of a classroom. Likewise, if they see a doll being hit, they will imitate this too.

Does this apply to prejudice and racism? According to Hjerm et al. (2018), it does. In a study of prejudicial attitudes in adolescents' social networks (including parents and friends), the authors found a significant influence of exposure to these attitudes within networks. The authors conclude,

> We find that adolescents in low-prejudice networks become less prejudiced over time while adolescents in high prejudice networks become more prejudiced over time. This suggests that exposure to qualitatively different attitudes has the potential to change minds, at least during adolescence.
>
> (p. 9)

In other words, children in a community that models bias and perpetuates stereotypes will internalize those same attitudes.

Roberts and Rizzo (2021) report that the media is one element keeping racism alive in the United States. They report that African Americans are more often depicted as criminals and less as victims on television. Further, Tukachinsky et al. (2015) found that television viewers who see African Americans depicted as such are more likely to recommend harsher sentencing against African Americans. These researchers studied the content of 345 television programs from 1989 to 2009. These cultural attitudes present problems at the personal level, specifically experiencing racism is associated with detriments to both mental and physical health (Krieger, 2003; Nairn et al., 2006; McKenzie, 2003).

The good news is that when minority groups are represented by moral, complex, professional, and essentially un-stereotyped characters, the public perception of that minority group does improve (Tukachinsky et al., 2015). This has the potential to disrupt the cycle of prejudice and discrimination that leads to illness. So, certainly it seems that representation does matter.

NOTE-TAKING PROMPT: How are minority groups represented differently in quantity and quality across different forms of media and art? Why is this problematic?

How Can We Help?

I certainly am very sensitive to the fact that the samples of the studies I have cited in this book are mostly WEIRD and that nearly all of my knowledge of art comes from the Western canon. I am humbled by the fact that I am not knowledgeable enough to "fix" this situation, other than to point out that the situation exists and is detrimental to the general scientific conclusions that can be drawn, moreover, it is detrimental to the society of humanity I hope to elevate through my writing, research, and teaching. I hope that students representing the vast complexity of human experience are motivated here to contribute to this science and to this art – or at least to share your story:

> Stories are light. Light is precious in a world so dark. Begin at the beginning. Tell Gregory a story. Make some light.
>
> (Kate DiCamillo, 2003, *The Tale of Despereaux*)

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